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**First Language Attrition in a Second Language  
Learning Environment: The Case of Korean-  
English Late Bilinguals**

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and Learning, Department of Applied Language Studies and Linguistics,  
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## **Abstract**

This thesis explores L1 attrition among young Korean-English late bilinguals. Thirty Korean immigrants to New Zealand, who had arrived at the age of 12-13 years and had spent at least 2 years in New Zealand, participated in the study. Ten monolingual Korean children aged 12 years served as a comparison group for L1 data. Linguistic data in both L1 and L2 were elicited by a standardised picture-naming test and a story-retelling task supplemented by a stimulated recall protocol. Information related to social variables and language use patterns was elicited through a questionnaire and interviews.

Skehan (1996; 1998; 2001) proposes three dimensions of linguistic performance—accuracy, fluency, and complexity. The general findings suggest that accuracy and lexical diversity in L1 are most susceptible to attrition and that there is general positive transfer from L1 to L2 skills. While there is no direct negative interaction between L1 and L2 proficiency, analysis reveals that increasing L2 fluency and a decrease in L1 use have possible indirect effects on attrition in L1 accuracy but not in L1 lexical diversity. The data suggest that, while the frequency of return visits to the homeland is an important social variable, language use involving the father and siblings is also an important factor in attrition or maintenance of L1 proficiency of adolescent late bilinguals.

Qualitative analysis conducted on five cases corroborates the quantitative findings. Analyses of speech samples reveal that synthetic structures with semantic ambiguity are most susceptible to L1 attrition. The qualitative analysis also highlights the role of L2 socialisation in L1 attrition in adolescent immigrant children who negotiate their language use and identities in an L2-dominant environment and show different patterns of attrition in their L1.

## *Dedication*

*To the memory of my father who has always been in my heart  
throughout this long journey although he could not see this  
achievement in his life.*

*And to my mother, for her overwhelming support and  
immense love for her daughters.*

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## List of Abbreviations

AC	Accusative case
ACC	Accuracy
ADV	Adverbial suffix/adverbialiser
ASSR	Assertive suffix
CAUS	Causative suffix
CMPLR	Complementiser suffix
COM	Commitative suffix
CONJ	Conjunctive suffix
DAT	Dative case
DC	Declarative sentence-type suffix
DEF	Deferential speech level
DEL	Delimiter
EQU	Equative
ESL	English as a second language
FLU	Fluency
FUT	Future
G-C	Grammatical complexity
GEN	Genitive
HON	Honorific
IMP	Imperative sentence-type suffix
IND	Indicative mood suffix
INSTR	Instrumental
INT	Intention
K-E	Korean-English

L1	First language
L2	Second language
L-D	Lexical diversity
LOC	Locative
M-D	Morphological density
NEG	Negative
NML	Nominaliser suffix
NNS	Non-native speaker
NOM	Nominative case
NS	Native speaker
PAS	Passive suffix
PL	Plural suffix or particle
POL	Polite speech level suffix or particle
PRS	Prospective modal suffix
PST	Past tense/perfect aspect suffix
QUOT	Quotative particle
RL	Relativiser (or adnominal modifier) suffix
SLA	Second language acquisition
TOP	Topic-contrast particle

# 1 Introduction

One of the most challenging and immediate tasks for many newly-arriving immigrants is to learn the language of the host nation. School-aged immigrant children are placed in an environment where they cannot use their native language to cope with academic and social tasks in every day school life while their skills in the second language (L2)—the language of the dominant society—are still limited. Yet, immigrant children often acquire basic oral skills in L2 required for everyday transactions within the first few years after arrival (Cummins, 1984; Hakuta, Butler, & Witt, 2000; Thomas & Collier, 1997).

Adolescence is a period when children's social interests expand outside the family. Adolescent socialisation becomes increasingly reliant on peer interactions as the source of information, emotional support, and personal well-being (Nippold, 2000). Therefore, although adolescent immigrant children are close to or might have passed the terminus of a critical period of language learning<sup>1</sup> and may be slower than younger children in their initial acquisition of basic oral skills in the L2, they often have stronger inclinations to use their L2. According to Pauwels (2005), adolescence is a critical point where many minority children start to prefer to use their L2 even in private domains, for example, the family. Due to the increase in L2 use and pressure for L2 learning for social and academic purposes<sup>2</sup>, first language (L1) skills may not expand. Instead, they may deteriorate or remain at the level reached at the time of their immigration.

The impetus for this study arose from my observation of my children and those I encountered as a teacher in a Korean community school in New Zealand. At the first stage of immigration, I noticed that Korean adolescents were struggling with English and were frustrated with their inability to speak and to be understood. After an initial sense of

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<sup>1</sup> See 2.2.3.1.1 for details on this issue.

<sup>2</sup> According to many studies on this issue, immigrant children take at least 5-7 years to acquire this type of L2 skills (e.g., Cummins, 1984; Hakuta et al., 2000; May, Hill, & Tiakiwai, 2004; Thomas & Collier, 1997).

traumatisation, Korean children start learning English as a survival tool in the new environment. Korean parents employ different strategies to help their children learn English as quickly as possible. One family, on arrival in New Zealand, implemented an English-only policy at home. As a result, the children became almost mute when their parents were present. In another, the parents removed from their home all Korean-medium resources—books, cartoons, video tapes, computer games, CDs, etc. After living in New Zealand for some time, many Korean parents start to express worries about children starting to speak “funny” Korean.

Situations such as these led me to think about what would happen to adolescents’ L1 during the initial years of L2 learning and later in an environment where the L2 would take over many functions of their L1. I was particularly interested in whether adolescents would be able to maintain their L1 proficiency acquired before their departure from Korea, and whether any learning of L1 skills would take place with little L1 input and extensive pressure to learn the L2 within the L1-speaking community in this immigrant context. I was also interested in the parents’ practice in this context and whether their efforts were conducive to their children’s balanced growth as bilinguals, in other words, if L1 maintenance would have negative effects on L2 acquisition, and vice versa. I was keen to find out what social/psychological constraints were operating during this process and what L1 structures/skills would be particularly difficult for these children to maintain and why.

These are some of the questions I pondered as an immigrant mother, teacher in a community school, and student of applied language studies. I launched this study in the hope that it might find answers to some of these questions and make a contribution to the welfare of immigrant children, their families and New Zealand society.

### ***1.1 The New Zealand context***

New Zealand has often been described as a monolingual and monocultural country (e.g., Benton, 1996; Starks, Harlow, & Bell, 2005; Starks & Youn, 1998). Although Maori was given an official language status under the slogan of biculturalism (Pakeha—i.e., New

Zealand Europeans—and Maori), only 4.4 percent of the whole population identified themselves as being able to speak the language in the 2001 census (Statistics New Zealand, 2002b)<sup>3</sup>. In contrast, 94.8 percent of the whole population reported being able to speak English. Of the majority of the New Zealand population, who identified themselves as “New Zealand Europeans”, 91.7 percent reported that they spoke only one language. Given this, it is self-evident that English use is predominant in most public domains in New Zealand<sup>4</sup>.

While English monolingualism is prevalent in most aspects of the New Zealand society, the 2001 census result (Statistics New Zealand, 2002b) reveals a substantial proportion (i.e., over 16 percent) of the whole population is bilingual/multilingual speakers. However, there is no national language policy that officially endorses bilingualism or L1 maintenance for Maori and the languages of immigrants<sup>5</sup>. Although there are some Maori-medium classes and Pasifika languages bilingual programmes at the early childhood or primary school level (Bell, Davis, & Starks, 2000; May et al., 2004), bilingualism is often associated with “minority, marginal and outsider status” (Franken & McComish, 2003, p. 21). The most common approach to education of minority immigrant students in New Zealand takes the form of English-only or English submersion programmes supplemented with English as a second language (ESL) withdrawal classes<sup>6</sup> (May et al., 2004). This type of programme is regarded by many researchers as assimilationist, detrimental for students’ L1 maintenance, academic achievements and cognitive development, and no more effective in the acquisition of English proficiency proper than other alternatives (Baker, 2001; Franken & McComish, 2003; May et al., 2004; Thomas & Collier, 1997, among others).

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<sup>3</sup> All the figures appearing in this paragraph are drawn from the information obtained from the Statistics New Zealand website:

<http://www.stats.govt.nz/domino/external/pasfull/pasfull.nsf/web/Reference+Reports+2001+Census:+Ethnic+Groups+2001?open>.

<sup>4</sup> Recently released preliminary data for the 2006 census (Statistics New Zealand, 2007) show a similar trend—about 3.9 percent and 91.2 percent stated that they could converse in Maori and in English respectively.

<sup>5</sup> A draft policy put forward by Waite (1992) as a discussion paper did not develop to an official language policy.

<sup>6</sup> In other words, ESL pull-out classes. That is, students are “pulled out” of their normal classes for ESL lessons at various times throughout the school hours (May et al., 2004, p. 83).

L1 maintenance by the New Zealand government is vaguely implicated in the English curriculum statement (Ministry of Education, 1994), the draft *New Zealand Curriculum* (Ministry of Education, 2006) and in Ministry of Education publications related to immigrant students (e.g., *NESB Students: A Handbook for Schools*, as cited in Franken and McComish, 2003). For example, *English in New Zealand Curriculum* (Ministry of Education, 1994) contains a few phrases that recognise the importance of the first language and culture of the student<sup>7</sup>. However, the same curriculum implicitly recommends the English-only approach with ESL withdrawal classes in educating new immigrants (p. 15). While the existing New Zealand curriculum framework includes a clause “[t]he nature of mother tongue programmes will be decided by schools in response to local community needs and initiatives” (Ministry of Education, 1993), there is no explicit mention on L1 maintenance or a bilingual programme in a recently released draft *New Zealand Curriculum* (Ministry of Education, 2006). The draft curriculum states that “[t]he English language is the medium for most learning in the *New Zealand Curriculum*...” (p. 12). It is not clear how community languages will be integrated into the English-medium curriculum.

In New Zealand, the prime responsibility for L1 use and maintenance is largely left with families (Franken & McComish, 2003). This is particularly challenging for nuclear families with limited access to an extensive network of relatives (Pauwels, 2005). Parents and the community themselves may no longer be an adequate L1 source for their adolescent children since their own L1 may also be in decline. Interactions between parents and adolescent children are often minimal in any language. No government intervention has been made to date to cater for the need of school-aged/adolescent new immigrants who still maintain a relatively high level of proficiency in their mother tongues.

Adolescent immigrants newly arriving in New Zealand with non-English-speaking backgrounds are greatly disadvantaged since they are not able to use either L1 or L2 to the

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<sup>7</sup> For example, it includes a clause: “[s]tudents from language backgrounds other than English add valuable language resources and experiences to the classroom”. (Ministry of Education, 1994, p. 15)

full extent for their academic, cognitive, and social development. L1 use is not fully encouraged and the possible resultant arrest of (or deterioration in) L1 development may soon leave their L1 proficiency below the grade level (Collier, 1989; Cummins, 2001; Franken & McComish, 2003; Thomas & Collier, 1997). Their late L2 learning may be insufficient for adequate L2 development (Collier, 1989; Franken & McComish, 2003; Hakuta et al., 2000; Thomas & Collier, 1997). In the meantime, their L1s start to show varying degrees of decline in proficiency in both established and recent immigrant communities (cf. Hulsen, de Bot, & Weltens, 2002; Johri, 1998; J. Kim & Starks, 2005; S.-H. Park, 2000).

### ***1.1.1 Korean immigrants in New Zealand***

Most of the immigrants in the New Zealand Korean community arrived post-1991 when the New Zealand Ministry of Immigration introduced a *point system* in the *general skills category*. Under this system, selection was made “on the basis of [their] skills, qualifications, and assets” (Lidgard, 1996, p. 2), and most of the successful applicants were at the peak of their professional career and relatively young—late 30’s or early 40’s—with school-aged children (cf. Ho, Bedford, & Bedford, 2000). The adult generation of Korean immigrants to New Zealand is generally well-educated with higher qualifications, professional experience and/or with considerable capital. As described in Lidgard (1996, p. 22), most Korean immigrants chose to come to New Zealand for environmental and educational reasons—to live in a less stressful and cleaner environment and to give their children opportunities for education in a less competitive system (see also Johri, 1998).

The New Zealand Korean community is the third largest Asian population in New Zealand in both the 2001 and 2006 censuses (Statistics New Zealand, 2002a, 2006). The 1991 census recorded the local Korean population as 930. In 1996, this rose to 12,753, and in 2001, to 19,026<sup>8</sup>. In recently released data from the 2006 census, this has reached 30,792 (Statistics

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<sup>8</sup> For details of the background of this increase, a downturn and subsequent recovering that occurred immediately after the 1996 census, and the related changes in New Zealand immigrant policy, see J. Kim (2001), Lidgard, Ho, Goodwin, and Bedford (1998) and Park (2000).

New Zealand, 2006). The New Zealand Korean community is recognized as the fastest growing immigrant community (Lidgard et al., 1998; Statistics New Zealand, 2002a). However, the proportion of ethnic Koreans in the New Zealand population is still below 1 percent<sup>9</sup>.

Table 1.1 summarises relevant information on the New Zealand Korean community extracted from the 2001 census data (Statistics New Zealand, 2002b). It shows that, as of the year 2001, about 40 percent of ethnic Koreans had lived in New Zealand for 5-9 years and that about 70 percent were living in the Auckland region. A third of the Korean community was aged 10-24 years (see 3.2 for a description of the participants in the present study) and most were born overseas (see also Thomson, 1999).

**Table 1.1 Information from the 2001 Census relevant for the participants of the present study (adapted from Statistics New Zealand, 2002b)**

Residence in NZ for 5-9 years (%)	Living in the Auckland region (%)	Age of 10-24 years (%)	Birthplace			
			Asia (Korea) (%)	English-speaking countries (%)	Other European countries (%)	Other (%)
38.8	69.7	36.7	93.3	6.0	0.1	0.1

*Note.* N= 19,026.

The New Zealand Korean community shows many characteristics favourable to the maintenance of their mother tongue. Starks & Youn (1998) report their extensive use of Korean in the homes, strong positive attitudes about their own language, geographical concentration in residence pattern, various community associations and active community-based activities—e.g., community schools, churches, weekly/bi-weekly newspapers or magazines, broadcasting, etc. (see also J. Kim, 2001; J. Kim & Starks, 2005; S.-H. Park, 2000). There also seems to be on-going support of the home language by new immigrants, visitors and overseas students in this community. However, given that immigration trends are influenced by changes in the New Zealand immigration policy and the economic situation in the home country<sup>10</sup>, this supply of home language support is very volatile.

<sup>9</sup> The proportion of ethnic Koreans in the whole New Zealand population is 0.5 percent in 2001 and 0.76 percent in 2006 (based on the 2001 and 2006 censuses respectively, Statistics New Zealand 2002b; 2006).

<sup>10</sup> From late 1997, the Korean economy had been on a downslide for a few years, but was recovered in the early 2000s.

The 2001 census indicates that the Korean community tends to retain Korean as a means of communication. The majority of the Korean population (i.e., 86.9 percent) stated they were able to have conversation in Korean. Although this is a very high percentage, it is alarming that, in this recent immigrant community, 13.1 percent of ethnic Koreans appear to be unable to use their own L1<sup>11</sup>.

The shift from Korean to English may be related to the family structure among Korean immigrants. There are two issues to be considered. The first is the general absence of grandparents in Korean immigrant families in New Zealand. Lidgard (1996) reports that no Korean respondents in her study stated that they were living in an extended family. The second issue is related to one-parent families. Children may be in one-parent families for reasons such as divorce, bereavement and so-called *astronaut families*. Astronaut families refer to families with members returning to their country of origin to work, often leaving their spouse and children in the country of destination. While the two-parent family is typical with younger children, the 'astronaut strategy' is more likely taken by families with teen-age children (Ho et al., 2000). Since the main reason for taking this type of family arrangement is an economic one, the father is more likely to return to Korea because of the greater possibility of returning to his pre-immigration job. From a viewpoint of L1 attrition/maintenance, teen-age children in this type of family arrangement are disadvantaged since the mother is often the only source of parental L1 input. Lidgard (1996) reports that two of her 14 Korean respondents were from astronaut families. While Ho et al. (2000) report that 15 percent of Korean families in the whole community were categorized as one-parent families in the 1996 census data, it is not clear to what extent astronaut families are represented in this figure. In the present study, almost all the participants are from nuclear families.

There is a dramatic change in the reported English ability in the Korean community between the 1996 and 2001 censuses. In the 1996 census, only 52.9 percent of the respondents in this community declared themselves able to speak English and 38.2 percent stated that they

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<sup>11</sup> Those who could not talk due to the young age or other reasons comprise 1.8 percent (321 people) in this data.

could not. In the 2001 census, 71.9 percent of ethnic Koreans stated that they spoke English, while about 26.3 percent stated otherwise (Statistics New Zealand, 2002b; Thomson, 1999)<sup>12</sup>. This increase of self-reported proficiency in English may be partly due to changes in the New Zealand immigration policy since 1995 which made the English proficiency requirement mandatory (Lidgard et al., 1998), and partly due to the time lapse since 1996 that might have enabled pre-1995 immigrants to gain English skills by immersing themselves in an English-speaking environment.

The above discussion reveals that, although there are a number of factors conducive to L1 maintenance in this community, given the nature of adolescent socialization orienting toward the society outside their own home and community and the general situation where Korean adolescent immigrants are placed as described above, it is not clear to what extent these factors affect adolescents' use and maintenance of L1. This issue is addressed by some studies introduced in the next section.

### ***1.1.2 New Zealand research on Korean language shift or maintenance***

To date, there is no L1 attrition research on Korean L1 speakers in New Zealand. This may be due to the short history of the Korean immigrant community as well as the generally short history of L1 attrition research worldwide<sup>13</sup>. However, a few recent New Zealand studies on language shift in the Korean community implicate L1 attrition in their findings (Johri, 1998; J. Kim, 2001; J. Kim & Starks, 2005; S.-H. Park, 2000; Starks & Youn, 1998).

Starks and Youn (1998), one of the earliest New Zealand studies on this topic, provide an overview of the Korean community in Auckland. While illustrating many characteristics of this community conducive to the maintenance of its L1 (see also 1.1.1 for details), Starks and Youn report signs of language shift particularly in families with a second child entering school. The authors point to the immigrants' perception of English skills as the only viable

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<sup>12</sup> The wording and choices for answer were different in the two censuses.

<sup>13</sup> However, there seems to be a general lack of attrition research in New Zealand. To date, the only research on L1 attrition conducted in New Zealand is Hulsen's study (2000; Hulsen, de Bot, & Weltens, 2001; 2002).

tool for survival in New Zealand, which leads to great pressure for the use of English in both public and private domains and for children's academic success in an English-medium educational system.

Johri (1998) investigated ten Korean immigrants in Dunedin as part of three case studies that included two other immigrant groups—Dutch and Samoan. These Korean immigrants had been residing in New Zealand for 1.25-11 years and were either in the older generation aged 39-50 years or in the younger generation aged 16-26 years. Although Johri found little evidence of language shift in the Korean community via qualitative interviews, she attributes their high degree of L1 maintenance and favourable attitudes toward their L1 to their short immigration history and notes that many comments in interviews suggest looming language shift. Johri reports that, while language was a strong marker of solidarity, most of her Korean participants, regardless of their generation, viewed a decline in L1 ability and weakening of ethnic identity in their younger generation as the cost to be paid for their survival in a new environment, which they had chosen for better life. The younger participants were willing to negotiate their wishes to maintain their L1 and ethnic identity as long as their perceived identity was not threatened and their craving for assimilation into the host society was more or less satisfied. This ambivalence was found to be largely constrained by social factors but not by L2 learning. The second concern is the signal of potential language shift. Johri argues that there was contradiction between their language practice and stated attitudes and awareness regarding the importance of maintaining L1, L1 culture and the role of the community. These included varying degrees of general indifference in community activities, particularly in the younger group. The third concern is over their general lack of awareness of language shift and difficulties in maintaining the L1, which were attributed to the recent nature of this community. Johri argues that these elements, together with the decreasing influx of new immigrants<sup>14</sup>, warn of incipient language shift in this community.

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<sup>14</sup> Note that Johri (1998) conducted this research around when the New Zealand immigration policy turned unfavourable to immigrants with a non-English-speaking background.

S.-H. Park (2000) investigated language shift and maintenance in Korean communities across three large cities in New Zealand—Auckland, Christchurch, and Wellington<sup>15</sup>. Using a sociolinguistic questionnaire as the main instrument, he conducted survey-type research on 177 students from primary school level to tertiary level. He investigated their language choice patterns in various domains, self-reported L1/L2 proficiency and attitudes toward L1 and L2. His general findings, in line with Starks and Youn (1998) and Johri (1998), confirm those reported in the L1 shift/maintenance and SLA (second language acquisition) literature (cf. Clyne, 2003; Ellis, 1994; Fishman, 1991; Flege, Yeni-Komshian, & Serena, 1999; C. Hoffman, 1991; Li Wei, 1994; Pauwels, 2004, 2005; Romaine, 1995). That is, 1) signs of language shift are more frequently found in younger participants, who appeared to acquire L2 proficiency more rapidly and easily than older ones (e.g., Extra & Verhoeven, 1999; Wong Fillmore, 1991); 2) children use more L1 with parents than with siblings (e.g., Clyne, 2003; Clyne & Kipp, 1999; Extra & Verhoeven, 1999; Huls & van de Mond, 1992; Li Wei, 1994; Pauwels, 2005, among others); 3) the younger the participant at the time of arrival, the more likely she is to shift to L2 (e.g., Hakuta & D'Andrea, 1992; Kloss, 1966); 4) the longer the period of residence, the more likely shift to L2 is to occur (e.g., Clyne & Kipp, 1997; Pauwels, 2004); and 5) there are individual variations in language choice, ability, and attitudes which may largely be constrained by the social context (e.g., C. Hoffman, 1991; Schumann, 1978).

S.-H. Park (2000) found a great degree of variation in the extent to which his participants conformed to the “social/psychological norms” of language use. S.-H. Park reports that English was frequently used in the domains where L1 use was more expected—e.g., the home and the community school—and that Korean was frequently used with Korean interlocutors in the domains where English use was the norm. Another trend regarding language choice was that the degree of shift to L2 was greater in situations where they made

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<sup>15</sup> These cities are most favoured by most Korean immigrants as the places to settle (S.-H. Park, 2000).

language choices “without particular addressees<sup>16</sup>” (p. 176) in “spoken, written, and silent forms” (p. 160), which he terms “individual language choice”. Language choice patterns in the individual situations under this category are particularly noteworthy. His participants tended to use more English than Korean for swearing/cursing in the “spoken form” regardless of age. With respect to the three types of mode (i.e., “forms”), S.-H. Park reports that English was most frequently used in “spoken forms” but Korean tended to be preferred for “written forms” except for “writing a diary”. As for “silent forms” that included situations “counting”, “thinking silently” and “telling the time” (p. 161), no particular trends were observed. S.-H. Park’s study is an important documentation of the Korean community in its early history in New Zealand. However, due to its survey-type investigation, it does not go beyond description of his participants. Being based on self-reports<sup>17</sup>, while it reports the “facts” about its participants, it does not provide sufficient explanation for the mechanisms underlying the facts.

J. Kim (2001) and J. Kim and Starks (2005) report on a case study of six Korean immigrant families. These families were two-generation families consisting of parents and children at various ages and residing in the Auckland region for 4-8 years at the time of their data collection. By using a questionnaire and language diaries, the authors investigated possible identity changes and effects of addressee, topic, and domain on language use in these families. Their findings suggest that children were leading language shift in their families, as is most often the case with many immigrant families (Clyne, 2003). They showed a greater degree of decline in self-reported proficiency in L1 than their parents, and possible identity changes were also suspected among younger female children. Based on this result, the authors suggest identity and proficiency changes occur prior to shift in language use, in line with Johri (1998). The authors report that language choices are more likely to be affected by the

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<sup>16</sup> This definition seems problematic since this category includes “writing” a diary and a letter to various types of recipient (i.e., “parents, siblings, friends in Korea, and friends in New Zealand”), who are not present physically at the scene where language choices are made but have a role as the addressee or interlocutor for the act of writing (a letter) (S.-H. Park, 2000, pp.160-163). Thus, only “writing a diary” seems to fit in this category.

<sup>17</sup> For a discussion on this issue, see 2.2.3.1 (see also Hakuta & D’Andrea, 1992; Köpke & Schmid, 2004; Pauwels, 2004)

addressee, the domain, and the topic than by the gender or generation. Siblings' interactions and self-talk are highlighted as the potential area for shift to L2, while their other findings generally support the traditional view of language use and maintenance that the home domain and topics related to cultural issues tend to induce more L1 use and that L2 is more frequently used in public domains<sup>18</sup>.

To my knowledge, the above studies are the only available studies on language shift/maintenance in the Korean community in New Zealand. In spite of the small number of studies, their different methods, and some findings contradicting each other (e.g., those regarding language use in the home domain in S.-H. Park (2000) and in others), they provide valuable information on the Korean immigrants who came to New Zealand during the peak of their influx. Since the majority of the present participants also immigrated to New Zealand during this period, the findings from the above studies are relevant to the present study.

While many of their participants' attributes, the aspects of their language use and other variables investigated overlap those in the present study, the above studies fail to explore proficiency changes in the L1 and L2 of their participants. Although most of them mention a hint of decline in L1 and point to a clear acquisition of L2 proficiency and some of them present self-reported data as the proficiency measure, no study attempted to measure proficiency using empirical methods. This may be due to the long tradition of language shift/maintenance research that rely on self-reported proficiency in discussing language loss (Starks, 2005; see also Shameen, 1994). It also has to be attributed to the short history of immigration of this community, which, at the time when the above studies were conducted, had not gone through enough of a period of L1 attrition for its speakers to become seriously aware of their declining L1. The present study attempts to address this gap and provide an account of underlying mechanisms of L1 attrition and, to a lesser degree, L2 acquisition in Korean adolescents who immigrated to New Zealand.

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<sup>18</sup> One interesting finding related to domains is that L1 is used most frequently in the car due to its "insular nature". However, this finding seems only relevant to this type of participants—families who travel in a car driven by the mother or the father with young children.

## ***1.2 Organisation of this thesis***

The remainder of this thesis is organized as follows. Chapter 2 reviews major theoretical issues in L1 attrition research relevant to this study and discusses empirical studies on L1 attrition and related issues. Key concepts underlying this study are also introduced. Chapter 3 discusses methodological issues relating to designing research on L1 attrition. The procedure for data collection and analysis are introduced with a detailed description of the tools and methods used for this procedure. Validity and reliability issues which arose during the conduct of the research are addressed in the relevant sections with an account of how they were resolved. Chapter 4 considers the relationship between L1 performance, L2 performance, and social variables in the present study. Chapter 5 is devoted to an in-depth analysis of five selected cases and demonstrates how L1 attrition occurs at the individual level within the general trend identified in chapter 4. Chapter 6 summarises the results, discusses implications of this study and suggests future areas of research.

## 2 Review of the Literature

This chapter reviews literature on theoretical and empirical studies on L1 attrition. Of the various theories on L1 attrition, this review focuses on studies that view L1 attrition as a process of interlanguage influenced by crosslinguistic interference and language change. Empirical studies on L1 attrition and related issues are reviewed in terms of linguistic structures, linguistic performance, and social aspects of language use. Due to the multifaceted nature of L1 attrition, multiple references to the same work are made in different sections in order to highlight issues investigated in the given work. The review of empirical studies focuses on those conducted on late bilinguals in an L2 environment. Studies conducted in other contexts (e.g., child L1 attrition, attrition in second-generation heritage speakers/early bilinguals, etc.) are considered only to the extent to which they are relevant to the present study.

### *2.1 Crosslinguistic influence and language change*

During the past two and a half decades, major theories on L1 attrition have drawn on theories from other established fields. These include the regression hypothesis, Universal Grammar (UG), psycholinguistic theories on language processing, and the interlanguage theory (Selinker, 1972). Some theoretical studies attempt to determine in what order L1 items are affected by attrition. Others consider whether L1 attrition is the manifestation of permanent loss of L1 items and competence change or temporary performance failure, yet others strive to decide whether L1 attrition is due to crosslinguistic influences or the language-internal tendency to change. Since these theories often overlap and their underlying hypotheses are interrelated, instead of addressing all of them, this review concentrates on the studies that consider the crosslinguistic influence and language change in L1 attrition. Other theories and related issues are integrated into the review where necessary (for a review of these theories,

see de Bot & Weltens, 1991; Köpke, 2004; Köpke & Schmid, 2004; Schmid, 2002; Schmid & de Bot, 2004).

One of the most widespread notions in L1 attrition research is that L1 attrition is a language contact phenomenon that occurs within the bilingual speaker's mind. Because the L1 is usually the minority language in a language contact situation, sociological factors such as an asymmetrical linguistic environment for L1 and L2 development and the unequal prestige or status of L1 and L2 have a bearing on this perspective. The two languages in contact are considered to "co-exist in a state of competition" (Seliger & Vago, 1991, p. 4), which finally leads to the dominance of the L2 "encroach[ing] on the linguistic domains of L1" (Seliger & Vago, 1991, p.6), and to the ensuing attrition and sometimes death of L1 (Seliger, 1991). From this view, the L1 system of the *attriter*<sup>19</sup> goes through dynamic change under the influence of the stronger L2, and is often considered a kind of *interlanguage*. Andersen views attrition as "a special case of language acquisition and use" (1982, p. 86; see also Schmid, 2004a; Seliger & Vago, 1991; Sharwood Smith, 1989). Like the L2 learner's interlanguage (Selinker, 1972), the *attriting* L1 system shows systematic variability. The difference between the interlanguage of the L2 learner and that of the L1 attriter is that the former converges on the target (L2) norm as the learner's L2 system becomes enriched while the latter diverges from the target (L1) norm as the attriter's L1 system becomes generally impoverished (Andersen, 1982; Seliger, 1996).

The process of divergence and impoverishment in L1 attrition is regarded as both systematic and selective. Andersen (1982) is one of the earliest researchers to address the systematicity and selectivity of L1 attrition. Drawing on theories of SLA and language contact, he discusses a reduction in linguistic forms in the lexicon, phonology, morphology, and syntax of the attriter's L1 and postulates a number of detailed hypotheses. These

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<sup>19</sup> Although *attrite* and *attriter* are not recognized as entry words, many authors researching attrition use these forms productively (Bullock & Toribio, 2004; de Bot, 2004; Schmid, 2004a; Seliger, 1996; Serratrice, Sorace, & Paoli, 2004, among others). This thesis will follow the example of these authors in using the term 'attrite' as the verbal form for attrition and adding various affixes in order to enable this term to perform the appropriate function in a sentence describing the phenomenon of L1 attrition.

hypotheses generally point to the sites of attrition as the areas where the L1 element contrasts most with its L2 equivalent and/or where categories or distinctions in L1 are marginal—i.e., low-functional, less frequent, more opaque, etc. Andersen also illustrates general mechanisms of the attrition process at each linguistic level. Preston (1982) itemises these processes into ten categories—analysis, collapse, regularization, overgeneralization, transfer, borrowing, innovation, paraphrase, circumlocution, and avoidance—and argues that these may occur at any linguistic level. Preston also summarises the outcome of attrition hypothesised by Andersen into a reduction in number, distinctions and variety of linguistic items, and an increase in variability, transparency and agrammaticality in linguistic forms and ambiguity in meaning. Although Andersen's (1982) hypotheses are often criticised for being repetitive at different linguistic levels (Preston, 1982; see also Sharwood Smith, 1989), they are generally viewed favourably (Myers-Scotton, 2002a, p. 188). While Andersen acknowledges that these hypotheses are to be tested empirically and subject to revision (see Bullock & Gerfen, 2004a, 2004b; Insurin, 1999, for some counterevidence), many are in accordance with other attrition theories and supported by empirical studies (Altenberg & Vago, 2004; Kaufman, 2001; Olshtain & Barzilay, 1991; Schmid, 2004a; Yāgmur, de Bot, & Korzillus, 1999, among others). These studies and Andersen's hypotheses formulated for individual linguistic levels will be revisited in their relevant sections below.

Seliger and Vago (1991) explain that linguistic changes in L1 in an asymmetric relationship with L2 are driven by two principal forces—*external* influence and *internal* motivations. External influences are variously referred to as interference, transfer, convergence, interlingual effects, or crosslinguistic influences, which lead to modification of L1 elements on analogy with L2. These play a role as the source of evidence for the attriter's L1 in the absence of L1 data by non-bilingual native speakers (Seliger, 1996). Internally-induced changes are attributed to the inherent nature of language change common to human languages that favour unmarked, analytic, and general items/structures.

Seliger and Vago (1991) detail the outcome of these two types of changes. Externally-induced changes are manifested by *rule generalisation*, *meaning extension*, and *loan translation*. Rule generalisation applies to syntax where an L2 rule is extended to L1. Meaning extension refers to the process where the meaning of a word in L1 is generalised to include the meaning of another L1 word on analogy to the range of meaning of their L2 equivalent. Loan translation or *calquing* is where an L2 phrase or word is translated word by word or morpheme by morpheme into L1 leading to non-target-like L1 expressions. The phenomenon variously referred to as code-switching, code-mixing, or lexical borrowing may also be evidence of externally-induced changes<sup>20</sup>. Internally-induced changes are manifested by *analogical levelling*, *paradigmatic levelling*, *category levelling* and *category switch*. Analogical levelling is a process of unmarking or regularisation of marked features or irregular patterns that entails, for example, a removal of lexical markings that bring about irregularities to noun/verb conjugation (Schmidt, 1991; Seliger, 1991; Turian & Altenberg, 1991). Paradigmatic levelling is exemplified by the removal of allomorphic alternation resulting in a more uniform paradigm (Maher, 1991; Vago, 1991). In the process of category levelling, categorical distinctions are neutralised by an extension of one categorical domain to another, leading to a reduction in linguistic categories (Kaufman, 1991). Category switch refers to the phenomenon where a category is maintained conceptually but is expressed in a different linguistic form (e.g., substitution of affixes for prepositions).

While the above taxonomy is useful in identifying the area affected by attrition, it is often very hard to draw a distinction between interlanguage and language change effects (Schmid & de Bot, 2004), and particularly difficult when it comes to the simplified grammar of the attriting language. Analytic structures can develop in contact languages as well as in non-contact-induced linguistic change (Heine & Kuteva, 2005; Schmid & de Bot, 2004).

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<sup>20</sup> While a number of studies report a correlation or co-occurrence of code-switching and L1 attrition (Ben-Rafael, 2004; Boyd, 1993; Clyne, 1987; Kaufman & Arnoff, 1991; Turian & Altenberg, 1991, among others), code-switching and lexical borrowing may not necessarily indicate or accelerate L1 attrition (Pavlenko, 2004a; Romaine, 1995), and are sometimes regarded as bilinguals' discourse strategies (Gumperz, 1982; Halmari, 2005; Myers-Scotton, 1993b). As Ecke (2004, p. 339) points out, it seems disputable whether code-switching is a precursor stage for L1 attrition (Myers-Scotton, 2002a, p. 165; Seliger, 1996, p. 612).

Furthermore, when the dominating language is an analytic language like English, which is the case with the majority of L1 attrition studies, it is very difficult to determine whether the development of analytic structures in the attriting language is due to the universal trend of language change or interlingual effects (Köpke & Schmid, 2004). In addition, as will be seen later in this thesis, linguistic changes in the attriting language are multi-layered in many cases. That is, errors identified as evidence of linguistic change seem to be related across different linguistic levels in the attriting L1 system, making it difficult to determine the level affected first and isolate the two types of influencing forces (cf. Backus, 2005; see also Clyne, 2003; Croft, 2000; Thomason, 2000).

Findings regarding interlingual vs. intralingual effects are often inconclusive. For example, Altenberg (1991) suggests that attrition in L1 syntax of her German-English bilingual participants may be the result of transfer from their L2, while Polinsky (1996) suggests that changes in her Russian-English bilingual participants' L1 syntax may be induced by universal principles that also govern pidginisation<sup>21</sup>. Silva-Corvalán (1996) claims that the trend among her Spanish-English bilingual participants' L1 data resembles the reverse procedure of creolisation returning to the pidgin. However, she suggests that attrition in L1 is accelerated by the intense long-term influence of the dominant language. These conflicting views may be due to differences in the social contexts of language contact and the typological differences between the L1s as the attriting languages.

Silva-Corvalán (1996) views the process of *simplification* within the bilingual's linguistic system as primarily stemming from psychological reasons "aim[ing] at lightening the cognitive load of having to remember and use two different linguistic systems" (p. 6). In line with this notion, Seliger (1989; 1991; 1996) proposes the Redundancy Reduction Principle, which suggests that, in the L1 attrition context, simpler and more widely distributed rules from L2 replace similar but more complex L1 rules. Seliger argues that this occurs due

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<sup>21</sup> Note that Polinsky (1996) compared her Russian-English bilingual data with the pidgins which are based on English as well as those which are not.

to the bilingual's need to reduce the cognitive processing load, leading to a parsimonious grammar that can serve both languages. Thus, the overall process of attrition is manifested by a creation of a new rule for L1 motivated by the tendency to reduce redundancies between the combined L1 and L2 grammar. Seliger (1989; 1991; 1996) brings in the theme of *markedness* at this point, arguing that this process is not random but takes place according to a markedness rule. That is, less marked L2 structures are more likely to displace more marked L1 forms, while less marked L1 forms may be resistant to attrition.

The "psychological burden" of dealing with two languages is also at the centre of Sharwood Smith's (1983) view of language transfer as a fundamental process in loss (p. 229). From his view, the bilingual's preference for processing simplicity is the driving force for transfer. Sharwood Smith further suggests that the speaker makes *cross-lingual identifications* in order to choose a structure that could minimise processing mechanisms (see also Weinreich, 1953). The eventual outcome is that "subsystems which are relatively easier to process will be less easily lost, more easily acquired, or more likely to remain fossilised in L2" (Sharwood Smith, 1983, p. 226). Sharwood Smith notes that, since the non-attributing native speaker (NS) may also produce deviant forms due to temporary stress in on-line processing, it should be determined cautiously whether the deviant form is due to the on-the-spot communication strategies or the establishment of a new structure.

From the developmental view of L1 attrition, attrition gradually develops along a continuum. At one end of the continuum is the incipient stage of L1 attrition where the speaker is able to maintain autonomy for each linguistic system in her repertoire. At the other end is the end state of L1 attrition where merging of the L1 and L2 systems occurs (Seliger, 1996, p. 617). At this stage, "the bilingual may lose a sense of what is grammatical for one or both of the languages and not be able to control the mixing of the two" (Seliger, 1989, p. 176), and produce innovative L1 forms based on her subjective assessment of interlingual similarity (Johanson, 1999b: see also Backus, 1992; Skaaden, 2005).

Myers-Scotton (1993a; 1995; 1998; 2000; 2002a; Myers-Scotton & Jake, 2001, *inter alia*) explains the merger of L1 and L2 systems by the Abstract Level model—one of the sub-models of her Matrix Language Frame (MLF) model. The MLF model postulates differential roles of the Matrix Language (ML)—the source of the grammatical structure for the bilingual phrase—and the Embedded Language (EL). The latter is constrained by the surface morpheme order and the structural frame determined and supplied by the former. While these differential roles are well preserved in classic code-switching, in a contact situation where the bilingual speaker does not have full access to the target ML, the structural source of the bilingual phrase is split between two or more varieties, resulting in a *composite* Matrix Language (Myers-Scotton, 1999, 2002a). Myers-Scotton (1999; 2002a) argues that the abstract lexical structure of an element from one language is split off and recombined with that from the other language at the underlying level. According to the Abstract Level model, this splitting-off and recombining is made at the differential levels of abstract lexical structure of a lemma—a language specific abstract lexical entry in the mental lexicon (for details, see p. 19 and many other parts of Myers-Scotton, 2002a).

During classic code-switching, congruence is checked at all abstract levels so that the EL element may either conform to the ML frame or be realised according to other compromise strategies (Myers-Scotton, 1999, 2002a; Myers-Scotton & Jake, 2001). In L1 attrition, Myers-Scotton (2002b) argues that the outcome of this congruence check depends on the bilingual's subjective assessment of the degree of congruence, which may vary according to the degree of attrition (p. 208). Due to the limited access to the abstract lexical structure of the ML, the attriter may resort to deviant forms of code-switching such as bare forms<sup>22</sup> or non-target-like L1 forms such as calques. In other situations, the bilingual may be driven by socio-/psycholinguistic motivations to produce monolingual speech in L1 in spite of her difficulties in accessing the L1. In such situations, due to subjective assessment of congruence

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<sup>22</sup> The “bare form” refers to “EL content morphemes appearing in a mixed constituent framed by ML. But they are missing the ML system morphemes that would make them well-formed elements in such frames” (Myers-Scotton, 2002a, p. 113).

between levels of abstract lexical structure in L1 and L2, the abstract lexical structure of the lemma of the target L1 item may be split and recombined in favour of L2, leading to “bilingual speech appearing in the disguise of monolingual speech” (Bolonyai, 1998, p. 23) or “covert code-switching” (Schmitt, 2000, p. 15). Myers-Scotton (2002a; Myers-Scotton & Jake, 2001) refers to this phenomenon as *convergence* where “restructuring of a language frame” occurs because “one language—usually the more powerful and prestigious language—impinges on another” in language contact (Myers-Scotton, 2002a, p. 243). Thus, convergence and attrition together lead to a composite ML which becomes increasingly similar to the dominant language until the bilingual completely switches from the composite frame to the dominant language. Myers-Scotton (2002a) suggests that the possible reason for this switch is that the bilingual perceives too much cognitive weight in maintaining a composite grammatical frame that requires input from two languages (see also Haugen, 1950). This eventual stage of L1 attrition—a complete shift to the dominant language—may take a generation at the individual level, but several generations at the community level, sometimes leading to language death (Dorian, 1982; Myers-Scotton, 1998, 2002a; Seliger, 1996).

Related to systematicity and selectivity, another much debated issue in attrition is linguistic similarity. Sharwood Smith (1989) suggests that *typological proximity* and *structural similarity* are important factors that promote transfer. He maintains that learners have their own personal *intuitions* about the relatedness between language systems and the transferability of linguistic elements across the systems. In line with Sharwood Smith, Seliger (1996) suggests that a Redundancy Reduction Principle may be applied on L1 rules in favour of their L2 equivalents. Altenberg (1991, p. 103), who studied L1 attrition among German-English bilinguals, even argues that “L1 and L2 similarity is a necessary condition for transfer”. In fact, L1 attrition or loss is frequently reported as occurring when the contacting languages are typologically close in some way, for example, in pairs of German and English (Altenberg, 1991; Gross, 2000; Huffines, 1991; Schmid, 2002; Waas, 1996), Dutch and English (Ammerlaan, 1996; Hulsen, 2000), Spanish and English (Brewer-Bomar, 1982;

Hakuta & D'Andrea, 1992; Montrul, 2002, 2004b; Silva-Corvalán, 1996; Wong Fillmore, 1991), etc. Other studies also report L1 attrition in Russian (Andrews, 1999; Insurin, 1999; Pavlenko, 2003; Polinsky, 1996; Schmitt, 2001), Hungarian (Bolonyai, 1999; Vago, 1991), Hebrew (Kaufman, 1991, 2001; Seliger, 1991), Turkish (Yăgmur, 1997), Greek (Pelc, 2001), etc., all in contact with English.

However, there are conflicting views on the role of structural similarity in language attrition. While some researchers suggest that L1 structures similar to their L2 equivalents are more prone to loss caused by difficulties in discrimination and interference from L2 (e.g., Altenberg, 1991; Clyne, 1992; Insurin, 2000), others disagree (e.g., Andersen, 1982; El Aissati & Schaufeli, 1999). De Bot (1999) points out the dubious role of similarities in language attrition/maintenance (see 2.2.1.1). Romaine (1995) argues that the structure of the dominated language is not entirely lost but preserved in a new form through convergence. Whether triggered by similarity or difference and whether contact-induced or motivated by the innate tendency of language change, it is very likely that once change is triggered, other changes may build on it (Backus, 2005; de Bot, 2004; Romaine, 1995). Backus (2005) notes that typological distance may not ultimately be a barrier to convergence because successive changes accelerate convergence to an increasing extent. Thomason and Kaufman (1988, p. 14; see also Thomason, 2000) further argue that “any linguistic feature can be transferred from any language to any other language”.

Similarity/difference perceived by the bilingual based on her subjective assessment of equivalence is more important than actual or theoretical equivalence established by linguists (Backus, 2005, see also the above review of Seliger, Sharwood Smith, and the Abstract Level Model). While the bilingual is not aware of the subjectivity of her intuition or assessment (Backus, 2005), she might be attracted to the *copiability* of a linguistic unit or its particular properties in the dominant language that may fill the gap created in her L1 (Johanson, 1999a).

Speakers' subjective assessments of equivalence is the central concept in Johanson's (1999a; 1999b, inter alia) account of the processes of convergence as part of the wider

phenomenon of language change in language contact. In his Code-Copying Model, the morphosyntactic structure of a dominated language (language A—i.e., L1) is “ready to accept copies” of elements of the dominating language (language B—i.e., L2)<sup>23</sup> based on the speaker’s subjective assessments of equivalence (1999b, p. 249). According to Johanson (1999b, p. 250), the copied element may be a segmental unit as a whole or selected properties of the unit that are related to its shape, content, word-internal/external combination patterns, and frequency of use. The process involving the former type of copy is referred to as *global copying*. In this process, units such as free or bound morphemes, morpheme sequences, lexical/idiomatic items, phrases, or conversational formula are copied as unanalysed units from language B and inserted into the slots of their equivalents in the frame provided by language A. This process is commonly referred to as borrowing or code-switching. In *selective copying*, the copied properties of a unit in language B are mapped onto the equivalent unit in language A, leading to various phenomena known as loan phonology, loan syntax, loan semantics, calques, etc. Since both global and selective copies need adaptation in their original properties in language B in order to be inserted into slots or copied onto the units in the frame of L1, properties of both copies deviate from those of the originals. These changes in the properties bring about successive morphosyntactic changes in the original frame of L1, since the changes in the properties are interrelated with each other and functional elements may be part of these properties or part of the basic code (i.e., L1) that needs to be reshaped to accept the copies. In line with Seliger (1989; 1991; 1996), Silva-Corvalán (1996), Sharwood Smith (1983), Myers-Scotton (2002a), and many others, Johanson (1998) notes that these changes may ease the tension between the two codes within the bilingual’s mind and lead to morphosyntactic convergence.

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<sup>23</sup> Note that the original terms “language A” and “language B” are used to refer to “dominated language” and “dominant language” respectively in Johanson’s model, which is postulated for more broader phenomenon of language change in any language contact situation. These terms are replaced with “L1” and “L2” in the present discussion, since it concerns only L1 attrition phenomenon where the L1 is always the dominated language and the L2 is the dominant language.

The above review shows the multifacetedness of L1 attrition that involves the universal tendency of change innate to every language, cross-linguistic influence between languages in contact, and the speaker's perception of linguistic equivalence or differences and processing difficulties. Any linguistic change involving any one of these may trigger changes in the bilingual's L1 system. However, as Jakobson (1941, as cited in Weinreich, 1953, p. 25 ) notes, a language "accepts foreign structural elements only when they correspond to its tendencies of development". Thus, L1 attrition contributes to language change beyond the individual level (cf. Heine & Kuteva, 2005; Weinreich, 1953) and is often seen as providing a prognosis of future language change (Schmid & de Bot, 2004; Silva-Corvalán, 1996; see also Bullock & Gerfen, 2004b; Dorian, 1982; Polinsky, 1996; 1997).

## ***2.2 Areas of L1 attrition***

Theoretical aspects of L1 attrition suggest that L1 attrition may occur at any level of any language but that it neither occurs at random nor affects all aspects of the language at the same time and to the same degree (Gross, 2000; Gürel, 2004b; Köpke, 2004; Köpke & Nespoulous, 2001; Montrul, 2004b; Seliger, 1989, 1991). This section reviews empirical studies that address L1 attrition in particular linguistic levels and particular aspects of linguistic performance. The review focuses on research on L1 attrition among late bilinguals. Studies conducted exclusively on child attriters or second generation attriters are considered only when they have specific relevance to the present study.

### ***2.2.1 Linguistic structures***

#### ***2.2.1.1 Lexicon***

Andersen (1982) suggests that the main task for language attrition research is to determine "in which linguistic area the linguistic marking of distinctions will begin to erode, which will be next, and so on" (p. 92) and regards on-line lexical retrieval as the first area to be affected by attrition. A number of studies report lexical retrieval failures among bilingual speakers (Hakuta & D'Andrea, 1992; Insurin, 1999; Jaspaert & Kroon, 1992; Olshtain & Barzilay,

1991, among others; see Köpke, 2004; Köpke & Schmid, 2004; Schmid & de Bot, 2004, for a review). Some empirical studies that compare the degree of attrition between linguistic levels (Hutz, 2004; Köpke & Nespoulous, 2001; Köpke, 1999, as cited in Köpke & Schmid, 2004; Schmid, 2002) suggest that the lexicon is the first area to be affected by attrition. Researchers in the paradigm of the minimalist programme (Chomsky, 1995) regard the lexicon as the only source of linguistic variation and the only area where restructuring and loss are expected to occur (cf. Ecke, 2004). Theoretical studies reviewed earlier also suggest that lexical items are more subject to crosslinguistic influence than functional or grammatical ones (Johanson, 1999a, 1999b; Myers-Scotton, 2002a; see also Romaine, 1995). However, it must be taken into account that the lexicon is the most frequently investigated area to date and the best documented (Ecke, 2004; Gürel, 2004b; Pavlenko, 2000; Schmid, 2004a).

Research on lexical attrition is heavily influenced by the psycholinguistic tradition which has a long history of investigating bilingual's lexical access and retrieval. Such studies typically assess lexical attrition by investigating bilinguals' lexical retrieval ability through formal elicitation tests based on psycholinguistic theories (Ammerlaan, 1996; Hakuta & D'Andrea, 1992; Hulsen et al., 2001, 2002; Insurin, 1999; Waas, 1996; Yägmur, 1997), or analysing patterns of lexical items used spontaneously by the bilingual (Ben-Rafael, 2004; de Bot & Clyne, 1994; Hutz, 2004; Jaspaert & Kroon, 1992; Kaufman, 2001; Olshtain & Barzilay, 1991; Pavlenko, 2003; Schmitt, 2001; Yägmur, 1997).

The first issue related to lexical retrieval concerns the activation of lexical items. From a psycholinguistic perspective, word-finding depends on the complex interaction between two processes—storage and retrieval (Nippold, 1998). In order to facilitate word-finding, newly-learned items must be well stored and retrieved frequently. Old items need to be retrieved regularly; otherwise, due to the limited capacity of retrieval and the continuous competition from other items, they may become increasingly difficult to access and eventually become inaccessible (de Bot, 1999; Grainger & Dijkstra, 1992; Nippold, 1998; Paradis, 1997).

Experimental studies investigate loss in the lexicon using formal vocabulary tests. Participants are typically presented a series of pictures or words and their responses and/or the response time are measured (Ammerlaan, 1996; Hakuta & D'Andrea, 1992; Hulsen et al., 2001, 2002; Insurin, 1999, 2000; Polinsky, 1996; Schaufeli, 1992; Segalowitz, 1991). Such studies determine the degree of attrition and/or L2 interference, or types of affected lexical items. Another frequently used method is measuring the ability of the bilinguals to produce as many words as possible in a certain category (e.g., animals, vegetables, etc) in a given time and comparing their results with those of a monolingual comparison group to determine the degree of reduction in vocabulary size (Ammerlaan, 1996; Hakuta & D'Andrea, 1992; Waas, 1996; Yägmur, 1997). Findings from these experimental studies suggest that bilinguals in contact situations have some degree of difficulty in lexical retrieval in L1.

The second issue related to lexical retrieval is the accessibility of the lexical items. It is a generally agreed that receptive knowledge is better retained than productive skills. Some studies report no or little attrition in receptive vocabulary knowledge but a clear reduction in production skills (Ammerlaan, 1996; Hakuta & D'Andrea, 1992; Hulsen, 2000). These studies suggest that lexical items are still accessible in their participants' mental lexicon but that bilinguals have difficulties in processing these lexical items. Segalowitz (1991) on the other hand argues that, while a slowed L1 processing speed may be associated with advanced skills in L2, this did not reflect a loss or reduction in automatic processing in L1 word recognition.

In contrast to the general trend that recognises the relative robustness of receptive knowledge in L1 vocabulary, Pelc (2001) reports that her Greek-English bilingual participants performed in a very different way from her monolingual comparison group in their perception of *opaque expressions*<sup>24</sup>. Her participants' performance showed a significant difference from the control group in their perception of two Greek verbs—*perno/spazo* “take/break” in a grammaticality judgment test. There was a considerable degree of variability in their performance as compared with that of the monolingual group, and a great degree of

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<sup>24</sup> Opaque expressions are referred to as expressions that are used metaphorically (Pelc, 2001).

acceptance on items rejected by most of the monolinguals. Pelc further reports that her bilingual participants tended to accept the use of these verbs as a translation of their English equivalents—“take/break”. The grammaticality judgment test also included items on Greek idiomatic expressions, where the participants responded in a similar pattern, distinct from the performance of the monolinguals. From these findings, Pelc suggests that her participants’ L2 has permeated her participants’ receptive knowledge in L1 lexical items.

Another trend in research into lexical attrition has focused on types of lexical items susceptible to attrition. Findings regarding this aspect of lexical attrition seem in conflict. It is generally believed that less-common, low-frequency, highly-marked items are most susceptible to attrition and to the influence of L2 as claimed by Andersen’s (1982, p. 94) hypotheses. While this view is supported by some early studies (e.g., Altenberg, 1991; Leyen, 1984), Pelc’s (2001) findings, reviewed above, suggest a susceptibility of very common and highly-frequent lexical items. In her experimental study of a Russian child adopted by an American family, Insurin (1999; 2000) also reports that high-frequency words, cognates, and words semantically close to L2 equivalents were most vulnerable to loss. Insurin (2000) suggests that in an extreme condition of L1 disuse, semantic or phonological similarity between L1 and L2 cognate pairs might facilitate L2 acquisition. She argues that perceived similarity leads to subsequent replacement of the L1 labels for (near-)cognate pairs with their L2 counterparts and the eventual loss of L1 forms, and that frequent use of L2 high-frequency words increasingly blocks the access to L1 equivalents.

The ambivalent role of cognates is also found in studies of adult L1 attrition. Ammerlaan (1996; 1997) reports that his English-dominant Dutch participants recalled and recognised cognates better than non-cognates but that partial cognates led to confusion rather than to facilitation. In contrast to Ammerlaan’s findings, de Bot and Clyne’s (1994, as cited in de Bot, 1999) participants, adult Dutch immigrants to Australia, avoided using cognates since they perceived them as L2 lexical items. De Bot (1999) suggests that formal similarities may either facilitate or inhibit lexical retrieval, according to how the bilingual perceives the formal

similarity as a cue for the target lexical item. The issue of the role of cognates seems to have little relevance to the current study since the two languages involved here—Korean and English—share very few cognates.

Other studies focus on borrowing, code-switching, or lexical innovations using spontaneously produced data<sup>25</sup>. The direct use of L2 items in L1 discourse—i.e. borrowing or code-switching—could be the first and most widely observed lexical interference and may lead to attrition (Myers-Scotton, 1998; Schmitt, 2001). However, it is generally agreed that its presence alone is not necessarily indicative of attrition (Andersen, 1982; Jaspaert & Kroon, 1992; Pavlenko, 2004a; Romaine, 1995; Schmid & de Bot, 2004), since many incidences of borrowing or code-switching are socio-pragmatically motivated (Auer, 1995; Gardner-Chloros, Charles, & Cheshire, 2000; Gumperz, 1982; Myers-Scotton, 1993b; Yoon, 1992). For this reason, and because the main data for the current study do not include this type of interference, issues relating to borrowing and code-switching are excluded from this review.

Other types of interference, which Andersen (1982, p.183) refers to as “lexical innovations”, are those displaying loss or change of “specificity of meaning” (Schmid & de Bot, 2004, p. 215) as manifested through *loan shifts* (Haugen, 1950)<sup>26</sup>, *semantic transfers* (de Bot & Clyne, 1994) or *semantic extensions* (Pavlenko, 2003; Romaine, 1995). While these labels do not represent exactly the same phenomena<sup>27</sup>, it is generally agreed that they reveal retrieval difficulties through various errors stemming from the inappropriate mapping of L1 forms onto L2 semantics (Gal, 1989; Jaspaert & Kroon, 1992; Pavlenko, 2003). This is also

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<sup>25</sup> For a discussion on data elicitation technique, see Ellis and Barkhuizen (2005).

<sup>26</sup> In Haugen (1950), loan shifts are classified into two subtypes—loan translations (i.e. calque in French) and semantic loans. Loan translations or calque is morpheme-by-morpheme translation of L2 items into L1 in spite of the presence of the appropriate L1 items in the L1 lexicon. Semantic loans refer to the process where the semantics of a phonologically similar L2 word replace that of the L1 word or are added to its original meaning.

<sup>27</sup> For example, semantic transfers (de Bot & Clyne, 1994) appear to represent the same phenomena as Haugen’s (1950) semantic loans, while Pavlenko’s (2003, pp. 40-41) semantic extensions seem to have broader meaning. While Pavlenko (2003) states that she uses semantic extensions as the synonym of loan shifts, she seems to take loan translation as a separate category from loan shifts but not as a sub-type. She also applies semantic extensions to the phenomenon where semantics of an L1 lexical item is extended to that of another L1 item as a result of the analogy to the range of meaning of its L2 equivalent (see the example of *kharacter* in the main text). This category is similar to Seliger and Vago’s (1991, p. 8) meaning extension (see 2.1). For more detailed discussion on terminology in regard to lexical interference, see Fuller (1997), Gal (1989), Haugen (1950), Pavlenko (2003; 2004a), and Weinreich (1953).

explained by the Abstract Level model (Myers-Scotton, 1995, 2002a; Myers-Scotton & Jake, 1995; 2001: see 2.1 above) as evidence of splitting and recombining of the abstract lexical structure of the corresponding L1 and L2 lexical items to produce an inappropriate L1 form (Fuller, 1997; Gross, 2000; Schmitt, 2001). For example, in a Russian-English contact situation in Schmitt's data (2001), a Russian word *kharactar*, which is a homophone of an English word "character" but has a narrower meaning of "character of a person", is used by a participant to mean "character as a personality in a story or a game" where another word *geroy* would be more appropriate. Skaaden (2005) explains such a phenomenon as selective copies in the framework of Johanson's (1999a; 1999b) Code-Copying Model. In her data produced by Serbian/Croatian immigrants to Norway, Serbian/Croatian (L1) words were used in a way, which is not acceptable by monolingual L1 speakers, to denote the semantics of their L2 translation equivalents. This is exemplified by their use of an L1 word *vlak* (literally "train") in describing a children's parade. According to Skaaden (2005, p. 444), while the L2 translation equivalent of this L1 word *tog* is acceptable for both "train as a vehicle" and "a line of walking humans.", the use of *vlak* for human beings is not. In this case, *povorka* or *parada* ("parade") is the appropriate word if produced in their L1.

The phenomenon of loan shifts or semantic transfers is also investigated by de Bot and Clyne (1994) and Jaspaert and Kroon (1992). While the authors of both studies report little evidence of L1 attrition in spite of the long-term exposure to the L2 environment and shift of their everyday language to the L2, they found examples of loan shifts in their data. In their analysis of the characteristics of speech produced by their participants, de Bot and Clyne (1994, p. 20) identified lexical items where semantics of English words were transferred to their homophones or part-synonyms in Dutch. For example, a Dutch word *smal* was used instead of *klein* to mean "small"; *stil* was used instead of *nog* to mean "still", etc. In Jaspaert and Kroon's (1992) study, an 83-year-old participant, whose dominant language had shifted from Dutch to English, was found to use loan shifts in letters written to his home country. For example, the participant used a Dutch word *oproepen*, which is a literal translation of "to call

up” (in the meaning of “to telephone”), where *opbellen* would be appropriate. Jaspaert and Kroon (1992) explain this phenomenon as a process of adaptation of the conceptual system of the participant to that of the English speakers around him.

While studies by de Bot and Clyne (1994) and Jaspaert and Kroon (1992) suggest that loan shifts or semantic transfers may occur in bilinguals whose L1 system seems little affected by attrition, Hutz (2004) provides stronger evidence of loan shifts in a very early stage of L1 attrition. In his analysis of letters written by a German immigrant residing in the United States over several decades, Hutz compares the degrees of lexical, morphological, and syntactic attrition and reports that the number of loan shifts increased dramatically during the first decades of immigration while other areas showed gradual change. In line with Jaspaert and Kroon (1992), Hutz (2004) views this process as the adoption of L2 reality that may lead to a conceptual merger between L1 and L2 within the bilingual’s mind.

Pavlenko (2002; 2003; 2004a) views semantic extensions/transfers as the manifestation of restructuring of the L1 lexicon in line with L2 semantics. In her data from Russian-English late bilinguals, she identified semantic transfers in vocabulary relating to emotional expression that violates semantic and morpho-syntactic constraints in Russian. For example, in describing a woman in a short film, who was “angry” because her privacy was violated, some participants used a Russian word *zla*. Although this word is one of three translation equivalents of “angry”, it has a narrow meaning of “malicious”, “very angry”, or “mean” (particularly as a personal characteristic), which is less appropriate for this situation. In describing the same woman, Russian monolinguals predominantly favoured *serdityi* “cross”/“angry at the moment” (Pavlenko, 2004a, p. 51). Pavlenko (2003) suggests that this type of restructuring, together with restructuring at the morpho-syntactic level and in emotion scripts, may lead to attrition at the conceptual level in favour of L2.

Olshtain and Barzilay (1991) and Kaufman (2001) focus on loss of specificity in lexical use. Olshtain and Barzilay (1991) consider this particular aspect of lexical loss as evidence of reduction in lexical accessibility among their adult English-Hebrew bilingual

participants. In picture-describing tasks, these participants used hypernyms or synonyms which lacked the specification of the target word or represented incorrect/additional semantics. For example, instead of using the word *pond* or *swamp*, many of their participants used *water*, *lake*, *ocean*, or *puddle*. In other cases, their participants used paraphrases or circumlocutions in order to “avoid the painful retrieval process”. For example, one of their participants used “ground of living room” to mean “floor” (p. 149). Kaufman (2001) reports a similar trend to the above findings in her study of Hebrew-English bilingual pre-puberty children. In her data produced by children using the same picture book as used in Olshtain and Barzilay, Kaufman (2001) found a strong preference for bilexic verbs. For example, instead of the correct monolexic verb *tipes* “went up” or “climbed”, her participants used various forms of *holex* “go” followed by a particle *al* “up” (p. 194). Kaufman regards this as evidence of frequently-used L2 structures extended to L1. Such preference for analytic structures is also noted at the levels beyond lexicon as shown in later sections (see 2.2.1.3 and 2.2.1.5). Polinsky (1996) also found a preference for analytic forms in her Russian data. Her participants preferred to use *o·cen’ tolstyj* ‘very thick’ instead of *tolstennyj*, and *ogromnyj dom* ‘huge house’ instead of *domi·s·ce* (p. 51). Polinsky notes that analytic forms are preferred to synthetic forms by these attriters at the expense of specificity of meaning.

The views of researchers on *lexical innovations/loss* vary in how they interpret their findings. Waas (1996) reports “substantial loss” in her participants’ vocabulary knowledge, whereas Ammerlaan (1996; 1997) suggests that the bilingual’s seeming loss of L1 is only the result of processing difficulties, but not permanent loss from the memory. Some researchers note that some features of lexical innovations that deviate from L1 norms are found in non-attriters’ L1 but that they are more pervasive in the attrition data (Ben-Rafael, 2004; Jaspaert & Kroon, 1992; Kaufman, 2001), reminiscent of the claim that L1 attrition is language change accelerated within an individual (Schmid & de Bot, 2004; Silva-Corvalán, 1996). Jaspaert and Kroon (1992) claim that this process may be viewed as acquisition rather than attrition in that it adds a new variant of a given lexical item to the bilingual’s existing lexicon.

The conflicting findings reviewed above may be due to the participating languages, researcher's viewpoints, underlying theoretical assumptions, and the context of the research. While it is not plausible to control every variable in order to isolate the phenomenon of lexical attrition, the above review suggests that the phenomenon should be approached through the triangulation of data, methodology, and perspectives. This includes the need to investigate data—elicited and spontaneous—through both experimental and spontaneous tasks (Schmid & de Bot, 2004). The present study elicits both L1 and L2 vocabulary knowledge by using a standardised vocabulary test and investigates oral narrative data produced in both L1 and L2 (see 3.3). It should also be considered that attrition in other linguistic levels may build on lexical attrition. This study analyses two different types of L1 and L2 vocabulary skills quantitatively in order to provide a more accurate assessment on lexical skills. In order to corroborate the quantitative findings, it also analyses L1 oral narrative data qualitatively and illuminates the underlying mechanisms of lexical retrieval difficulties during on-line production. This provides a more comprehensive account of the lexical attrition in this particular group of bilinguals.

#### *2.2.1.2 Phonology*

While the phonology of bilingual speakers has frequently been the subject of extensive investigation in a number of studies in L2 acquisition, psycholinguistics, bilingualism, child language acquisition, etc. (for a review, see Bhatia & Ritchie, 1999; Leather & James, 1999; Major, 1992; Pavlenko, 2000, 2004a), it has received far less attention in studies in L1 attrition (Bullock & Gerfen, 2004a; Insurin, 1999; see also Schmid, 2004c). Phonology is the first linguistic level acquired by infants and it has been suggested that, once acquired, it is relatively resistant to loss compared with other linguistic features (Dorian, 1982; Fuller, 1997; J. S. Oh, Jun, Knightly, & Au, 2003; Thomason, 2000; Ventureyra & Pallier, 2004). Perhaps for this reason, this area appears to have received little attention by L1 attrition researchers.

A number of early studies on language contact suggest that phonology in a weaker language may be susceptible to change by internal/external influence, which may eventually

lead to convergence to and/or replacement by the phonology of the dominant language (for a review, see Bullock & Gerfen, 2004a). In his 1982 paper, Andersen provides a detailed account of attrition in the L1 phonological system. His account predicts a gradual reduction in the number of phonological distinctions, the levelling of phonological distinctions in favour of those in the dominant language, and the higher probability of maintaining phonological distinctions that carry a high functional load within the attriting language. While there is a general agreement on Andersen's hypotheses (Campbell & Muntzel, 1989), it is often pointed out that there is a general lack of empirical quantifiable evidence (Bullock & Gerfen, 2004a; Myers-Scotton, 2002a). There is a small body of recent empirical studies on attrition in L1 phonology. These studies are reviewed below, starting with those investigating low level phonetic/phonological differences, followed by those investigating stylistic variations and the stability in the L1 phonological system.

Bullock and Gerfen (2004a; 2004b) investigated phonetic differences in the individual speaker's phonological system. They interviewed two older participants from the last generation of bilingual speakers in a French enclave community in the US, where language shift is almost complete. In this study, Bullock and Gerfen (2004a) question the general rule of language change that favours unmarked forms (cf. Seliger & Vago, 1991; Sharwood Smith & van Buren, 1991) and Andersen's hypothesis (1982) regarding the likelihood of maintaining distinctions with a high functional load. Through the spectrograms of their data, the authors showed that the allophonic distinction between two mid-front rounded vowels—[œ] and [ø]—tended to level out converging on an English-like rhoticised<sup>28</sup> schwa [ə̣] in spite of their functional load in the French phonological system. They argue that this change does not represent simplification or reduction since [ə̣] is generally regarded as highly marked in the world's languages. Bullock and Gerfen (2004b, p.102) explain that the English rhotic schwa serves as the closest “perceptual map” for [œ] and [ø] while at the same time it

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<sup>28</sup> Rhoticisation refers to realisation of vowels with slight r-colouring as in bird [bæ̣:d], car [kạ:r], etc. (cf. J. C. Richards, Platt, & Platt, 1992)

preserves the acoustic saliency from other mid-front vowels as well as maintaining the visual saliency associated with rounded vowels<sup>29</sup>. The authors (2004a) also examined the participants' pronunciation of French words that contained a phonemic /r/, a segment phonetically distinct from American English retroflex /r/. They found that the French phonemic /r/ was clearly preserved in spite of its likelihood of being replaced by an English retroflex /r/. Based on this observation, Bullock and Gerfen (2004a) suggest that functional load or markedness may not be the main reason for some distinctions to be preserved or lost, and suggest that other factors such as perceptual saliency or membership marking may play a more important part in some cases (see also 2.2.3.1.6).

Another study considering low level differences is Andrews (1999). He investigated attrition in the L1 intonational pattern among 12 Russian immigrants to the US, aged 20-30 years and early bilinguals who used Russian as the primary language in their homes. Although there was no need for the participants to be emphatic in their Russian narratives, they frequently used intonation patterns that might be perceived as marked in standard Russian. Andrews argues that, in spite of the markedness of these patterns in standard Russian, they were favoured due to their similarity to English unmarked forms (e.g., high-rise-fall for declaratives; post-tonic high-rise for yes-no questions), while unmarked Russian-specific patterns which were more dissimilar to typical English patterns were less favoured.

L1 attrition studies are also scarce at the morphophonemic level. While the morphophonemic system may not be immune to L1 attrition, Vago (1991) is the only published study in this area to date. Vago investigated the morphophonemic system of an L1 speaker of Hungarian exposed to Hebrew for an extended period of time since childhood. Data were elicited by a morphophonemic task, where the participant was required to provide various inflections for the given Hungarian nominal and verbal stems, and participate in a subsequent grammaticality judgment task using the same items. The findings showed that the

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<sup>29</sup> According to Bullock & Gerfen (2004a, p.317), American English schwa rhoticisation also involves lip rounding.

participant had difficulties in using appropriate allomorphs for the given cases, and that her L1 morphophonemic system revealed reduction or elimination of allomorphic variations and an increase of paradigmatic transparency. These changes are considered as internally induced—either by universal principles of normal linguistic change or some aspect in the L1 grammar (e.g., regularity in paradigmatically related forms such as the overt possessive marker) (Seliger & Vago, 1991; Vago, 1991).

Another area concerned with phonological attrition is stylistic variation as revealed in the phonological variability occurring in different contexts. Major (1992; 1993) investigated the degree of convergence of L1 and L2 phonemes according to the degree of formality of the context. He measured the amount of aspiration (technically referred to as VOT<sup>30</sup>—voice onset time) for voiceless stops /p, t, k/ in both L1 and L2 produced by English-Portuguese adult late bilinguals in Brazil in both a formal task and an informal conversation. The formal task included producing tokens of words given in a list and producing sentences using those words. Major reports that VOTs produced by some participants in spontaneous speech in L1 (English) were influenced by the L2 (Portuguese), but more native-like in a more formal task, while the degree of correctness in VOTs in Portuguese correlates with L1 loss in both formal and informal speech. Major considers that this stylistic variation stemmed from the greater amount of attention paid during the formal task. According to Major (1992; 1993), since informal speech was monitored to a lesser degree, it was more susceptible to the influence from “Brazilian English”, the norm of English spoken by the majority of the host country. Major argues that the degrees of convergence to this norm in English informal speech by the participants reveal their differential degrees of acculturation to the host society.

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<sup>30</sup> VOT refers precisely to “the duration of the interval between the release of the closure of a plosive sound and the start of vocal fold vibration” (Hewlett & Waters, 2003, p.529). The duration between the two points depends on the amount of aspiration. This measure is widely used in language-related areas such as child language studies, SLA studies, bilingualism and studies on various language disorders to estimate the differential stages of linguistic development of children (e.g., D. Snow, 1997) or to measure the degree of divergence from the native (as in research in SLA and bilingualism (e.g., Caramazza, Yeni-Komshian, Zurif, & Carbone, 1973; J. S. Oh et al., 2003)) or normative norm as in clinical linguistics (e.g., Baum & Ryan, 1993).

While most attrition studies, including those reviewed above, concentrate on what is lost in the linguistic system of the attriting language, studies by Ventureyra and her associates (Ventureyra & Pallier, 2004; Ventureyra, Pallier, & Yoo, 2004) attempt to investigate the stability of L1 systems in contact situations. They administered various experimental tests to native Korean young adults (aged 22-36 years) who had been adopted by French-speaking families at the ages of 3-9 years and had since ceased using their L1. The authors report that their participants' performance was similar to French native speakers' but very unlike Korean native speakers'. They were unable to distinguish Korean from other languages and to discriminate between Korean consonant phonemes in a consistent manner. Based on these findings, the authors suggest that, in an extreme contact situation where an individual has been uprooted from her L1 environment and rapidly immersed into an L2 environment, the L1 phonology, which is regarded as relatively robust, may become obsolete (Ventureyra & Pallier, 2004; Ventureyra et al., 2004). Their findings provide some evidence against the Critical Period Hypothesis regarding early completion of acquisition of L1 phonology at around the age of 6 years (Birdsong, 1999; M. Long, 1990; see also Harley & Wang, 1997). This issue is further discussed in 2.2.3.1.

In spite of the small volume and short history of empirical studies on phonological L1 attrition, issues addressed by the studies confirm that attrition is a complex phenomenon that cannot be understood in isolation from other linguistic levels and socio- and psycholinguistic variables. Each study has important and insightful implications in terms of the nature and the mechanism of phonological attrition and illustrates that attrition could occur even in the area of phonology. While adult immigrants' L1 phonology could be subjected to attrition (Major, 1992), it can be more extreme in the L1 phonology of young children (Ventureyra & Pallier, 2004; Ventureyra et al., 2004).

The review reveals that parameters in the phonological system are not fixed but may be reset and/or subject to internal motivation and/or external influence. Vago's study (1991) shows evidence of paradigm-internally induced attrition, while Major (1992) and Bullock and

Gerfen (2004a) are concerned with externally-induced L1 attrition. It is not clear whether the attrition occurring in the intonational patterns among Andrews' (1999) participants was driven internally or externally. While it may be regarded as internally-induced since the changes conform to the general tendency of favouring unmarked forms—i.e. intonation universals—it can also be regarded as a false mapping of Russian speech on the American English pattern of intonation (p. 137). As Andrews notes (p. 146), it is often “difficult to determine which has played the greater role, but the two causes are not mutually exclusive”, and this may be the case with most of the incidences observed as attrition. The studies reviewed above confirm the difficulty in drawing a conclusive model of phonological attrition (Bullock & Gerfen, 2004a). Another difficulty in investigating phonological attrition is that speakers may not be aware of the changes occurring in their phonological skills until attrition has progressed to a significant degree. Considering the incipient stage where L1 phonological attrition research stands, it is too early to speak of trends, hierarchies, or specific mechanisms of phonological attrition (Bullock & Gerfen, 2004a, p.305).

### 2.2.1.3 *Morphology*

Literature on L1 morphological attrition points to an overall reduction in morphological complexity and the development of analytic structure (Polinsky, 1996, 1997; Schmid & de Bot, 2004, see also Andersen 1982). These morphological changes are likely to occur when the contacting languages have different morphological structures as well as similar ones, since the preference for unmarked and simpler forms is inherent in interlanguage and similarity in structure may lead to convergence.

Findings on changes in L1 morphological features are not always in accordance with each other. While Jordens, de Bot, van Os, and Schmans (1986), Jordens, de Bot, and Trapman (1989), and Schmid (2002) found little reduction in the overall German case system in their data, there was confusion between case distinctions among their participants. These authors argue that this confusion is the result of interference not from the L2 grammar which assign case according to word order but from other factors such as *definiteness* and *implied*

*person* of the entity which the participants' cognitive judgment is based on (Jordens et al., 1989; Schmid, 2002). That is, the degree of confusion was higher with definite NPs and with NPs that implied person. From a viewpoint of the Abstract Level model, Gross (2000) found a relatively lesser degree of attrition in German case morphology than in other morphological categories. However, he found that the accusative case was less accurately assigned than other cases and concludes that the L1 case system among his participants is in the incipient stage of convergence to that of L2 English.

In her study of Hungarian-English bilingual children, Bolonyai (1999; 2000) reports that case-marking is one of the categories in Hungarian morphology most affected by attrition in an English-dominant environment. Within the framework of the Abstract Level model, Bolonyai illustrates that, while oblique case endings tended to be substituted with less appropriate ones, accusative case endings were typically omitted in the SVO structure, an acceptable word order in Hungarian. Bolonyai considers this to be the replacement of the L1 accusative case-endings with the L2 counterpart (no marking) and argues that the ML of her participants' bilingual speech has become a composite ML (see 2.1). Problems with the accusative case are also found in Russian data, pointing to its susceptibility in attriting L1 case system (Insurin, 1999; Turian & Altenberg, 1991). In Polinsky's (1996; 1997) studies of Russian-English bilinguals, her participants tended to replace the dative with the accusative. Polinsky found that, in her data, the function of the accusative is reduced to encoding specifically the indirect object and sometimes direct object, and that the use the nominative as a multifunctional case marker to indicate subject and, optionally, other cases (i.e., accusative, prepositional oblique, etc.). Polinsky argues that a two-case system (nominative and accusative) develops in her participants' L1 morphology.

While the conflicting findings on L1 attrition in case morphology may be due to the difference in the attrition phenomena investigated, these conflicts seem to be influenced by the factors such as the distance between the participating languages and the difference between the participants in their bilinguality. That is, the L1 (German) in the studies by

Jordens and his associates (Jordens et al., 1989; Jordens et al., 1986) and Schmid (2002) are typologically close to the L2s (i.e., Dutch and English) while those in Bolonyai (1999; 2000) and Polinsky (1996; 1997) are not. As for the participants, while the participants in the former studies are mainly late bilinguals<sup>31</sup>, those in Bolonyai's study are early bilinguals and Polinsky's study includes both early and late bilinguals. The confounding effects of these two variables make it difficult to compare and evaluate the results from these studies in order to apply them to the present study, other than to note that the case system is not immune to L1 attrition.

Other studies investigate plural- and gender-markings on NPs. However, these categories are not considered in this review. Neither Korean nor English encodes grammatical gender on the noun<sup>32</sup>. In Korean, the sole plural-morpheme is optional and its use is heavily dependent on the discourse context. Although it is possible that the frequency of plural-marking may increase on analogy with English, existing studies on attrition in plural-marking<sup>33</sup> focus on reduction in complexities and irregularities in L1 complex NP-inflection rules. These types of categories do not exist in Korean grammar.

Attrition in verb inflectional morphology is most frequently investigated in terms of tense, aspect, mood, and agreement (in number, person and gender). There is no such agreement morphology in Korean, except for that related to honorific expressions. There has been no study investigating attrition in honorific expressions to date.

There are a few studies investigating tense, aspect, and mood, and all of them report evidence of attrition in the verb morphology. In her German data, Schmid (2002) notes that, while the inflectional patterns in both regular and irregular verbs were highly resistant, periphrastic tenses related to aspect and mood showed vulnerability to attrition. There were a number of misapplications of modal auxiliaries (*sein* or *haben*) and deviant mixing-up of more than one tense while parts of a periphrastic construction were often missing. Another

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<sup>31</sup> It is not clear whether the participants in Jordens et al.(1989) are early or late bilinguals.

<sup>32</sup> For some findings related to this category, see Gross (2000), Hutz (2004), Pelc (2001), and Schmid (2002).

<sup>33</sup> The L1 investigated in most of the studies in terms of this category is German (Altenberg, 1991; Gross, 2000; Schmid, 2002), while Håkansson's (1995) study was on Swedish.

finding is related to the overgeneralisation of the present tense, for example, in the narration of events. Schmid found that the majority of such cases involved verbs that also could be used as auxiliary (modal) verbs and had potential for carrying past time reference (p. 142). Based on these findings, she explains that her participants might have applied the present tense as an *unmarked* choice when they were uncertain about the use of the past tense involving such verbs. Her findings are of interest since, in Korean, tense-marking in a subordinate clause particularly in narrations is based on the relative rather than the absolute tense of the main verb. If attrition has effects on Korean tense morphology, it might operate in the opposite direction to Schmid's findings.

R. Anderson (2001) investigated attrition in L1 verbal inflection in two young Puerto-Rican sisters. In her analysis of interactions between the participants and their mother, she found overgeneralisation in the verb conjugation paradigm involving tense/aspect/mood. Although it was assumed that the Spanish-English bilingual children had acquired most of the L1 verbal inflections before the outset of data collection (i.e., at 4;7 and 6;7 years of age respectively), R. Anderson reports that regular conjugation was applied to irregular verbs and that irregular conjugation which should be applied to specific person(s) was extended to all persons across the tense paradigm<sup>34</sup>. This tendency was more prominent among low-frequency verbs and in the past tense (simple and imperfect), while the tense of irregular high-frequency verbs was produced correctly. The younger child's data showed a clearer reduction in using tense/aspect/mood, particularly in a contrastive use of tense and/or aspect. Furthermore, both children consistently produced a number of errors related to mood. R. Anderson concludes that infrequent use of low-frequency irregular verbs and possible imperfect learning contributed to the tense-related errors.

Silva-Corvalán (1991; 1996) reports on reduction in the tense/aspect/mood categories among her Spanish participants. In line with her view of attrition as a process of

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<sup>34</sup> Spanish irregular verbs are in fact "regular" since similar types of verbs conjugate following similar rules. For details, see R. Anderson (2001, p. 383)

simplification that accelerates convergence to the dominant L2, Silva-Corvalán argues that the extension of various tense markers leads to the disappearance of perfective/imperfect aspectual distinction (i.e., preterite and imperfect) and to the development of a simplified system with more analytic structures, not present in the Spanish verb system. Silva-Corvalán illustrates that simplification in the tense/aspect/mood categories in the Spanish morphology of her participants occurs steadily towards a less grammaticalised system.

Montrul (2004a) also studied attrition in Spanish verb inflectional morphology. Her participants were simultaneous or early Spanish-English bilinguals in the US. While her findings from these bilinguals are in line with Silva-Corvalán (1991; 1996), she also compared the tense/aspect/mood system of these heritage speakers with that of advanced learners of Spanish. She reports that the heritage speakers' Spanish semantic systems deviated from that of unattrited native speakers' and were similar to that of advanced learners of Spanish from an English-speaking background. Montrul suggests that tense/aspect/mood distinctions in Spanish are vulnerable to attrition due to the interaction between grammatical and lexical aspects, and that incomplete acquisition affects both advanced L2 learners and heritage L1 speakers.

In her investigation of the Russian verbal morphology in her participants, Polinsky (1996) found that her participants tended to replace the perfect/imperfect opposition with telic/atelic verbs. Polinsky reports that this process occurs in verbs denoting *achievement/accomplishment* and *processes/states*, as well as in *motion* verbs. Based on these findings, Polinsky argues that the aspectual system is partially restructured in her participants' Russian. In addition to the examples related to aspect, Polinsky enumerates a number of examples that show a preference for other analytic structures in her data. For example, her participants tended to use a combination of a transitive verb and object (e.g., a Russian version of 'wash his face') instead of a reflexive form without an object.

Pavlenko (2003) reports that her Russian-English late bilingual participants had difficulties in discriminating between determinate and indeterminate—subcategories of

imperfect aspect for the motion verb in Russian. Difficulties also arose when both forms of the given aspectual pair are grammatically acceptable and lexical choice must be made according to the context (Pavlenko, 2003). Pavlenko reports that these difficulties led to both a preference for the imperfect, which is the unmarked form of the aspectual pair, and the use of the imperfect in a wider variety of contexts than acceptable in standard Russian.

While there are not many studies investigating L1 attrition in morphology, the findings from the studies reviewed are rich with evidence that reveals the susceptibility of the L1 morphology of bilinguals to attrition. The views of the researchers are not always congruent with respect to whether the findings are evidence of attrition in progress, and whether the attrition is due to L2 influence or innate universal tendencies in languages. However, all point to the directionality of the changes toward the preference or development of analytic forms, the loss of specificity, the lexicalisation of grammatical morphemes, and a development of a default multifunctional marker for a certain morphological category (e.g., the nominative case, present tense, and imperfect aspect). While the findings from these studies are valuable, the L1s investigated have very different morphological systems from Korean. No previous studies on attrition addressed the morphological changes in Korean or Japanese, a typologically close language. Findings from the present study may have a somewhat different insight on morphological attrition.

#### *2.2.1.4 Syntax*

L1 structural properties are generally considered more resistant than lexical ones to the influence of L2 (Andersen, 1982; Gross, 2000; Gürel, 2004b; Myers-Scotton, 1993a; Schmitt, 2001; Thomason & Kaufman, 1988). However, Schmid and de Bot (2004) note that L1 syntax may be an area subject to simplification in the attrition context. Others suggest that L1 syntax may undergo restructuring as a result of crosslinguistic influence (Hutz, 2004; Pavlenko, 2000). Findings on attrition in L1 syntax disagree in the degree of attrition and the source of change (i.e., internally/externally induced change). Most studies report a general dispreference for embedded structures and hypothetical expressions, and various degrees of

change in word order, relativisation, adverbial placement, clitics, and null/overt subject/object. Of these features, research on clitics is not considered in the following review, since this feature is neither present in Korean grammar nor prominent in English (see Silva-Corvalán, 1996, for the evidence of convergence regarding this feature).

Word order is the most frequent variable discussed in L1 syntactic attrition. Some early studies briefly report that their participants have difficulties with L1 word order. For example, Waas (1996) notes that all of her Australian German-English bilingual participants showed a tendency towards SVO word order “even in relatively simple [German] sentences” and that they frequently abandoned the German sentence or switched to English (p. 165). While de Bot and Clyne (1994, p. 20) also found that Dutch immigrants to Australia used a generalised SVO word order “even in subordinate clauses”<sup>35</sup>, there was no significant difference in their preference for this feature between their two data sets collected at a 16-year interval. It should be noted that word order was not a major focus of these studies (other major findings from these studies are discussed in various parts in this section).

Håkansson (1995) investigated the use of the V2 rule in Swedish among her five long-term Swedish expatriate participants with various linguistic backgrounds and personal histories. The V2 rule is regarded as a highly marked feature in comparison to SVO word order (Håkansson, 1995; see also Hyltenstam, 1977) and difficult for L2 learners (Clahsen, 1984; Schmid, 2002, 2004a). In contrast to Waas’ (1997) findings, Håkansson reports that, while there is a loss of other less marked morphological elements in her data, the Swedish word order—the V2 rule—had been well retained in her subjects<sup>36</sup>. While these findings

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<sup>35</sup> Note that there is a complex word order rule, commonly called the V2 rule, among Germanic languages except for modern English. Dutch syntax also follows this rule. According to this rule, the finite verb in the main clause immediately follows the first constituent (i.e., a sentence subject or a topicalised constituent), while the verb in the subordinate clause comes clause-final. For detailed explanation about this rule see Schmid (2002), Gross (2000) and Håkansson (1995).

<sup>36</sup> Based on these findings, Håkansson (1995) argues that the regression hypothesis could not be supported since the marked and late-acquired feature was better retained than other features considered less-marked and acquired earlier, and her participants’ performance did not resemble any stages of monolingual children’s L1 development.

suggest the relative robustness of L1 syntax, the small number of participants and the variability of their background limit their power as empirical evidence.

Schmid (2002; 2004a) examined the distribution of the V2 rule in German-English bilinguals. Her findings are in accordance with Håkansson's (1995) in that the participants' data parallel those from a monolingual control group in terms of word order in the main clauses, where the position of the verb coincides with that in the SVO order in English. However, her participants tended to overgeneralise the English SVO word order in German subordinate clauses, which contradicts Håkansson's findings. Schmid argues that there are interlanguage effects in the convergence to the L2 word order among her participants.

Gross (2000) also investigated word order in complex sentences produced by long-term German immigrants to the US. While he also found a similar pattern of word order variation to those identified in the studies reviewed above, he applied the Abstract Level model (see 2.1) to interpret the data. Based on this model, he argues that, in his participants' German system, the abstract lexical structure of complementisers that led subordinate clauses converged towards that of English grammar, triggering an SVO word order. He views these findings as evidence for the development of a composite Matrix Language, which takes its grammatical source from the two languages and may lead to Matrix Language Turnover (Myers-Scotton, 1993a; 1998, *inter alia*)—the reversal of the original ML-EL relationship maintained prior to the development of the composite ML. He concludes that his participants' L1 was at the incipient stage of this process.

While the above studies all deal with the word order related to the obligatory V2 rule in the L1s of their participants, Silva-Corvalán (1996) investigated Spanish SV/VS word order which is optional and constrained by various discourse contexts. Silva-Corvalán found that SVX order is becoming obligatory among her Spanish-English bilingual participants and views this as a result of convergence to English SVO word order.

Another feature related to word order involves dative constructions. Seliger's (1991; 1996) study of an English-Hebrew bilingual child residing in Israel is the only study

investigating this aspect of word order to date. According to Seliger (1991; 1996), Hebrew and English have different rules for sentences that contain dative arguments. While some English verbs allow double object or direct-indirect object (DO, IO) sentences, the alternation between the constructions NP V NP<sub>DO</sub> PP and NP V NP<sub>IO</sub> NP<sub>DO</sub> is governed by syntax and constrained by the lexical characteristics of the verb. Hebrew does not allow double object sentences, and the NP for the dative argument (i.e., IO) is always bound to its preposition in the form of a PP. This is allowed to alternate with the direct object NP in position, but without preposition stranding (for a more detailed explanation of this feature in English and Hebrew, see Seliger, 1991, 1996). In his study, the participant tended to accept ungrammatical English (L1) sentences where the indirect object in the PP came immediately after the main verb and reject grammatical ones where the indirect object was without the preposition. Seliger (1991; 1996) regards this as a result of crosslinguistic influence from the Hebrew (L2) rule that allows flexible placement of the PP and assigns the role of direct object to the first noun following the transitive verb.

Yet another feature related to word order is adverbial placement. This is investigated by de Bot and Clyne (1994) in their study of Dutch-English bilinguals reviewed above. In this analysis, they found a significant increase towards the English placement of place, time, and manner adverbials in their data collected 16 years after their first investigation. This contrasts to their findings in word order where little change was found over the same period.

Studies investigating L1 attrition and relativisation consider features including: placement of the relative clause, use of relative markers/pronouns, pronominal copy/deletion of the relativised referent in the relative clause, preposition stranding when the object NP of a preposition is relativised, and word order within the relative clause. Seliger (1989; see also 1996) is one of the early researchers to address these features. In his 1989 study, Seliger reports on attrition in relativisation skills in an English-Hebrew bilingual child who is also the participant in his studies reviewed above. In a grammaticality judgment test, which required the participant to judge the acceptability of the grammaticality of English (L1) sentences

containing correct or incorrect relative clauses and to improve sentences judged unacceptable, Seliger (1989) found two influences from Hebrew (L2) in the participant's use of *that* as an "all purpose relative pronoun" as well as a subordinator (p. 180) in producing relative clauses in English. According to Seliger (1989), while the relative marker *še* is placed immediately after the head NP and leads a relativised clause, roughly equivalent to English 'that', it only signals the relative status of any type of clause and requires a pronominal copy of the referent in the relative clause, which is optional in the subject position. Seliger reports that his participant optionally used a subject pronoun to fill the subject position of English relative clauses led by "that". A second influence was revealed in her tendency to retain a pronominal copy of the relativised NP. Based on his Redundancy Reduction Principle (1989; 1991; 1996, see also 2.1 above), Seliger argues that the participant applied L2 rules to the equivalent L1 syntax without L1-specific requirements so that both languages might be maintained in her mind with less cognitive demand.

In her study of Spanish-English bilinguals, Silva-Corvalán (1996) investigated the use of *que*, which functions as a complementiser or a relative pronoun in a similar but not identical way to 'that' in English. According to Silva-Corvalán, Spanish allows non-expression of *que* as a complementiser for *estimate verbs* such as *creer* "to believe/think" or *pensar* "to think", usually in formal and written registers, and not for the verbs in a wider range as in the case with English "that". While the *que* relative pronoun is always present as an overt form, the English "that" relative pronoun is frequently unrealised in the surface form if it functions as an object of a transitive verb or a preposition in the relative clause. Silva-Corvalán reports that, in her data, which her participants produced orally, the *que* complementiser occurred as zero *que* with *estimate verbs* frequently. While zero *que* also occurred with *non-estimate verbs*, particularly in the second generation heritage speakers, Silva-Corvalán noticed no occurrence of zero *que* in relative clauses. Drawing on the tendency of increasing occurrence of zero *que* in other varieties of Spanish, Silva-Corvalán

concludes that, in her participants' L1, influence from English may have accelerated the diffusion of zero *que* in Spanish structures that parallel English structures.

Null/overt subject, in other words, *pro-drop/non-pro-drop* is one of the features that are most frequently adduced in discussing typological distance between languages. Investigation into *pro-drop* and L1 attrition is mostly concentrated on pairs of typologically distant languages, for example, Turkish/Spanish/Italian/Greek/Russian (*pro-drop* languages) as L1 and English (*non-pro-drop* language) as L2. Most studies investigating this feature report an increase in the production of overt subjects and a resultant increasing redundancy (Gürel, 2002; Montrul, 2004b; Polinsky, 1996, 1997; Silva-Corvalán, 1996; Tsimpli, Sorace, Heycock, & Filiaci, 2004). This result is generally interpreted as due to their participants' tendency to signal unambiguous coreferentiality between the anaphor and its antecedent or the syntactic relationship between the subject and the verb. This tendency is viewed as the result of insensitivity to person and number verb inflections (Silva-Corvalán, 1996) or a lack of confidence therein (Polinsky, 1996). The variability in such tendencies is also noted. Polinsky (1996) reports that her participants used the overt subject in the form of a pronominal copy or a full NP in an inconsistent way. That is, a pronominal copy was used frequently when the repetition of a full NP was more appropriate. Polinsky notes that a pronominal copy seems the most preferred strategy for reference tracking among her Russian-English bilingual participants. Polinsky (p. 62) further argues that the null copy is "practically non-existent" in her American Russian data and that the three-way distinction of reference tracking strategies—null copy > PRO > full NP—is reduced to a two-way contrast—PRO > full NP.

Other studies suggest that null subject expression is not completely lost in bilinguals exposed to a non-null subject language (Gürel, 2002; Montrul, 2004b; Silva-Corvalán, 1996; Tsimpli et al., 2004). However, these studies also report that the bilinguals use overt pronominals or null subjects in a different pattern from their monolingual counterparts when semantic/pragmatic knowledge is required in deciding which form to use. Silva-Corvalán (1996) argues that the permeability of L1 syntax is accompanied by the gradual loss of

discourse-pragmatic restrictions indirectly influenced by English (L2), while others, particularly recent studies based on UG (Gürel, 2002; Montrul, 2002; Tsimpli et al., 2004; cf. Chomsky, 1981, 1995), draw on the concept of the interpretability (Sorace, 2000, 2005) of the grammatical element in subject realisation. By demonstrating that the bilinguals performed to a similar degree to their monolingual counterparts in experimental tasks with sentences where purely syntactic knowledge was required in assigning coreferentiality, they argue that the L1 syntax proper is unaffected (Gürel, 2002; Tsimpli et al., 2004). That is, these studies suggest that only the bilingual's perception of the null/overt subject has changed and that the bilinguals take the less complex and more transparent option when optionality arises due to the perceived semantic/pragmatic ambiguity (Gürel, 2002; Montrul, 2004b; Sorace, 2004; Tsimpli et al., 2004).

#### *2.2.1.5 Interfaces between linguistic structures*

The above review reveals that L1 attrition is not an isolated phenomenon within the given linguistic level but a consequence of its complex interaction with other features. Although there is on-going debate on whether a change should be regarded as attrition at the level of competence, many studies note change in the bilingual's perception of the function and meaning of linguistic elements (Bolonyai, 1999; Bullock & Gerfen, 2004a; Gürel, 2002; Pavlenko, 2003; Polinsky, 1996; Schmitt, 2001; Seliger, 1989, 1991, 1996; Silva-Corvalán, 1996; Skaaden, 2005, inter alia). These studies implicitly or explicitly mention that these changes are related to the cognitive load in maintaining two languages leading to the bilingual's tendency toward transparency in meaning and efficiency in processing (see for example, Polinsky, 1996; Seliger, 1989; Silva-Corvalán, 1996). Thus, regardless of the linguistic level, the features that are noted as deviant from the unattrited norm and most likely to undergo change seem to be those involving structures which are opaque in meaning and synthetic in form. Furthermore, many of these features seem to be those which the bilingual needs to interpret in a discourse or situational context. Given this, it could be said that attrition

occurs at the interface of linguistic areas where the L1 and L2 rules collide (Sorace, 2005; Tsimpli et al., 2004).

The affected interface areas may be characterised by a change in the distribution of optionality and the development of analytic forms. That is, as a result of introduction of L2 elements or decreased L1 use, what has been regarded as obligatory and/or unambiguous may be perceived by the bilingual as ambiguous. The emergence of optionality is exemplified by the studies on null/overt subject, a syntactic feature constrained by pragmatics and verb inflection (Polinsky, 1996; Sorace, 2005; Tsimpli et al., 2004). Such features may remain optional in one's L1 system or become unavailable to the bilingual (Bolonyai, 1998; Polinsky, 1996), while an alternative option in line with L2 rules gains multifunctional status as shown in Polinsky (1996), Seliger (1989) and Silva-Corvalán (1996). This newly emerging option may become obligatory as it gains frequency, as shown in the trend toward SVX word order in Silva-Corvalán (1996).

The development of analytic structures at the interface area is noted in many studies focusing on morphological attrition. These studies illustrate that most of the morphological changes occur in the process of disambiguation of semantic opaqueness for the facilitation of syntactic processing (e.g., Pavlenko, 2003; Polinsky, 1996; Schmid, 2002; Silva-Corvalán, 1996). As these studies note, most of the analytic forms, as a result of disambiguation, are not semantically congruent with their synthetic and opaque counterparts. However, preference for less cognitively demanding analytic forms seems to overrule the perceived/actual incongruence (Polinsky, 1996; Silva-Corvalán, 1996; Sorace, 2005).

While many studies reviewed above suggest that perceptual change can lead to changes in L1 structures at various levels, it is also possible that structural change reversely influences the way the bilingual views the world (Pavlenko, 2002; see also Odlin, 1989; Slobin, 1996; Whorf, 1956). This issue has been addressed by Pavlenko (2003) specifically in terms of L1 linguistic framing—"the choice of a structural category or grammatical class to express a mental representation" (p. 51; see also Slobin, 1996). Pavlenko found that her

Russian-English bilingual participants used some L1 framing verbs according to L2 discourse. According to Pavlenko (2003), in Russian, experiences comparable to ‘joy’, ‘sadness’, or ‘anger’ are often conceptualised as inner activities which one voluntarily experiences and deals with, rather than passive states caused by external and/or passed cause. Therefore, emotions are generally framed by using verbs (in their imperfect and reflexive forms) in Russian but by using adjectives and pseudo-participles in English. In her data, emotions were frequently expressed through adjectives accompanied by perception copulas and change-of-state verbs. Pavlenko views this as her participants’ tendency to frame emotions linguistically as states in line with English, violating both semantic and syntactic constraints of Russian. She further suggests that, due to conceptual transfer from the L2 to L1, bilinguals may feel their L1 is inadequate to describe their thoughts and express them in the L2 linguistic frame.

The above review reveals that the onset of attrition on a particular feature/area diffuses throughout the L1 system of the bilingual extending to other features/areas where it finds a gap—semantic ambiguity, processing complexity, conceptual mismatch, etc. The various findings point to lexicon as the prime locus where attrition starts to exert its effect in the bilingual’s L1 system, since it contains the morphological and functional information and the only source of linguistic variation (Chomsky, 1995; Ecke, 2004; Montrul, 2004b; Tsimpli et al., 2004). However, it is not clear whether it is the only area where ‘true’ attrition occurs and whether other symptoms of attrition beyond lexicon are simply the manifestation of difficulties in processing *interpretable* features. What is highlighted in this section is the complex interaction between linguistic elements that brings about noticeable signs of attrition. The L1 speech of L1 attriters is often characterised as faltering, redundant, ambiguous, and lacking cohesion (Pavlenko, 2003; Polinsky, 1996). Underneath these surface features are the bilingual’s changing L1 system and their feelings that L1 expressions are inadequate, perhaps due to their view of the world which might, at least partly, be influenced by L2 use, their lack of confidence in using a particular item, the unavailability of retrieving what they intend to

speak, or all of these. The next section reviews how existing research on L1 attrition deals with the performance features of L1 speakers under attrition.

### **2.2.2 *Linguistic performance***

While analysing the linguistic structure produced by the attriter to determine its susceptibility to attrition, studies consider participants' performance. Some studies provide qualitative comments on performance while others use quantified measures regarding them as reflecting proficiency and discuss the degree of attrition and/or its relationship with other variables.

*Proficiency* is an important but highly controversial construct. There is no general consensus on the definition nor on the methods or measures to describe levels of proficiency in various contexts (de Bot, Lowie, & Verspoor, 2005; Romaine, 1995; C. E. Snow & Hakuta, 1992). Ellis (1990, p. 387) refers to proficiency as the “ability to use one’s knowledge in actual contexts of situation”. Thus, even NSs may be considered to have different levels of proficiency in various contexts (cf. Carroll, 1979). In the context of L1 loss, it is generally thought that L1 proficiency declines as a result of infrequent use or attrition in the L1 system. There is also convincing evidence that there is a certain threshold of proficiency beyond which a bilingual becomes relatively immune to attrition (Nessier, 1984; see also Ecke, 2004; de Bot & Clyne, 1994; Yukawa, 1997).

While it is impossible to measure competence (defined in the Chomskyan term)—the ultimate knowledge of the language the speaker has attained—proficiency can be measured through various tasks. Proficiency is usually narrowly defined according to how it is measured by the specific tasks employed in research. The various suggestions regarding its definition notwithstanding, it is generally understood that proficiency is a multifaceted construct consisting of a number of psychological and linguistic components represented in various ways (A. Davies et al., 1999; Stern, 1983). Traditionally, these have been measured as a set of four skills, while more recent approaches have divided proficiency into other categories such as Cummins' (1979; 1984) *cognitive/academic language proficiency* (CALP)

and *basic interpersonal and communicative skills* (BICS). In examining the relationship between proficiency and other variables, it is important to establish the proficiency of the participants in such a way that can reflect the psycholinguistic process of linguistic production. Once proficiency is established, it becomes possible to relate it to other variables in the given context and to make comparisons between groups/individuals.

Skehan's (1996a; 1996b; 2001) three-way distinction of linguistic performance is one attempt to illuminate the psycholinguistic aspects of linguistic performance. Based on the information-processing theory, he distinguishes fluency, accuracy, and complexity as the three aspects of linguistic performance that may be directly related to three components of proficiency. This distinction is considered one of the most comprehensive ones that have been applied to language learning, testing and other applied areas (Ellis & Barkhuizen, 2005). While it is originally theorised for SLA research, this distinction is deemed relevant to all fields where linguistic performance is the subject of investigation and, for this reason, it is employed in the present study in analysing the participants' linguistic performance. The following subsections provide a review on how existing studies on L1 attrition deal with proficiency and a discussion on Skehan's (1996a; 1996b; 2001, *inter alia*) theory.

#### *2.2.2.1 Proficiency in L1 attrition research*

This section considers issues related to incomplete learning/pre-attrition proficiency, approaches to proficiency by existing L1 attrition research, and the role of L2 proficiency. Two dimensions of L1 proficiency are generally considered in L1 attrition research. One is the current L1 proficiency of the participating bilingual, usually hypothesised to have decreased (or to have the potential to decrease) as a result of attrition. The other is the proficiency attained before the onset of attrition or bilingualism. While data for the participant's current L1 proficiency is easily obtainable, it is not easy to establish the *pre-attrition* proficiency, particularly in the case of adult participants. This is due to difficulties with both administering longitudinal studies and obtaining data for the participant's previous L1 proficiency (Ammerlaan, Hulsen, Strating, & Yägmur, 2001; de Bot, 1997; Fase, Jaspaert,

& Kroon, 1992). Most studies presenting data for both types of proficiency are longitudinal studies on child L1 attrition (e.g., R. Anderson, 2001; Insurin, 1999, 2000; Kaufman, 1991; Seliger, 1989, 1991; Yukawa, 1997). These studies consistently report on a decrease in L1 proficiency, while studies with adult participants show mixed results (see also Köpke, 2004).

While most studies on adult L1 attrition do not investigate their participants' L1 proficiency longitudinally, one exception is de Bot and Clyne's (1994) study on Dutch-English bilinguals, whose L1 use was investigated in 1971 (reported in 1977, as cited in de Bot & Clyne, 1994) and 16 years later in 1987. They compared performance on the same tasks (i.e., interview and picture description) using a number of measures. These measures include: lexical richness, the degrees of lexical transference, frequency of distribution of lexical items, the degree of violation of L1 word order (i.e., SVO/SOV word order in subordinate clauses and adverbial placement), the degree of incorrect use of L1 articles, preference for a single article system<sup>37</sup>, and mean utterance length. Between the two data sets, there was a significant difference only in the degree of violation of L1 word order relating to adverbial placement<sup>38</sup> (de Bot & Clyne, 1994, p. 24, see also 2.2.1.4). Considering that only one proficiency measure shows a significant effect, the authors conclude that there is little evidence of attrition in their participants' performance.

In most cross-sectional studies on adult bilinguals, the proficiency of the participants is judged by the researcher's native-speaker intuition, or by comparison with their monolingual counterparts (Schmid, 2004a). In these studies, the reference in determining the degree of attrition is usually the proficiency of adult monolinguals, rather than the proficiency of those at the same age as the bilinguals' at the onset of attrition<sup>39</sup>. The findings from these studies are difficult to evaluate since they lack information about pre-attrition proficiency in

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<sup>37</sup> According to de Bot and Clyne (1994, p. 23), Dutch has two definite articles—*de* for masculine and feminine nouns and *het* for neuter nouns. As a result of influence of English, Dutch immigrants tended to prefer a single article system replacing *het* with *de*.

<sup>38</sup> Although there is another significant difference in the result for lexical richness—i.e., decrease in the measure for type-token ratio in the latter set of data, de Bot and Clyne (1994, p. 24) note that, since the result is due to the actual increase in the number of tokens in the latter data set, they do not interpret this as a significant difference.

<sup>39</sup> For the issue of comparing L1 proficiency of the bilingual with that of her age-mates in terms of their current age, see 2.2.3.1.1 and 3.1.2.

L1. This is particularly the case with studies investigating adult bilinguals who had their onset of bilingualism during childhood or adolescence, since what is identified as the effects of attrition may be the result of an incomplete acquisition of L1 confounded by attrition (Sorace, 2004). It is generally acknowledged that L1 development—particularly vocabulary learning and the sophistication of L1 skills—continues during adolescence through to adulthood (Collier, 1989; Nippold, 1998). As Andersen (1982, p. 84) notes, one who never became fully competent in her L1 may become less competent due to a combination of attrition and instability in her L1 system. This issue is discussed in more detail in 2.2.3.1.

The predominant approach in L1 attrition research is to focus on errors made by the bilingual, based on an assumption that reduction in ability to perform L1 tasks can best be measured on the basis of deviant L1 forms (Schmid, 2004a). While most of the studies reviewed in 2.2.1 above are devoted to the structural analysis of *errors* and identification of specific linguistic items in terms of susceptibility to attrition, a few others take broader perspectives and employ multiple measures for the measurement of performance to get a more “holistic picture” of attrition (Schmid, 2004a, p. 239). While de Bot and Clyne’s (1994) longitudinal study reviewed above is one of these studies, some cross-sectional studies reviewed below also take this trend.

Ammerlaan (1996) investigated the L1 lexical retrieval ability of Dutch-English bilinguals in Australia and the relationship between this ability and their proficiency in L1 and L2. L1 lexical ability was measured through a picture-naming and identification task while proficiency was measured through a cloze task, a verbal fluency task, and an editing task. While the participants’ performance varied, Ammerlaan reports that L2 performance was better than L1 performance in the tasks performed in two languages—i.e., cloze and verbal fluency tasks. While the participants did not show a clear pattern of a decline in proficiency in L1 when compared with an NS control group, Ammerlaan (1996) found that participants with lower proficiency had the greatest degree of difficulties in L1 lexical retrieval in contrast to others who still had access to the L1 lexicon. A detailed analysis of lexical types on which his

participants, at different levels of proficiency, made errors revealed that, while there was some loss due to inaccessibility to the target lexical item among the low-proficiency group, L1 attrition among the high-proficiency group was mainly due to interference from the L2.

In his study of L1 attrition among Turkish-English late bilinguals in Australia, Yăgmur (1997) used a verbal fluency task, a relativisation task<sup>40</sup> and self-reports using can-do scales. While the verbal fluency task and the relativisation task were performed only in L1, he compared the bilinguals' performance with that of a monolingual control group in Turkey. The result showed that the bilinguals' performance on both tasks was significantly lower than that of the monolingual comparison group and that their perception on their L1 proficiency was also low. Apart from these measures, Yăgmur (1997) also considered the ability of the participants in producing complex sentences. He counted the number of clauses produced by his participants during a story-telling task and identified simple and complex clauses. These figures were compared with measures provided by Aksu-Koç (1994, as cited in Yăgmur, 1997) on adult Turkish monolingual speakers. The result showed that the number of clauses produced by his participants was much smaller than the data reported in Aksu-Koç.

In another study on L1 attrition in Turkish, Huls and van de Mond (1992) compared two Turkish families who had resided in the Netherlands for different lengths of time. They identified key grammatical features used in Turkish complex sentences (e.g., gerunds, participles, subordination, etc.) and counted the frequency of occurrences of each feature in their data. They also measured the degrees of morphological richness (i.e., the number of morphemes per word) and redundancy (i.e., percentage of sentences containing redundancy in meaning—e.g., use of a pronominal instead of *pro*) based on characteristics of Turkish as an agglutinating and null-subject language. Their findings suggest that while there was no significant difference between families, there was a difference between generations within each family as well as between children across families with regard to most of the criteria. In

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<sup>40</sup> In the relativisation task, the participants were given five sets of words that could be used to construct five sentences, each of which contained a relative clause. The words in a set were given in a scrambled order so that the participant could put them in the right order (Yăgmur, 1997).

other words, while the children in both families were using more L2-like features than their respective parents, the children in the family with longer residence used such features to a greater degree than their parents and the children in the other family. These results were particularly strong for morphological density and the authors suggest that there was an increasing preference for analytic structures among the children. However, due to the small sample size, the lack of actual speech samples and the lack of control of many variables, the findings from this study are difficult to evaluate.

Polinsky (1995; 1996; 1997) also used a number of morphological and syntactic features affected by attrition (see Polinsky, 1997, p. 387, for a list of these features) in her investigation of bilinguals who were using English (L2) and Russian (L1) as their primary and secondary languages respectively. Instead of using a discrete-point test, she analysed an extensive number of variables in spontaneous narratives, some of which are exemplified in various parts in 2.2.1. She also measured her participants' L1 vocabulary knowledge by their ability to produce translation equivalents of L2 basic words<sup>41</sup> presented to them. She correlated this vocabulary measure and other grammatical measures (as calculated by the distribution of frequency of occurrences of correct use) and found strong positive correlations between the vocabulary measure and all her grammatical measures. Based on this result, Polinsky suggests that lexical attrition and structural attrition are closely related and that lexical proficiency can serve as a measure of general proficiency.

Another relatively comprehensive investigation on proficiency in L1 attrition is found in Schmid's (2002; 2004a) study on German-English bilinguals, some findings of which are considered in 2.2.1. While providing linguistic accounts of attrition on various grammatical features, Schmid also analysed their performance in producing narratives. Her participants are German Jews who fled Germany with the outbreak of World War II, and the degree of traumatising, as indicated in the time of emigration, was found as the most influential

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<sup>41</sup> While using this type of task is criticised for being too simplistic and inadequate to illuminate the difficulties that bilinguals encounter during the production of *unguided discourse* (Köpke & Schmid, 2004; Schmid, 2002, 2004d; Schmid & de Bot, 2004), Polinsky (1997, p. 393) advocates its usefulness in its simplicity and independence from a discourse situation. (for further discussion on vocabulary measures, see 3.3.3).

variable in attrition in her study. Schmid (2002) identified three groups who had emigrated to English-speaking countries at early, middle, and later times respectively during this period, and investigated their performance using a number of categories that were considered to represent lexical, morphological, and syntactic richness and complexity (e.g., type-token ratio, NP case marking, XVS structure, etc. for details, see Schmid, 2002, p. 174). Another measure included was the degree of *native-likeness* based on subjective assessments of German-speaking NS judges. There are two important issues in her findings. First, native-likeness and the frequency of most types of linguistic mistakes are not related to lexical richness and lexical complexity, as respectively measured by the type-token ratio and use of low-frequency words. Schmid (2002) interprets this finding as suggesting that the acquisition of L2 does not have a negative influence on the L1 lexical repertoire in spite of its long disuse. Second, while participants who had emigrated later made more errors on all linguistic features and were rated as less native-like than those who had left earlier, there was no difference between the groups' performance on morphosyntactic complexity. This second issue is further explored in her subsequent study (Schmid, 2004a), which revealed differences between groups might not have been revealed due to avoidance strategies of speakers who were aware of their low proficiency or some other reasons.

Schmid (2004a) reanalysed her 2002 data by comparing them with monolingual German data that she selected from an existing German corpus. She found disagreement between the results based on the distribution of errors and on the distribution of correct use of given morphosyntactic features, which she calls “interference data” and “proficiency data” respectively. The mismatch was mainly due to the inconsistent results for the ‘middle’ group for the two types of data. The interference data from this group showed little difference from the monolinguals’, behaving in a similar way to the most proficient group, while their proficiency data were more similar to that of the least proficient group—i.e., significantly different from the monolingual data in the distribution of correct use of the given morphosyntactic categories. Schmid attributes this result to the tendency of the middle group

to avoid structures with which they were not confident, resulting in a similar degree of errors to the most proficient group and the German monolinguals.

Another issue related to attrition in L1 proficiency is the role of L2 proficiency. Seliger and Vago (1991) argue that L1 attrition may start at the advanced stage of bilingualism or L2 acquisition. According to Seliger and Vago (1991), bilingualism develops in a continuum between an incipient stage where the speaker begins to acquire the L2 and a final stage where the advanced L2 learner becomes quite fluent in the L2. They note that the direction of transfer found in the early stage of L2 acquisition is reversed at the advanced stage of bilingualism, where the L2 starts to creep into L1 linguistic domains and L1 is restructured according to L2 rules (p. 6, see also 2.1). However, it is difficult to evaluate whether L1 attrition does not occur at an earlier stage of bilingualism among late bilinguals since only a few researchers consider both L2 proficiency and L1 proficiency using the same measures and investigate the relationship of the former to the latter and other variables.

Findings regarding L2 proficiency provided by these few studies are in conflict. In line with Seliger and Vago (1991), Segalowitz (1991, see also 2.2.1.1) reports that L1 processing speed is associated with advanced skills in L2. Major (1992; 1993, see also 2.2.1.2) demonstrated that L2 proficiency was correlated with loss of L1 proficiency (represented by pronunciation skills). However, Yăgmur's (1997; Yăgmur et al., 1999) findings suggest that attrition is not necessarily associated with an advanced level of L2 skills. In his research, bilingual participants were divided into two groups according to the level of education in their home country, which corresponded to the level of self-reported L2 skills. There were also two monolingual control groups with similar levels of education to their respective bilingual counterparts. The results from word-association and relativisation tasks in L1 showed that, participants with high education performed consistently better within both the bilingual and monolingual groups, but that overall performance of the bilingual groups was consistently lower than their respective monolingual counterparts. While these findings suggest that both bilingual groups were experiencing attrition in L1 to some degree, the degree of L1 loss was

much greater in the group with low L2 skills (Yăgmur, 1997; Yăgmur et al., 1999). Although these findings demonstrate the permeability of L1 proficiency regardless of the degree of L2 attainment, L2 skills are confounded with variables associated with education. Waas (1996) separated *education* and *L2 proficiency* in her investigation of the L1 proficiency of German-English bilinguals. She used the same word-association task as Yăgmur (1997; Yăgmur et al., 1999), but in both German and English. Her findings suggest a significant effect of education but no significant effect of L2 performance on the participants' L1 performance. The issue of education will be discussed in more detail in 2.2.3.1.2.

The above review of studies in relation to the issue of proficiency and linguistic performance reveals that there is a strong call for more rigorous and comprehensive measures that could be applied to the bilingual's L1 and L2, as well as to monolingual data. It also highlights the need to take into account the relevance of the components of proficiency to the particular aspect(s) of linguistic performance of the participant. While various studies address the issue of proficiency in various ways according to their particular theoretical concerns, it seems that a substantial portion of data is not used due to a focus on specific (grammatical) features (cf. Schmid, 2004a). While the level of proficiency retained by the bilingual in the diminishing language should be defined in as accurate and broad terms as possible (Schmid, 2004a), the same should be applied to the expanding language. In the next subsection, Skehan's (1996a; 1996b; 2001) theory is discussed as one possible framework for measuring proficiency of bilinguals in the context of L1 attrition.

#### *2.2.2.2 Three aspects of linguistic performance*

Skehan's (1996a; 1996b; 2001) distinction of linguistic performance is based on information-processing theories that assume a limited processing capacity in the human mind. Due to this limited capacity, task performers are not able to attend to all aspects of a given task, but need to prioritise certain aspects in allocating attentional resources (J. R. Anderson, 2000), particularly when the task is complex and requires knowledge and skills that have not yet been automatised (Shiffrin & Schneider, 1977). In discussing automatised knowledge

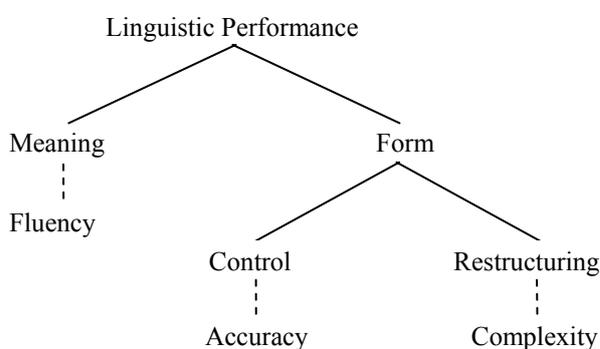
and skills, an important distinction is made between declarative and procedural knowledge (J. R. Anderson, 1983, 2000). Knowledge at the declarative stage is factual, but gradually transforms into procedure through frequent use. Processing information in the declarative stage is slow and consumes attentional resources under conscious manipulation, while proceduralised information is processed fast and needs little conscious control. Once proceduralised, processing of information takes place in larger units leading to automatization of these units (de Bot, 1999; Ellis, 1994; Levelt, 1989).

Speech production is a complex process that involves a number of simultaneous mental operations—planning what to say, retrieving the required lexical items, temporarily storing and processing them within the capacity of working memory, and executing them in the form of utterances. While concurrently executing what has been planned moments earlier, speakers store the information of what has been already said in working memory and further plan what to say next (Daneman & Green, 1986). All of this needs to be done within a few milliseconds (de Bot, 1996). L1 speakers (with non-attributed L1) have automatized the procedure and are able to go through it without disruption. However, speakers with limited proficiency in the given language like L2 learners and L1 attriters may rely on a certain degree of *controlled processing* (J. R. Anderson, 2000) leading to an overload of working memory (Ellis & Barkhuizen, 2005). In L1/L2 learning, elements on the various linguistic levels in the target language increasingly change their state from declarative to procedural knowledge (de Bot, 1999; Ellis, 2003; Levelt, 1989). In L1 attrition, de Bot (1999) suggests that, those which once were at the procedural stage in the L1 system of the speaker may transit to a declarative state and become more vulnerable to attrition. Investigations into how the speaker processes L1—more precisely, how attentional resources are allocated in speech production—may shed light on a speaker's proficiency undergoing L1 attrition.

Speaking is usually an intentional activity (Levelt, 1989) and its primary intention is message conveyance—in other words, meaning. Skehan (1996a; 1998) argues that NSs are able to carry out fluent conversation without worrying much about the correctness or

completeness of what is said (see also Ellis & Barkhuizen, 2005) because they are able to process large multi-word units as lexicalised units (i.e., exemplars) which contribute to increased production speed, i.e., fluency. They also have access to abstract rules responsible for the well-formedness of the utterances/sentences (Ellis & Barkhuizen, 2005; Skehan, 1996a). While NSs utilise this “dual-processing system” (Ellis & Barkhuizen, 2005) by alternating these two modes according to the degree of communicative pressure and the need for exactness or creativity of utterances, Skehan (1996a) argues that task-performers are likely to rely on lexicalised processing during an unfocused task without any prescribed prioritisation.

Based on the contrast between meaning and form that underlies the dual mode processing, Skehan (1996a; 1996b; 2001) distinguishes three aspects of linguistic performance which could reveal the differential capacity of the performer with limited proficiency. These three aspects are *fluency*, *accuracy*, and *complexity*. Meaning is reflected in fluency whereby lexicalised processing is facilitated, while form is achieved by drawing on rule-based processing of the interlanguage system, which is manifested in either accuracy (which has to do with control) or complexity (which has to do with restructuring) (Skehan, 1998). Figure 2.1 shows how the dual-mode processing is reflected in the three-way distinction in linguistic performance.



**Figure 2.1 Dual mode processing and the three way distinction of linguistic performance (adapted from Ellis & Barkhuizen, 2005)**

Fluency is defined as the “capacity to mobilize one’s linguistic resources to communicate in real time” (Skehan, 1996a, p. 46). Skehan notes that, lack of fluency is likely

to be the result of inadequate opportunities to make language production automatic in the necessary manner—i.e., utilising a dual-mode system in which well-organised exemplars are available on the one hand and a rule-based system is accessible on the other. Since undue pauses are perceived as unacceptable in “ideal delivery” (Clark & Clark, 1977), the task performer may compensate for her lack of fluency by resorting to communicative strategies to avoid such pauses and to exemplars which are easy to access and to use. Although this may help her appear to be communicatively effective, such exemplars are incorrect in most cases (Skehan, 1996a).

Accuracy refers to the ability to perform without error—i.e., to conform to target language norms (Skehan, 1996a). While accuracy is related to how well established one’s linguistic system is, as Sharwood Smith (1989) and other UG-oriented researchers argue, inaccuracy may be a matter of performance (as opposed to competence) due to communicative pressure rather than a manifestation of deficiency in competence. Furthermore, while a well-integrated linguistic system promotes accuracy, accuracy may be difficult to measure when speakers avoid difficult structures. Skehan (1996a) notes that learners are drawn to what is well-known and reluctant to take risks with language structures which they are not confident with. The same may also be true in the case with attriters. When speakers with limited proficiency need to attend to factors related to communicative pressure to ensure meaning is preserved, they may pay insufficient attention to form. This could lead to habitual production of inaccurate forms.

A second aspect of rule-based processing is complexity. Complexity can refer to both the degree of achievements in syntactic processing (Skehan, 1996a; 2001) and the range of grammatical/lexical structures available to the speaker (Ellis & Barkhuizen, 2005). In L2 learning, complexity is promoted when the learner’s interlanguage system becomes more complex, elaborate, and structured (Skehan, 1996a), while complexity in L1 attrition may reflect the degree of maintenance of the attriter’s ability in L1 syntactic processing. In both

cases, complexity is related to the willingness of the task performer to take risks and her desire to be more native-like by elaborating her available linguistic system (Skehan, 1996a).

Skehan (1996a) and Skehan and Foster (1997) suggest that, while language users vary in the extent to which they emphasise fluency, accuracy, and complexity, these three areas are independent of each other (see also Ellis & Barkhuizen, 2005). It is suggested that, due to the limitedness of attentional resources, competition among these three areas leads to *trade-off* effects. That is, high performance in one area is achieved at the expense of achievements in others (Skehan & Foster, 1997). While many L2 researchers on task-based language learning agree that trade-off effects occur basically between meaning-focused performance (i.e., fluency) and form-focused performance (accuracy/complexity), findings regarding the interaction between fluency, accuracy, and complexity seem to be in conflict. While Skehan and Foster (1997), Tavakoli and Skehan (2005) and Mehnert (1998) report a trade-off effect between accuracy and complexity, Wendel (1997) found a trade-off effect between fluency and accuracy. Yuan and Ellis (2003), found trade-offs between fluency and accuracy in one group of participants and between fluency and complexity in the other, while Elder and Iwashita (2005) found no trade-offs among the areas. While the findings from these studies regarding the existence of trade-offs between the three aspects of performance are noteworthy, a detailed review is deemed to be of little relevance to the present study since these studies are conducted to measure the effect of task manipulation for L2 learning (for a detailed review, see Ellis & Barkhuizen, 2005; Yuan & Ellis, 2003). Finally, Skehan and Foster (2001) suggest these trade-off effects may work differently in native and non-native speaker performance. That is, they suggest that competition between complexity and accuracy is only evident in the performance of non-native speakers.

While Skehan's theory provides a useful framework for investigating linguistic performance of L1 attriters whose L1 system is viewed as an interlanguage system by many researchers, this framework has not yet been utilised in the field of L1 attrition research. Schmid (2004a) notes that almost all the L1 attrition studies are concerned with errors/deviant

forms, and report the degree of “accuracy” of their participants’ L1 use based on the errors made on particular structures. Only a few studies, some of which are reviewed 2.2.2.1, report on the measure of grammatical/lexical complexity or fluency. The latter were not conducted in the particular framework of Skehan’s (1996a; 1998; 2001) three dimensions and their research contexts were different from that of the present study (e.g., de Bot & Clyne, 1994; Schmid, 2002, 2004a). The following subsection considers how studies deal with social variables when relating them to L1 attrition.

### ***2.2.3 Social aspects of L1 attrition***

This section provides an overview of studies that consider social factors in L1 attrition and discusses how their findings are relevant to the present study. Schmid and de Bot (2004) note that linguistic factors draw only a half picture of L1 attrition. While L1 attrition occurs where the contacting languages are in an asymmetrical relationship, the degree and/or the pattern of attrition may vary due to different social situations and/or the degree of the individual bilingual’s susceptibility to certain variables in the actual context of language use. Therefore, it is essential to account for social aspects of L1 attrition by investigating how they are related to decreases/maintenance of L1 proficiency.

Language external factors may be those related to 1) the bilingual’s individual attributes (e.g., current age, gender, education, etc.) including her personal history (e.g., age at the onset of attrition/bilingualism, length of residence in the host country, etc.); 2) the situation where the bilingual actually uses the language (e.g., conversation with friends or parents); and 3) the general immigrant context (e.g., the relative status of the L1 in the wider society). Since many of these variables are interrelated and their influence on L1 attrition is differential and indirect, it is very difficult to address the numerous variables in a single study, where the main focus is the individual situation of attrition and a relatively small number of participants are involved. Therefore, most studies need to control some of the variables to operationalise others. This often means that only a few social variables are considered. This

review focuses on L1 attrition studies that consider individual attributes and language use. It includes relevant studies that explore social aspects such as language shift, maintenance and language change. The third type of factor, the societal context may have a grave influence on the immigrant community as a whole, which may in turn affect individual attrition. However, literature relating to this is not reviewed here, but relevant information is provided as the general background of the research context in the present study (see 1.1).

### *2.2.3.1 Extralinguistic aspects*

Although it is generally agreed that attrition is primarily an individual phenomenon related to the individual bilingual's personal attributes or her history of immigration, relatively little is known about the role of individual differences in L1 attrition. While some studies report on their effect on L1 attrition, findings still seem inconclusive (Köpke, 2004; Köpke & Schmid, 2004; Schmid & de Bot, 2004). The following subsections review findings related to some of these variables that are either controlled for or investigated in the present study.

#### *2.2.3.1.1 Age*

Age at the onset of attrition/bilingualism is often regarded as the most important but problematic factor in L1 attrition research. The issue of age is immediately relevant to the distinction between incomplete learning and attrition, and is directly related to the notion of the Critical Period Hypothesis (CPH) proposed by Lennenberg (1967). Lennenberg argued that the critical period (CP) for language acquisition would end with the completion of the lateralisation of language function around puberty and that, after this point, the language learning capacity would decline rapidly (p. 176). While successive studies question the age of lateralisation and a cause-effect relationship between the biological maturation of the brain and a CP for language learning, there is much on-going debate on the existence of a CP in language learning and the age of its onset/terminus if it exists (for a review, see Harley & Wang, 1997; Köpke, 2004). Results from empirical studies on this issue in L2 acquisition are very much in conflict and do not either uniformly support or challenge the hypothesis (for a

review, see Birdsong, 1999; Harley & Wang, 1997; M. Long, 1990; Scovel, 2000; Singleton, 2001), while it is generally agreed that early deprivation of L1 leads to irregular and incomplete acquisition in the later period (Harley & Wang, 1997; Köpke, 2004).

It is often assumed that puberty is the point where a distinction between children and adults may be made in terms of L1 development (i.e., in-/completion of language acquisition) (Harley & Wang, 1997). Many child language researchers often claim that L1 acquisition is largely completed by the end of pre-school years and that the language of the 5- or 6-year-old child is not much different from the adult (cf. Anglin, 2000). However, Harley and Wang (1997) argue that such claims are not attested with any conclusive evidence. Nippold (1998; 2000) demonstrates that L1 acquisition continues after childhood and that changes during and after puberty are qualitatively different from those occurring earlier, with substantial growth at all linguistic levels in elaborateness, complexity, and sophistication. Puberty may not be the “turning point” to the termination of language acquisition (Lennenberg, 1967, p. 150), but, as Nippold (1998; 2000) points out, it may be a time when rapid and quantitative development during childhood moves towards more subtle and gradual development which continues during adolescence and into adulthood (see also Singleton, 1989; Thomas & Collier, 1997).

There are two underlying assumptions regarding CPH in L1 attrition research. One is that “the easier for the child to learn L2, the more likely is it that she will forget her L1” (Köpke & Schmid, 2004, p. 20). Findings from many studies on child L1 attrition, some of which are reviewed in various parts in the previous sections, seem to lend support to this assumption, showing how easily L1 can be replaced by L2 during childhood. The issue of incomplete learning raises the question whether change due to “non-acquisition” (Halmari, 2005, p. 406) and instability in the child’s L1 system can be regarded as attrition. Another assumption is that, if a CP occurs during puberty, the adult L2 learner (i.e., late bilingual) will not lose her L1 since she has passed a CP at the onset of L2 learning and her L1 competence has already reached the stable state of *ultimate attainment* (Birdsong, 1992). Problems arise from not knowing whether the CP actually exists for every linguistic level and whether the

‘adult’ bilingual has passed it at the onset of bilingualism. Although there are recent calls for a need to distinguish between incomplete learning and attrition (Köpke, 2004; Schmid & de Bot, 2004; Sorace, 2004; Yägmur, 2004), many cross-linguistic studies with adult participants neither differentiate age at the onset of bilingualism/attrition/immigration nor control for this factor. While some studies control this factor by selecting participants who immigrated to the host country later than a certain age regarding them as ‘late’ bilinguals<sup>42</sup>, there are usually no maximum criteria for the age of immigration. Thus, for example, those who immigrated at the age of 13 are treated as in the same group of “adult attriters/late bilinguals” who, when they immigrated, were variously 30 years or 40 years of age or older (for further discussion on methodological issues related to age, see 3.1.2.1). There is also the issue of the age of the control/comparison group of monolinguals (see 2.2.2.1 and 3.1.2).

Due to the problems illustrated above, it is difficult to interpret and compare age-related findings from various studies (see also 2.2.2.1). Only a few studies attempt to determine the effect of age at the onset of immigration. Studies by Köpke (1999, as cited in Schmid, 2002) and Schmid (2002) showed no significant effects of age at immigration on any linguistic level of attrition. While Schmid (2002) interprets these findings as suggesting the robustness of grammatical features that had been fully acquired prior to the onset of attrition, they also seem to suggest that other factors might have a stronger influence on attrition. Ammerlaan (1996) and Pelc (2001) included both ‘child attriters’ and late bilinguals in their participants. For these researchers, age of arrival was the most important factor in predicting the degree of attrition. While these findings seem to suggest greater susceptibility of the L1 system exposed to L2 during childhood, it is not clear whether age of arrival is still an important factor among post-pubertal attriters (whatever age is defined as that of puberty) since these two kinds of participant are not differentiated in either study. As Köpke and Schmid (2004) point out, it is not yet established whether the difference between the two

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<sup>42</sup> For example, in Ben-Rafael (2004), the lowest age of immigration of the participants is 18 years of age; in de Bot et al (1991), 17; in Köpke (1999, as cited in Schmid, 2002), 14; in Major (1992), 22; in Pavlenko (2003), 10; and in Schmid (2002), 11. All of these participants are defined as late bilinguals who have been exposed to an L2 environment as adults in the respective studies.

different groups exists merely in the quantitative measures or whether there are also qualitative differences. Furthermore, since these studies include participants whose age of arrival falls within early school years (i.e., 6 years of age in Ammerlaan and 8 years in Pelc) as well as those who might have finished education in L1 beyond the primary school level up to the postgraduate level<sup>43</sup>, these results might be confounded by education<sup>44</sup>.

#### 2.2.3.1.2 *Education*

Level of education attained in L1 up until the time of immigration (henceforth *education*) is considered as playing an important role in L1 attrition. However, surprisingly little is known about education as a variable in L1 attrition. It is also often not clear whether it is controlled in designing a study, and, if so, how. Findings from the few studies considering education as a variable in L1 attrition often contradict each other. While both Pelc (2001) and Jaspaert and Kroon (1989) found education to be an important factor for language loss, Köpke (1999, as cited in Schmid 2002) found no significant effect of education on attrition at any linguistic level. This conflict may be due to confounded variables including age of arrival. Given that these studies employed certain kinds of formal test, their participants' performance might have been affected by literacy as well as problem solving-skills, as suggested by both Pelc and Jaspaert and Kroon. Yăgmur (1997) found that the performance of his bilingual participants patterned similar to the performance of their respective monolingual counterparts, showing that those with higher education performed better than others. While the performance of each bilingual group was lower than the respective monolingual counterpart, the difference was greater in those with lower education. While Yăgmur suggests that attrition affects bilinguals with different education levels differentially—affecting those with less education to a greater degree—these findings also reveal that the effects of education on L1 attrition may be confounded by performance/cognitive factors closely related to education.

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<sup>43</sup> These studies do not provide enough information about the levels of formal education that their participants completed. The oldest age of arrival in Ammerlaan (1996) was 29 years of age, while that in Pelc (2001) was 32.

<sup>44</sup> Pelc (2001) herself acknowledges this possibility.

### 2.2.3.1.3 *Time*

A third factor frequently discussed in L1 attrition research is “time elapsed since the onset of attrition”, or, “length of residence in the host country” (henceforth *time*). While time is usually regarded as an important factor in measuring language shift of a speech community (Clyne, 2003; see also Pauwels, 2004; Weinreich, 1953), recent findings suggest that it does not seem to be the case with L1 attrition. Studies based on error analysis, which tend to report either a considerable or a negligible degree of attrition over time, are difficult to evaluate due to a number of reasons illustrated in 2.2.2.1. For example, while the adult late bilinguals in Waas’ (1996) study were experiencing a considerable degree of attrition after 10-20 years of residence (see 2.2.1.1. and 2.2.1.4), time seems to have only limited effects on attrition in other studies. In studies by Jaspaert and Kroon (1992) and Schmid (2002), their late bilingual participants showed only a minor degree of attrition in spite of prolonged length of residence—i.e., over 60 years (Jaspaert & Kroon, 1992) and over 45 years (Schmid, 2002) in the respective host countries (see 2.2.1.1 and 2.2.2.1). There was little sign of attrition among participants in de Bot and Clyne’s (1994) study, while de Bot et al. (1991) found time was a relevant factor only for a group who had few L1 contacts (see 2.2.2.1 and 2.2.3.1.4).

These variations seem to suggest that the degree of attrition observed in the later period of the bilingual’s life depends on that occurring during the first decade of immigration (de Bot & Clyne, 1994; Schmid & de Bot, 2004). De Bot and Clyne (1994) argue that L1 attrition does not necessarily take place in an immigrant setting, and the level of proficiency maintained during the first years of immigration is likely to be maintained relatively well in the later years. This assumption is partially supported by Hutz (2004), who analysed letters written by a German-English bilingual to his family members in Germany over a 57-year period (see 2.2.1.1). His results showed two trends. First, while attrition had had its onset first on lexicon, progressing at an increasingly rapid speed, changes occurring in other areas were very slow and gradual. The second trend is that, although most attrition had occurred during the first 10 to 15 years, it continued in all areas afterwards at a more reduced speed.

#### 2.2.3.1.4 *Contact*

The next factor “the amount of contact with the L1” (henceforth *contact*) seems very relevant to L1 attrition since the amount of L1 input the L1 attriter receives may counteract possible attrition and promote maintenance of L1. However, as Schmid (2002) notes, due to its difficulty to operationalise as a quantifiable measure, researchers are obliged to rely on self-report data. This type of data is more or less affected by the participant’s desire to be shown as socially acceptable and relies on memory rather than accurate assessment of the fact. For example, if asked how often she contacts other fellow L1 speakers using the L1, the participant may exaggerate or understate the actual frequency of contacts based on her subjective assessment of the interviewer’s intention. If asked about the length of stay in the home country during return visits, the answer may be inaccurate since the memory fades and details of a past event are unlikely to be memorised unless they were regarded as important (Schacter, 2001). It is very unlikely that the participants took care to memorise the exact number of days or weeks that they spent during each visit without any prior anticipation of participating in research where they would have to answer such a question.

In spite of these difficulties, there are a few studies that attempt to establish a relationship between contact and L1 attrition. In a study on Dutch immigrants to France, De Bot et al. (1991) considered contact in two levels—“many contacts” and “few contacts”. “Many contacts” are defined as “hav[ing] a Dutch partner and hav[ing] contact with other Dutchmen at least once a week”, and “few contacts” as “hav[ing] a French partner or no partner and hav[ing] contact with other Dutchmen less than once a week” (p. 88). While their findings showed a significant effect, it was found to have been confounded with effects of time. Further analysis revealed that time had effects on attrition only among the “few contact” group (see above review related to time). From this result, the authors suggest that, time and contact are interdependent in L1 attrition and need to be considered with caution.

While its main focus is L1 maintenance and shift rather than attrition, Stoessel’s (1998; 2002) study of ten immigrant women in the United States addresses the issue of

contact. Through an analysis of social networks of the participants (for a comprehensive overview of this theory, see Stoessel, 1998), she found that participants with a high self-reported level of L1 maintenance had a higher ratio of L1 *contacts* to L2 contacts<sup>45</sup> (hereafter *L1/L2 ratios*) than those with a low level of L1 maintenance, while there was no clear relationship between frequency of L1 contacts and language use overall. Stoessel further considered contacts in *primary* and *secondary* networks according to the intensity and importance of the contacts perceived by the participant, and those in the home country and US networks. With respect to the role of the primary and secondary networks, the participants with the highest L1/L2 ratios in the secondary network in the US showed the least shift to L2. This suggests that L1 contacts in the secondary rather than the primary network have an important role in L1 maintenance. Further analysis showed that L1 contacts in both networks were contacted for more personal and emotional issues while L2 contacts in the secondary network were contacted for practical and social needs (Stoessel, 1998). Based on these findings, Stoessel concludes that the amount of L1 contacts immediately available in the closer vicinity, most of which are in the secondary network, is more related to L1 maintenance. With regard to the role of contacts in the home country and US, a relationship could not be established between L1 kin contacts in the home country and L1 maintenance since all subjects had L1 kin contacts in the home country. But L2 kin in the US were found to be related to the shift to L2. In a qualitative analysis of data, Stoessel (1998) also found that the strength of ties to L1 contacts in the home country network was important in L1 maintenance.

Hulsen (2000; Hulsen et al., 2002) conducted research on three generations of Dutch immigrants to New Zealand using picture-naming and picture-word matching tasks in the framework of the social network theory. She investigated the role of the L1/L2 ratios, the *primary* and *non-primary* (i.e., equivalent to *secondary* in Stoessel's work) networks, and the

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<sup>45</sup> Contacts in her study specifically refer to the individuals within the participant's social network who she contacts for various reasons. Hulsen employs another construct "domains" in language use in her analysis. That is, a contact (as a person) in the domain of neighbourhood may be in either a primary or a non-primary network according to her importance and/or intensity of attachment on the part of the participant.

home country network. She hypothesised that, based on the findings from Stoessel (1998), L1 contacts in the non-primary network would have an important role in L1 maintenance. While her results confirm the general intergenerational patterns of language shift in linguistic performance as well as in language use within and outside the family, her hypothesis regarding the role of non-primary network in L1 use and maintenance was not supported. There was no direct relationship between the proficiency measures and any type of contact in either network. Hulsen et al. (2002) reports that, while a number of significant correlations found between the performance measures and language use measures were due to their interrelatedness, a significant relationship existed only between the picture-naming performance and language use with ‘relatives’ across generations. Regarding this result, Hulsen et al. (2002) note that, since the criterion ‘relatives’ includes those in both the Netherlands and New Zealand, the continuation of contact with relatives in the home country may have played a role. In other words, it does not tell much about how language proficiency would be influenced by the *face-to-face* interaction between the participants and their fellow immigrant relatives. The result suggests that the quality of input provided by relatives in the home country is important and that L1 contacts in the neighbourhood may not be related to L1 maintenance. This issue is addressed in studies reviewed below, which strongly suggest the importance of quality of contact in maintaining L1 proficiency.

An alternative source of L1 input for attriters may be contact with the authentic L1—L1 spoken by monolingual speakers residing in or visiting from the home country—since such ‘contact’ would provide contexts where the bilingual needs to use L1 items which may not otherwise be used in the immigrant context (Pauwels, 2005). Romaine (1995) suggests that the nature and extent of their bond with the homeland can have positive effects on language maintenance in immigrant children (see also Holmes, Roberts, Verivaki, & Aipolo, 1993). Although it is still costly, travel to home countries has recently been made easier due to cheaper airfares and shorter flight times (Halmari, 2005; S.-H. Park, 2000). Frequent activations of lexical items through such contact may make it easier for the bilingual to

retrieve them again afterwards (see 2.2.1.1). In this respect, return visits that provide the bilingual with a full immersion setting seem to be effective for the quantity and variety of L1 provided by contact as well as for the intensity of L1 exposure. This combination may push the bilingual to produce L1 speech among non-attriters of L1. While the effect of return visits has seldom been explored to date in attrition studies, findings from Demos (1988) and Cho (1998) have a bearing on this issue, though their main interest is language maintenance and shift. These studies are reviewed below, followed by a review of Halmari (2005), who directly addresses the issue of the effects of return visits on L1 attrition.

In a study of three generations of Greek immigrants in the United States, Demos (1988) examined the relationship between the frequency of visits to the homeland and self-reported L1 speaking ability. There were positive significant correlations between the two measures in three generations. This finding is in line with Holmes et al.'s (1993) study on Greek immigrants to New Zealand. In this qualitative study, the authors found that, regardless of age and generation, regular visits to the homeland contributed to the maintenance of high levels of L1 proficiency. Anticipation of subsequent visits also motivated L1 maintenance.

In a study of Korean second-generation heritage speakers in the United States Cho (1998) reports on a significant positive correlation between *visiting Korea* and most of her participants' individual L1 skills (i.e., speaking, reading, and writing) and their overall L1 skills measured by self-reports. She operationalised the variable 'visiting Korea' as the total length of stay in Korea during the participant's lifetime. While 'listening' was the only area that did not have a correlation with 'visiting Korea', 'speaking' had the strongest correlation with this variable. 'Visiting Korea' also had a significant positive effect on the degree of L1 use in the home and on other L1 activities such as reading books, watching TV, etc. Although the main focus of this study and its methodology are much different from those of the present study, this finding is valuable in the dearth of research on L1 loss in Korean communities abroad as well as on the relationship between L1 contact and the L1 proficiency of bilinguals.

A recent longitudinal study by Halmari (2005) demonstrates the effect of a return visit on the recovering L1 proficiency in two Finnish girls. The participants had spent their late childhood and early adolescence (i.e., 6 to 14 and 7 to 15 years of age) in the United States until their departure for a return visit to Finland. During this period, the participants' speech increasingly showed a considerable degree of L2 interference including code-switching. By the time they departed the US, they carried out most of their conversations in English. Upon their arrival in Finland, they stayed with their grandparents for 3 months. Their stay included two weeks when they attended a local school. The author reports that their L1 proficiency recovered to a considerable degree and that code-switching decreased to a small portion of their utterances. Furthermore, their code-switching pattern was found to have changed. That is, while their use of code-switching had been observed as a compensation strategy stemming from lexical gaps in their L1 before the return visit, the participants were shown to code-switch mostly for facilitating interactions or rhetoric purposes. While these findings show a great degree of recovery of L1 proficiency in only 3 months, they also highlight the importance of the quality of contact during this period—monolingual immersion with formal education. While a few studies on child attrition/L1 recovery report on the effect of monolingual immersion in recovering L1 proficiency (e.g., de Kelleit, 2002; Yukawa, 1997), the findings from this study seem to have a very important bearing on the present study since the participants' ages at the onset of bilingualism are close to those of the participants in the present study. It would also be interesting to see how Halmari's participants' L1 attrition or maintenance progresses after they return to their L2 environment.

#### 2.2.3.1.5 *Gender*

Gender is regarded as an important but very complex variable in the field of sociolinguistics (Holmes, 1992; Wodak & Benke, 1997). While gender has been known to have an ambivalent role intertwined with other cultural factors in language shift, maintenance and change, it is generally agreed that women in a monolingual society tend to use more standard forms, are

more innovative in language use than men, and often lead language change (Labov, 1990; see also J. Milroy, 1992; L. Milroy, 1987; Trudgill, 1983). In the immigrant context, findings suggest that women in the minority language community generally have an important role in the maintenance and transmission of the community language, while first-generation males in such communities tend to lead language shift (Clyne, 2003; Holmes, 1996; Winter & Pauwels, 2005a). This tendency is understood as due not only to differential opportunities for education but also to different roles given to males and females in traditional society. While men are given more opportunities for education and work outside the family, where they are required to use the L2, women are given fewer opportunities for learning the L2 and are required to take care of children and older family members. It is often the men that bring L2 into the home (Holmes, 1993, 1996; Winter & Pauwels, 2005a).

Clyne and Kipp (1997; see also Clyne, 2003) found exceptional cases in some Australian immigrant communities where the shift rate among females exceeded that among males. The ethnic backgrounds of these communities are Korean, Japanese, Philippine, and Chinese from the People's Republic of China. The authors attribute this variation to the higher proportion of women than men in exogamous marriages in these communities. However, given that these women are notably from Asian countries where women's roles are relatively limited, this result may be seen from an alternative view. These Asian women may be more willing to adopt the new language as a means to escape and/or reject their current low status imposed by the traditional society (see also Aikio, 1992; Gal, 1979). This view is expressed by J. Kim and Starks (2005) in a recent study on a Korean immigrant community. In their data, most of the female participants identified themselves as "Korean New Zealanders" while male participants showed no particular pattern and some of them labelled themselves as "Koreans". This tendency was more salient among the younger generation to the extent that the youngest female participants identified themselves as "New Zealanders". However, given their limited database, this issue needs to be reserved for further investigation.

Gender-related individual differences in L1 attrition should not be considered solely as an individual consequence but should be seen in the individual and cultural contexts where traditional values in the home country and new values in the host country interact or collide within the bilingual (cf. Holmes, 1996). Furthermore, it should be taken into account that language shift does not always implicate individuals' actual proficiency in one language or the other (Gal, 1996; Myers-Scotton, 2002a). Perhaps due to these reasons, gender has not been much investigated in L1 attrition research, except for Köpke (1999, as cited in Schmid, 2002), who reports no significant influence of gender on L1 attrition in German immigrants.

#### *2.2.3.1.6 Attitudinal factors*

Factors related to the attitudinal dimensions of social context are also considered very elusive and difficult to measure (Köpke & Schmid, 2004; Schmid & de Bot, 2004; Thomason, 2000) despite the fact that attitude is central in L1 attrition and L2 acquisition (e.g., Gardner & Lambert, 1972) as well as bilingualism (e.g., Baker, 1988). In L2 learning, it is generally agreed that positive attitudes towards L2, its speakers and its culture have positive effects on L2 achievements. It is also agreed that learners with positive attitudes toward their own L1 and culture are most likely to be successful in L2 learning, leading to additive bilingualism (Lambert, 1977). However, the role of attitudes appears more complicated when it comes to L1 maintenance and attrition among immigrants. Attitudes are largely determined by how they perceive their own linguistic situation as well as how they themselves are perceived not only by the majority group but also by their own L1 community. Attitudes are learned from experience and not predisposed (Baker, 1988). In a new social context brought about by immigration, the immigrant needs to redefine her social identity. Many of the social variables that help constitute one's social identity are beyond the individual's control, but linguistic behaviour is one salient marker of identity that the individual can control to some degree (Schmid, 2004b). Since two languages are available for the bilingual and each has different levels of social prestige, status, values, and emotional bonds, she may experience conflicts

between her attitudes towards L1 and L2 (M. Ross, Xun, & Wilson, 2002). While she may wish to be assimilated into the mainstream culture in order not to be stigmatised as an “immigrant”, she may also wish to remain a member of her ethnic group where she still can claim a certain social status and feel a strong tie to her origin (Stoessel, 1998; Yăgmur, 1997).

Language has a symbolic function of revealing identity so that the language user may be identified as, or may identify herself with, the bearer of the values represented by the language—i.e., an in-group member (Tabouret-Keller, 1997). Sometimes, it is also a “matter of relative choice” based on perceptions on the part of the bilingual whether to ascribe herself to a group (Tabouret-Keller, 1997, p. 320). Thus, a more favourable attitude to one group may mean a less favourable attitude to the other. If L2 is more favoured, L2 use will increase at the expense of L1 use, since the extent of using one language is always relative to that of using the other. In an immigrant context, the pressure for L2 use and learning is high, particularly for early teenagers, who have academic and social reasons for L2 use. Even though they may not be accepted as an in-group member on arrival in the new environment, it is highly likely that, in spite of their rudimentary proficiency in L2, they will identify themselves with the mainstream group who are socially prestigious and they may wish to be approved as an in-group member. Since their ethnolinguistic attachment is not as strong as their parents’, they are often more concerned about the social values of using one language or the other (Luo & Wiseman, 2000). The relative degree of favourability of L1 or L2 may reinforce the effect of other factors on the relative extent of using either language.

While these attitudinal factors may not have a direct influence on L1 attrition, it is reasonable to assume that they have a very important role in the bilingual’s language use, which may in turn lead to L1 attrition. However, the role of attitudes in L1 attrition has been largely unexplored to date, and only a few studies explicitly address this issue.

Waas (1996) investigated L1 proficiency in terms of citizenship and ethnic affiliation associated with ethnic community activities/organisations, assuming that they would represent the degree of (non-)assimilation into the L2 environment. Participants’ L1

proficiency was measured by self-reports (i.e., *can-do scales*) and a word association test (see 2.2.1.1). The only significant effect found in the relationships between the variables and ‘L1 proficiency data’ was between *ethnic affiliation* and can-do scales. This result seems to show little more than a relationship between being an in-group member of the ethnic community (but not the strength of bond that the participant feels between herself and the community) and the *stated* ability in L1.

In his study of Turkish-English bilinguals in Australia, Yăgmur (1997) examined the relationship between L1 attrition and attitudinal factors in the framework of ethnolinguistic vitality theory (EVT: Giles, Bourhis, & Taylor, 1977). One of the key variables of this study is *subjective ethnographic vitality* operationalised by means of participants’ ratings of the economic, social, sociohistorical, and language status of their own and the mainstream (i.e., L2) group. Based on the assumption that these subjective EV factors would be predictors for the degree of L1 attrition/maintenance, Yăgmur (1997) investigated the effects of the subjective EV factors on linguistic performance (see 2.2.2.1), and self-reports on language use and perceived language ability. While the results showed that perceived EV was generally very low, statistical analyses revealed no significant interaction either between the degree of perceived EV and the participants’ linguistic performance, or between participants’ attitudes toward their L1 in the self-report data and linguistic performance. As Schmid (2004b) points out, these findings highlight the ambiguous and complex nature of attitudes toward L1 in the attrition context.

In a very different context from the above two studies, Hakuta and D'Andrea (1992) conducted a study on Spanish-English bilingual high-school students from first- and second-generation immigrant families in the United States. Their proficiency in L1 and L2 was measured through a word association, a cloze, and a grammaticality judgement test. These proficiency measures were correlated with various measures for language use in different domains as well as for attitudes towards L1 and L2. Their results showed no substantial effect of language attitude on proficiency measures, while attitudinal variables were found to be

generally predictive of self-reports of perceived L1/L2 proficiency and language choice outside the home and parental zone—domains where interaction with peers and siblings occur (p. 95).

Schmid's (2002; 2004a) study reviewed in 2.2.2.1 shows a unique case of German Jews, whose L1 traumatisation might have brought about negative attitudes towards L1. The contrast between the performance of the participants who emigrated at an earlier stage of persecution and those who emigrated at its last stage confirm that the degree of L1 attrition is closely related to attitudes toward their L1 in this unique situation. However, it should be noted that the linguistic behaviour of the group who emigrated between these two stages (i.e., the 'middle' group—see 2.2.2.1) was ambiguous. Analysis on their performance revealed that, while this group could control possible errors by avoiding certain structures, their L1 linguistic repertoire was reduced to a degree similar to that of the group who emigrated last. In her subsequent study on these data, Schmid (2004b) suggests that, in spite of the similar degree of attrition in the linguistic repertoire between the two groups that immigrated at the later stages of persecution, it was only the last group that completely abandoned a desire to be passed as NSs of their L1 by not avoiding making errors. Schmid argues that the symbolic break between their identity and L1 is revealed through their non-native-likeness (p. 55).

### 2.2.3.2 *Language use*

Restriction in language use is frequently mentioned but seldom investigated systematically in L1 attrition research. Andersen (1982, p. 87) underscores the relationship between attrition in linguistic proficiency and restriction in language use by predicting that “restriction in language use accompanied by a break with a previously established linguistic tradition (or norm) leads to reduction in linguistic form and the creation of gaps in the individual's linguistic repertoire...” While Andersen's prediction seems to denote a one-way interaction between the two factors, it is also possible that the interaction occurs in the other direction. That is, due to the reduced L1 proficiency, the attriter may avoid certain circumstances that require L1 use or simply choose to use the L2 in situations where she used to use the L1.

These reciprocal processes may accelerate the degree of decrease in both L1 use and L1 proficiency.

One way to measure the degree of restriction in the language use of a bilingual is to investigate the pattern of language choice in a range of different occasions. It is widely recognised that the bilingual's language choice is not based on random decisions (C. Hoffman, 1991). While relative proficiency in L1 or L2 must be one of the determining factors, the relationship between proficiency and language choice patterns is not always straightforward due to many complicated and intervening factors. Furthermore, self-reported L1/L2 proficiency, which is frequently used as the indicator of the degree of language maintenance/shift, often reflect the relative degree of L1/L2 use of the speaker, which is in turn synonymous to the degree of restriction in L1 use. Starks (2005) notes that the pattern of self-evaluation on ability in L1 and L2 was almost identical to the pattern of language use among her four groups of immigrant participants with four different L1s.

Fishman (1965) considers descriptive and analytic variables that determine language choice patterns based on the notion that, in order to be able to approach the issue of language choice in a broader context of multilingual settings, investigation should start with the variables that determine language choice on the level of face-to-face interactions. While *domains* are regarded as the key source of variation in the language choices of the bilingual (Fishman, 1965), the concept of domains is not always clear and the types of domains put forward by researchers vary. Fishman refers to domains as “socio-culturally recognized *spheres of activity*” defined by “*institutional contexts or socio-ecological co-occurrence*” (pp. 72-73, italics original). According to Fishman, since domains of language behaviour may be recognised according to “particular multilingual settings at particular periods in their history” (p.74), it is possible that different kinds of multilingual settings need different designations and levels of domains of language behaviour. The number of domains may also vary. Once domains are recognised, it becomes possible to discuss variance of language behaviour in terms of factors operating in a domain. Of these factors, Fishman (1991) considers role

relations most important since they are most congruent with particular domains. For example, in every family, there is a set of invariable roles—grandfather, grandmother, father, mother, and child. Fishman further argues that, it is important to investigate language behaviour in these role relations in terms of dyads of interaction—e.g., grandmother to child, child to grandmother, etc., rather than “merely” listing family members’ individual preferences of language, since it is crucial to understand the particular setting.

The present study considers interlocutor types in the domains of family, friends, and others. Family and friends are considered the most important domains for language use for the age group of the present participants. It also considers various social domains other than home and school since these participants are at the stage where their social interest is expanding outside the home. It finally considers spontaneous language use where various levels of emotional stress may be involved. The following subsections review some L1 attrition studies that deal with these issues. Studies in other disciplines are also included where necessary.

#### *2.2.3.2.1 Family*

Discussion on language choices in multi-/bilingual settings often starts with ‘family members’. Traditionally, family is considered to play a crucial role in maintaining L1 or encouraging multilingualism (Fishman, 1965). While the dominant language in the first-generation family is usually the L1, intergeneration difference in language choice patterns in the family is frequently noted in studies on language shift or maintenance as well as L1 attrition studies. That is, while parents use more L1 than children, their use of L2 increases when they interact with children. Children use more L1 when interacting with parents or grandparents than between themselves (e.g., Clyne, 2003; Clyne & Kipp, 1999; Extra & Verhoeven, 1999; Fishman & Nahirny, 1966; Huls & van de Mond, 1992; J. Kim & Starks, 2005; Li Wei, 1994; Pauwels, 2005, among others). Children’s language choices between siblings vary to a greater extent than their language choices for the interaction with their parents (Clyne, 2003; El Aissati & Schaufeli, 1999; Hlavac, 2000). This child-parent

behavioural pattern may change once the child becomes aware that any of their parents understand the L2. As Pauwels (2005) predicts, under such circumstances, the use of L1 may decrease and bilingual interaction will prevail in the family. As for the variations according to birth order of children, older children in the family are usually considered to use more L1 and have better skills than younger ones (Fishman & Nahirny, 1966).

The role of parents is generally considered crucial in children's L1 maintenance. The mother is traditionally viewed as the transmitter of the L1 across generations and the "gatekeeper of language maintenance" (Extra & Verhoeven, 1999, p. 20 ; see also Fishman, 1991; Winter & Pauwels, 2005), while shift of the language in the home is usually led by children. According to Clyne (1967; 2003), mothers are more likely to be affected by the children's tendency to shift away from L1 to L2. While this seems to contradict the notion of mothers being transmitters of L1, this may be explained by their sensitiveness to change on the one hand and their attachment to traditional values on the other (see 2.2.3.1.5). That is, as Ellis (1994) suggests, while women are more responsive to new forms and more likely to be ready to incorporate them into their speech than men, they may become wary of changes that they perceive as threatening traditional values, and more likely to preserve older forms. On the other hand, although men are less sensitive to change, once the change has onset, they are less likely to be resistant to such change (p. 202). Some child language development studies (e.g., Barton & Tomasello, 1994; Rondal, 1980; Tomasello, Conti-Ramsden, & Ewert, 1990) report that mothers are usually more familiar with their children's verbal/physical needs and tend to attend to them, while fathers are less capable of accommodating to their children's verbal behaviour. Döpke (1990), however, argues that fathers, while more demanding than mothers, can be good providers of quality input in child-centred interaction, as opposed to the greater quantity of "business-oriented" mother-child interaction (p. 113).

While many studies investigate the pattern of language choice as background information, few L1 attrition studies attempt to establish the relationship between their participants' L1 (and L2) proficiency and the pattern of language choice in the dyad role

relations (Fishman, 1991). Hakuta and D'Andrea (1992), reviewed above, highlight the importance of adults' (parents') roles in L1 maintenance (or loss) of bilingual adolescents. This is manifested by the relationship between the participants' L1 proficiency and the adults' language use within the family (see also 2.2.3.1.6). While there was a dramatic decrease in L1 proficiency in bilinguals from second-generation immigrant families, they reported that adult language practice in the home (i.e., language use and attitudes toward L1 and L2) was the most important factor for this tendency. Language use with siblings was found to have a minor role in the maintenance of L1 proficiency in that it was a predictor for L1 proficiency of some bilinguals but there was no clear pattern. Results related to L2 use and L2 proficiency are noteworthy. Hakuta and D'Andrea noted that language practice of adults as well as siblings was not a predictor for the L2 proficiency of participants in any group.

Luo and Wiseman (2000) also address the issue of the familial influences on children's L1 maintenance in first- and second-generation immigrant families in the United States. Using various instruments developed in the existing literature of sociolinguistics, they measured parents' attitudes toward the maintenance of Chinese (L1), parent-child cohesion and grandparent-child cohesion, and correlated them with children's L1 fluency, L1 use, their attitudes toward L1 maintenance, and the children's L2 fluency and use frequency. Note that all the measures are derived from self-reports. While generally confirming the importance of the influence of language use by adults in line with Hakuta and D'Andrea (1992), their results highlight the different roles of the father and the mother in their children's L1 maintenance. While both had a positive influence on children's L1 maintenance, the father's attitude was positively associated with the frequency of L1 use and the mother's with attitudes towards L1 maintenance. Furthermore, *father-child cohesion* was shown to have no influence on either children's L1 maintenance or L2 acquisition/use, while *mother-child cohesion* was associated with the L1 proficiency, use, and attitudes of the children. This study highlights the grandparents' role in an immigrant family. Children in highly cohesive grandparent-

grandchild groups were found to have the greatest benefits in their maintenance of L1 proficiency, use, and attitudes.

In her study of German Jews, Schmid (2002) also investigated her participants' use of L1 in the family domain. The general pattern of language use was in line with that reported in other studies—language shift across generations and more use of L1 in interacting with parents and less use of L1 in interacting with children. However, it is noteworthy that, in spite of being first-generation immigrants, the majority of her participants who were married to an NS of L1 reported that they seldom or never used L1 with the spouse. This contradicts reports from other studies that participants tended to speak their L1 to their L1-speaking spouses or partners (e.g., Hulsen et al., 2002; Yăgmur, 1997). Her further analysis revealed that L1 use with family members was not a strong predictor for L1 attrition in this particular context. Schmid found the native language of the spouse/partner—whether German or English—had more effects on L1 attrition than the language used to interact with spouse/partner. This tendency was most clearly shown in the results for the “proficiency data” (see 2.2.2.1). There was no correlation between the proficiency measures and language use measures, while the variable of native language of spouse/partner was found to have some effect on the performance of certain syntactic features. Based on these findings, Schmid suggests that language use with family members may not be a predictor of language attrition amongst participants whose language use is strongly affected by attitudes (see 2.2.3.1.6).

While the few studies reviewed above provide insights in language choices related to L1 attrition in the domain of family, it is difficult to compare findings from these studies on the relationship between proficiency and language use involving family members due to different research contexts and measures used. These studies highlight the importance of attitudes of parents—in the case of Hakuta and D'Andrea (1992) and Luo and Wiseman (2000)—and of the bilingual herself—in the case of Schmid (2002)—in L1 use within the family which may lead to maintenance of, or attrition in L1 proficiency. However, they failed to consider the specific role of the participant as an addresser or addressee in dyad

relationships in their investigation. Therefore, it is not clear how language use is affected by these roles during the interaction with a family member. As Fishman (1965) recommends, it seems necessary to specify dyads in relation to the participant since language behaviour is “more than a matter of individual preference” (p. 76) and needs to be considered in the relationship between the participant and the interlocutor during interaction.

#### 2.2.3.2.2 *Friends*

Friends or peer group is another important domain of language use for adolescents and young adults given the nature of socialisation at this age orienting towards peer culture. Considering that friends for an adolescent immigrant child may be fellow immigrant children with the same L1 background and/or speakers with different L1 backgrounds (including monolingual L2 speakers), language use in this domain is likely to involve more L2 use than in the family. While few studies distinguish between children from first- and second-generation families and focus specifically on adolescent children, it is generally agreed that younger people in each generation tend to use more L2 when interacting with interlocutors in their age group than older people in their community (Gal, 1979; Li Wei, 1994).

In his study on language shift in three generations in the Chinese immigrant community in the UK, Li Wei (1994) investigated the pattern of networks where participants in each generation had direct and routine interactions with people and its relationship to their language choices and self-reported language abilities. His general findings suggest that networks of younger participants tend to be non-kin, non-Chinese, and peer-group based. Li Wei noted that the general language choice pattern was shift from Chinese monolingualism via various types of bilingualism to English-dominant bilingualism. Accordingly, the more English-dominant the language choice pattern, the more peer-oriented the social network. Li Wei further investigated the relationship between self-reported L1/L2 abilities and “peer indices” as measured by the ratio of number of people in the speaker’s generation to the total number of people in his/her network. His results showed that peer index had a strong negative

effect on self-report abilities in Chinese and a strong positive effect on self-report abilities in English. While his findings highlight the importance of peer interaction in language maintenance/shift among immigrants in the younger generation, most participants in the children's generation in this study are UK-born and the language ability data are based on self-reports.

Hakuta and D'Andrea (1992), reviewed above (see 2.2.3.1.6 and 2.2.3.2.1), investigated the relationship between peer language use and L1/L2 proficiency measured through various tasks. Although language use patterns with peers were consistent with the general pattern of language shift toward L2 outside the home domain (see 2.2.3.1.6), their findings suggest that peer language use is a predictor only for L2 proficiency of participants from some first-generation immigrant families. While peer language use was not a good predictor for L1/L2 proficiency, it was found to be generally affected by attitudinal variables and L1/L2 proficiency for their whole participant cohort. Of these variables, English proficiency was the strongest predictor for peer language use.

Luo and Wiseman (2000), also reviewed above, investigated L1-/L2-speaking peer influences on immigrant children's L1 maintenance using self-report data. In contrast with findings from Hakuta and D'Andrea (1992), their findings highlight the role of peer influence in the maintenance of L1 proficiency/use and the acquisition/use of L2. Their data indicated L1-speaking peer influence was the most important factor positively correlated with children's L1 proficiency, L1 use, and attitudes towards L1 maintenance, suggesting it has greater power than adults' language practice in the family to affect children's L1 maintenance (cf. Hakuta & D'Andrea, 1992). While L1-speaking peer influence had positive effects on L1 maintenance, it is also noteworthy that it had negative effects on L2 proficiency and use. Although the strength of correlations was relatively weak, there was an opposite trend in the relationship between L2-speaking peer influence and L1 proficiency, L1 use, attitudes towards L1 maintenance, L2 proficiency, and L2 use.

While the findings from the three studies reviewed above are not entirely consistent, the review suggests that various factors such as attitudinal factors and pragmatic orientations intervene in the relationship between peer language use and L1/L2 proficiency. In language contact situations, peer language use seems to follow the general pattern of language shift as demonstrated by Li Wei (1994). However, it is not clear whether increased use of L1 or L2 with peers directly leads to a decrease in proficiency in L2 or L1 respectively (cf. Luo & Wiseman, 2000) or whether an increase in peer interaction itself, resulting from adolescent socialisation, is related to a decrease in L1 proficiency (cf. Li Wei, 1994) in late bilinguals. However, the findings from Hakuta and D'Andrea (1992) and comments from bilingual participants in other studies suggest variability of language choice for peer interaction (e.g., Stoessel, 2002; Winter & Pauwels, 2005b). The paucity of empirical evidence for late bilinguals on this issue calls for more research.

#### 2.2.3.2.3 *Social domains*

Since there are potentially numerous social domains where the bilingual may perform a speech act, it is extremely difficult to consider all social domains particularly outside the family. Fishman (1965) suggests that “only an appropriate sub-cluster of variables for simultaneous study” be selected and considered in terms of distinctions in media (e.g., written, spoken, etc.), role of the language (e.g., inner speech, comprehension, production, etc.) and situation (e.g., formal, less formal, intimate, etc.) (Fishman, 1966). In most studies, language choices in domains outside the family are described either wholesale or on an item-by-item basis, making it difficult to identify the salient feature, if any, of the particular setting for language loss or maintenance.

While investigating the relationship between L1/L2 proficiency and language use with family, friends, and attitudes, Hakuta and D'Andrea, (1992) described earlier, also examined language use at school and “when alone” and its relationship to L1/L2 proficiency. The results showed a similar pattern of language use to that shown in the “friends” domain, reviewed

above, in the relationship between these variables and other attitudinal factors, suggesting the predictive power of attitudinal factors on language use in domains outside the family. L1 and L2 proficiency are also found to have a positive or negative effect respectively on L1 use in these domains to a similar degree to which it had on language use with friends.

Stoessel (1998; 2002) investigated language use of immigrant women within various domains in her study of social networks reviewed above (see 2.2.3.1.4). Her participants were late bilinguals highly proficient in both L1 and L2 and married to L1 speakers of English. Their language use showed a high degree of shift in domains both inside and outside the family (i.e., neighbourhood, work, school and church) while the only domain where L1 use was dominant was their families in the homeland. Although their L1/L2 proficiency and the L1 of the spouse are controlled for in this study and the relationship between L1/L2 proficiency and language use variables was not considered, this result suggests that high proficiency in L1 does not always lead to high degree of L1 maintenance in language use.

The issue of the relationship between L1 proficiency and language use is addressed by Hulsen (2000; Hulsen et al., 2002). She investigated language use within and outside the family. Her data showed that, while intergenerational shift toward L2 use was apparent in all domains, her first-generation participants' language use has already shifted to L2 both within and outside the "family" domains. The only domains where L1 was dominantly used by the first-generation participants were acquaintances in the home countries and relatives. While there were positive correlations between measures for L1 proficiency and language use variables for all domains, it was found that this result was confounded by the effect of generation. When the variable generation was controlled for, as already mentioned earlier, there was no clear relationship between the proficiency measures and the measures for language use in domains other than "relatives", which might have been the confounding effect of relatives in the home country (see 2.2.3.1.4).

Although their main focus is not L1 attrition and their participants are in a different age group from those in the present study, findings from J. Kim and Starks's (2005) study on

the Korean community in New Zealand are deemed to be relevant to the present study. In their data on language use within various domains, many of which overlap those employed in the present study, code-switching and English-only utterances represent a considerable portion of talk. While their findings show that English is more likely to be spoken in more public domains, the result for language use in church is noteworthy. The participants were found to use L1 to a relatively high degree (66.7 percent) in this domain, but the result also shows a substantial proportion of interactions which contained code-switching and English-only utterances. Given that the religious domain is traditionally regarded as one which the ethnic language will be maintained longest (Holmes et al., 1993), and that the Korean community has a relatively short history of immigration to New Zealand, this seems a warning sign of language shift. Although the authors did not relate these data to measured L1/L2 proficiency, the participants' self-reports suggest that L1 attrition might have had its onset particularly in the younger age group.

#### 2.2.3.2.4 *Emotions*

Interest in the role of emotional stress in language loss dates back to Weinreich (1953), who suggested possible interference caused by varying degrees of emotional stress during linguistic performance. Grosjean (1982) reports on anecdotal episodes of bilinguals slipping into L1 while addressing L2 speakers when they are angry, tired, and so on. In her memoirs, E. Hoffman (1989), a bilingual author, describes herself as deliberately or inadvertently using the L2 to hide her emotions. It is only recently that L1 attrition researchers have taken up this issue in their research, motivated by research findings from studies on bilingualism and SLA.

In psycholinguistic and psychoanalytic paradigms, various experiments have documented that, while for late bilinguals the emotional impact of L1 words is greater than that of L2 words even though the L1 is the weaker language, for early or simultaneous bilinguals there is little difference in their emotional resonance on L1 and L2 stimuli. These findings suggest that, for those who learned the L2 beyond early childhood, L1 words/phrases

have more affective connotations since they are associated with emotionally charged memories and primitive feelings of childhood (Altarriba & Canary, 2004; Harris, 2004). This seems to convincingly explain why late bilinguals fall back on to L1 speech when they are under great emotional pressure (cf. Grosjean, 1982; C. Hoffman, 1991).

An alternative view suggests that L1 is not always the language which facilitates emotional expressions among late bilinguals (Dewaele, 2004a, 2004b; Harris, 2004; Harris, Ayçiçeği, & Gleason, 2003; Kinginger, 2004; Panayiotou, 2001; Pavlenko, 2004a). For example, Bond and Lai (1986) report that their Chinese-English bilingual participants avoided using L1 for embarrassing topics in spite of their better proficiency in L1. They argue that underlying this behaviour was their desire to distance themselves from the disturbing content of their speech. These findings are in line with the long-established findings on code-switching that bilinguals code-switch to mark an affective stance (Gumperz, 1982; Myers-Scotton, 1993b). In Dewaele's (2004a) study, some multilingual participants preferred to use L1 swearwords when they were angry even though the other party did not understand that language. These results suggest that bilingual's choice of language is a very complex phenomenon. Drawing on the neurolinguistic theory of bilingualism and child socialisation theory, Pavlenko (2004b) explains these seemingly contradicting results. That is, since emotionally charged L1 words and phrases are acquired during the process of childhood socialization and become integrated with emotionally charged memories (see also Dewaele, 2004b; Marian & Kaushanskaya, 2004), the L1 often remains the language of privacy and intimacy (Wierzbicka, 2004). Dewaele (2004a) notes that, while a kind of psychological barrier against socially unacceptable behaviour—e.g., swearing—develops during this process, L2 words acquired later are often relatively free of such emotionality, making it easier for the late bilingual to describe emotionally charged events or to use swearwords.

Pavlenko (2002) suggests that post-puberty L2 socialisation may contribute to the complex interaction between language use and emotions of late bilinguals. One of Pavlenko's Russian-English late bilingual participants reported that she felt increasingly uncomfortable in

using Russian to describe her feelings or newly-learned concepts even though she fully knew how to describe them in Russian (2004a, p. 55). On these difficulties, Pavlenko (2002) argues that the L2 learning process in an L2-dominant environment may have resulted in conceptual restructuring in the late bilingual's mental lexicon, and that this, together with L1 attrition, led to a feeling of inadequateness when using L1 to express certain feelings.

Dewaele (2004b) conducted a web-based research on multilinguals with various language backgrounds grouped according to their self-reported proficiency into an L1-dominant group, a group who are equally proficient in L1 and another language, and a group dominant in a language other than L1. He investigated the difference among these groups in general language use and language use involving anger. His result showed that, the more dominant the multilinguals in L1, the more likely they were to use the L1 to express anger and to use the L1 in general. In another study on the same data, Dewaele (2004a) found that multilinguals who were more proficient in L1 tended to perceive more emotional power in their respective L1.

While studies investigating emotions in bilingual performance suggest that the L1 is not always the language for emotions for bilinguals, relatively little is known to date about language choice patterns related to emotions and the relationship between these patterns and proficiency. The present study appears to be the only study to date that addresses this issue in the context of L1 attrition (see 4.2.2.3).

### ***2.3 Summary and conclusion***

This chapter has given an overview of L1 attrition research covering theoretical issues and empirical studies considered relevant to the current research. The review showed that L1 attrition is a complex and multi-dimensional phenomenon and that it may not be understood without multiple perspectives. While a multidisciplinary approach is needed, the review also revealed that it is necessary to triangulate data and methodology through careful design and implementation.

Section 2.1 reviewed the theoretical issues most relevant to the present study. These issues relate to interlanguage and language change in language contact. The review reveals the complex interaction between languages in an asymmetric relationship and the innate tendency of change in the diminishing language influenced by contact, both of which lead to L1 attrition. Unresolved issues in specific areas are identified and possible reasons for the conflicts between viewpoints have been suggested.

Section 2.2 reviewed a range of empirical studies conducted on various populations with various L1s and L2s. While this review generally confirms that L1 attrition may occur in late bilinguals with any L1 background and that it is a selective and systematic process, there were conflicting findings and interpretations between studies. The review points to five important areas in need of future research.

First, although some studies investigate bilinguals with a non-European language background, the majority of waning and waxing languages are European languages. There seems an urgent need for more L1 attrition research on non-European languages. Considering that large-scale immigration occurs in countries where European languages are spoken and L1 attrition is likely to occur in this context, it seems worthy to conduct research in the context where the waning language is a non-European language.

Related to this issue, most published L1 attrition studies are conducted in the United States, Australia, or some European countries. The socio-economic environment for immigrants of these countries are relatively well known compared to that of other countries. Studies of immigrants in other countries would provide additional information on the social context of attrition.

Third, the lexicon has been the most investigated area in L1 attrition research though with conflicting findings, while other areas have received relatively little attention (Ecke, 2004; Gürel, 2004b; Pavlenko, 2000; Schmid, 2004a). The present review suggests that attrition at one linguistic level may lead to linguistic changes at another. While studies have recently been conducted on various aspects of L1 properties beyond lexicon, more research is

required on different linguistic levels as well as on the systematic relationship between attrition across linguistic levels (e.g., Sorace, 2000; Tsimpli et al., 2004) so that a more comprehensive picture of L1 attrition may be drawn.

Fourth, as Schmid (2004a), de Bot (1997), Jaspaert et al. (1986), and many others point out, contradictory findings and difficulties in evaluating and comparing studies seem due to conflicting methodologies. Skehan's (1996a) framework has been suggested as one way of easing this problem.

Lastly, there seems to be a vast gap in the research investigating the relationship between L1 use and attrition in L1 proficiency. Given the possible relationship between input (which is promoted by language use) and language proficiency, this gap deserves to be filled.

The present study explores the following issues in an attempt to meet these needs:

1. To what extent has attrition affected the L1 proficiency of Korean-English late bilinguals since the onset of bilingualism?
2. What is the relationship between attrition in L1 proficiency and acquisition of L2 proficiency among Korean-English late bilinguals?
3. What is the role of social variables in L1 attrition among Korean-English late bilinguals?
4. What is the relationship between L1 use and attrition in L1 proficiency among Korean-English late bilinguals?
5. What are the mechanisms of attrition underlying the declining L1 proficiency of individual Korean-English late bilinguals?

The next chapter presents the methodology employed to investigate these issues.

### 3 Methodology

This chapter outlines the research methodology employed in the study. The overall design of the study is presented, followed by a brief discussion of issues that have a direct bearing on the design. The subsequent sections provide a general description of the participants, the instruments adopted for data collection, and the procedure taken for collecting and analysing data including a brief summary of a pilot study. The issues of reliability and validity are also discussed.

#### *3.1 Overall design of the study and methodological issues*

##### *3.1.1 Overall design*

The aim of this study is to illuminate an L1 attrition phenomenon occurring among Korean-English (K-E) late bilinguals in an L2 learning environment. It investigates their linguistic performance and language use in Korean (L1) and English (L2) from multiple perspectives. There were two groups of participants. The first was a group of K-E late bilinguals who served as the main participants and the second a group of Korean monolingual children employed for comparison purposes. Data were collected cross-sectionally through a *story-retelling* task and a *picture-naming* test with the aim of eliciting information related to the late bilinguals' proficiency and vocabulary knowledge in both L1 and L2. Their Korean data were compared with those produced by the monolingual group for the same tasks. A questionnaire elicited information related to general backgrounds and language use of the bilinguals in order to determine possible reasons for L1 attrition and the relationship between L1 and L2 proficiency. *Stimulated recall* and interviews were also administered to the bilinguals to elicit information to supplement story-retelling and questionnaire data respectively. The bilinguals were allowed to code-switch for the questionnaire, interviews, and the stimulated recall session if they felt the need to do so. While a *picture-story* task was also used for the

investigation of incidences of code-switching, these data were not analysed for the current thesis due to limited time and resources<sup>46</sup>. All the verbal data were audio-recorded and transcribed.

Data were analysed quantitatively and qualitatively. Quantitative analysis was conducted in terms of vocabulary knowledge, proficiency measures including *fluency*, *accuracy*, *grammatical complexity*, and *lexical diversity* in both L1 and L2, and sociolinguistic factors derived from the questionnaire items. Another proficiency measure, *morphological density*, was applied to the Korean data. The purpose of applying this measure was to consider the possible effects of the influence of English, an analytic language, on Korean, an agglutinating language (see 2.2.2). Qualitative analysis was conducted on data elicited from five participants chosen on the basis of their performance on those proficiency measures identified as possible areas affected by L1 attrition in the bilingual group.

### ***3.1.2 Underlying methodological issues***

There are two issues underlying the cross linguistic design of the present study of a group of K-E late bilinguals, whose L1 and L2 are currently at different levels of proficiency. The first issue is related to the level of proficiency that these speakers would have acquired in their L1 (Korean) before it came into contact with their L2. This level of proficiency should be the reference against which possible change as a result of the contact should be measured. The second issue is related to defining the point at which a possible onset of L1 attrition might have occurred. These two issues are briefly discussed below.

#### ***3.1.2.1 Perspectives on the measurement of attrition***

The generally slow and gradual nature of L1 attrition makes it difficult to design research using pre-/post tests for several reasons: the requirement of a long interval between the tests, which may involve natural language decline or development (Ammerlaan et al., 2001; de Bot, 1997; Hutz, 2004; Jaspaert et al., 1986); test effects that may increase either awareness (i.e.

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<sup>46</sup> These data will be used for future research in order to corroborate the findings from this thesis.

the practice effect) or boredom of the participant in the content of tests (i.e. test fatigue) leading to either a higher or lower score than the actual level of proficiency in their attriting language (cf. Cohen, 1989; de Bot, 1997); and the rare availability of long-term funding and/or retaining the same respondents for the tests for an extended period (de Bot, 1997; Hutz, 2004). Due to these reasons, many attrition studies use a *one-shot design* (Jaspaert et al., 1986, p. 38), while most of the longitudinal studies investigate child language attrition with a small number of participants—sometimes children of the researcher herself and/or her close relatives or acquaintances (Schmitt, 2001; Turian & Altenberg, 1991; Yukawa, 1997; see also R. Anderson, 1999; Insurin, 1999, 2000; Kaufman, 1991; Kaufman & Arnoff, 1991).

In a one-shot design, it is difficult to establish the pre-attrition proficiency in L1 since most attrition research starts from the point where attrition is (or is presumed to be) already in progress (Ammerlaan et al., 2001; Hutz, 2004). However, the importance of establishing appropriate base-line data that the attriter's language may be compared with—in other words, a *point of reference* (Jaspaert et al., 1986)—is indisputable (Andersen, 1982; Goral, 2004; Jaspaert et al., 1986; Köpke & Schmid, 2004; Schmid & de Bot, 2004). While earlier studies tended to compare the attriter's proficiency with a hypothetical monolingual proficiency without any specific reference, a number of recent studies use base-line data as the reference for comparison. The most popular of these is the fully competent monolingual counterpart's proficiency, while data from other sources such as a previous study are sometimes used (see 2.2.2.1).

In establishing the base-line, age at the onset of attrition should be taken into account in order to distinguish imperfect learning and attrition (Schmid & de Bot, 2004, p. 219, see also 2.2.2.1). Given that proficiency decreases only from the level where it used to be, we need to know at what level the L1 proficiency of the participant was at the onset of attrition. It therefore follows that the proficiency of attriters should be compared with that of the monolinguals who are at the same age and education level as the attriters at the time of departure from their home country (this issue is further discussed in 2.2.2.1. and 2.2.3.1.1).

Another possibility that needs to be considered is whether L1 acquisition completely ceases with exposure to L2 or continues over time, albeit slowly. By considering the possible performance at the time of departure, the researcher may be able to distinguish attriting elements from those which might not have been acquired at the time of shift in language use. Then it might be possible to determine whether difficulties are due to delayed L1 acquisition or attrition in adolescent participants since the onset of bilingualism.

This study investigated late bilinguals, who had immigrated to New Zealand at the age of 12-13 years when their formal primary education in Korea had been (nearly) completed. This age was chosen as it was considered that they might have acquired the basic vocabulary and command of their L1 at this age. L1 skills of monolingual speakers at the age of 12-13 years serve as the point of reference in measuring attrition among the late bilingual participants in this study.

### *3.1.2.2 Time*

Since the present study is designed as a cross-sectional study with a goal to determine the extent of L1 attrition in an L2 environment, it was important to define the time spent in an L2 environment after which the possible onset of attrition might have occurred. While many studies investigating adult L1 attrition report a non-significant relationship between the degree of attrition and *time* and suggest that late bilinguals' L1 skills are relatively resistant to attrition, the degree of maintenance during the first decade of immigration has also been highlighted as the determining factor for the degree of attrition in the later period (see 2.2.3.1.3 for a review). Many studies do not define the length of this *threshold period* (Yägmur, 2001, p. 53; cf. de Bot, 1997; Nessier, 1984), while others state a relatively arbitrary minimum length of residence based on common assumptions or the researcher's intuition that a certain lapse of time would be enough for attrition to take place.

One possible solution to this problem was derived from Cummins' (1984) notion of basic interpersonal communicative skills (BICS). Cummins (1979; 1984) found that immigrant children acquire BICS in their L2 within two years of their exposure to L2 (see

also Hakuta et al., 2000). The present study assumes that, after a 2-year period, it is very likely that late bilinguals start to use the L2 for activities that they previously completed in the L1 and for other new activities. Therefore, it was assumed that, from that point on, this increased L2 proficiency might start to influence the L1 proficiency of some participants.

### ***3.2 Participants***

Participants were selected based on several purposive sampling methods (Creswell, 2002). Fifty-four people were contacted as potential participants for the bilingual group and 12 for the monolingual group over a 4-month period. The majority of the bilingual participants (i.e. 48 people) were identified through the *snow ball* sampling procedure; two were identified by visiting a Korean community school; three responded to a call for participation disseminated through email; and one responded to an article published in a local community magazine. Seventeen people were excluded after the initial contact since they did not meet at least one of the selection criteria (see below) and a further seven were excluded because they failed to complete all or part of the study. Two respondents from the monolingual group also failed to complete the study.

The final sample consisted of 30 K-E late bilinguals for the main group and ten monolingual Koreans for the comparison group<sup>47</sup>. While all the selected participants including both bilinguals and monolinguals were confirmed as being from a region in Korea where the same variety of Korean language (standard Korean) is spoken, other selection criteria applied for the two groups separately as detailed below:

#### *Bilingual group*

- The participant must be a native Korean currently living in the Auckland area.
- The participant must use both English and Korean for his/her daily life as the basic requirement for bilingualism.

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<sup>47</sup> While it was initially proposed to select 20 K-E bilinguals for the main group and 10 monolingual Koreans for the comparison group, the number of main participants was increased to 30 to enable the researcher to use inferential statistics to enhance the generalisability of the findings.

- The participant must have been 12-13 years of age and have finished primary school education or have been in the final year (Year 6 in Korean educational system) of primary school at the time of their departure from Korea.
- The participant must have lived in New Zealand for at least 2 years at the outset of data collection.

#### *Monolingual group*

- The participant had limited exposure to English prior to participating in this study.
- The participant must be a monolingual Korean living in Korea.
- The participant must be 12-13 years of age and must have finished primary school education or be in the final year of primary school at the outset of data collection.

There were five boys and five girls in the monolingual group. They were classmates in a primary school in Seoul and living in the same apartment complex. At the time of data collection, all were 12 years of age and in the final year of their primary education. The bilingual group consisted of 14 males and 16 females; 21 university students, six high school students, and three who had finished tertiary education and were currently working full-time. Their current ages ranged between 15 and 25 years. Their length of residence in New Zealand varied ranging from 2 to 14 years<sup>48</sup>. They came from Seoul, the capital of Korea, or the central region of the Korean peninsula, where standard Korean is spoken.

### **3.3 Measures**

Since oral skills were deemed more relevant to the bilinguals' daily use of the L1 than written skills, it was decided to collect verbal samples so that they might reveal general trends in the late bilinguals' L1 proficiency and linguistic system, and be utilised in establishing relationships between their L1/L2 proficiency and social contexts. Five measures were

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<sup>48</sup> All the numerals for the number of years are rounded to nearest whole year.

employed in this study: a story-retelling task, a picture-naming task and a questionnaire for the elicitation of main data; and an interview and a stimulated recall task as supplementary measures. The story-retelling task evaluated specific aspects in proficiency; the vocabulary test tapped into the relative size of vocabulary knowledge and served as an estimate of general proficiency; the questionnaire elicited background information and information relating to language choice patterns in various social contexts. The interview and stimulated recall task clarified responses to questionnaire items and verbal behaviours during the story-retelling tasks respectively and elicited further information relating to particular responses. Each measure is described in more detail in the following sections.

### ***3.3.1 Story-retelling task***

A story-retelling task was designed to elicit spontaneous speech samples for the investigation of both linguistic features and aspects of performance as described in 2.2.2.2. A simplified version of Aesop's fables was adopted as the main instrument for this task. Although other stories were used for similar tasks in some studies, Aesop's fables were deemed more appropriate for this age group since these stories were less like children's stories and relatively gender-neutral. In addition, since Aesop's fables are introduced to children both in schools and through various media in Korea, they were likely to be familiar to both participating groups and less cognitively demanding in retelling. Also, being less culturally biased, they were considered appropriate for both the L1 and L2 tasks (cf. Romaine, 1995). A story retold by the participants was deemed relatively effective as a proficiency measure and also useful in reducing variation not pertinent to the study (e.g., narrative skills, cognitive processing ability, etc.). No task is perfect and the performance of the participants might have been affected by the degree of familiarity to a particular story and/or by the way a story was told. For example, the story might have been easier to retell if it was already known to the participant and prior knowledge might have had an effect on remembering. The participants'

linguistic performance in the story-retelling task should not however be taken as representing their linguistic practice in other contexts (e.g., everyday transactions or academic work).

An adapted version of four Aesop's fables in the Boston Diagnostic Aphasia Examination (BDAE: Goodglass, 2001) was chosen for the story-retelling task because these had simple structures and were accompanied by picture stimuli of line drawings that depicted the content of the story. While the relatively simple sentence structures made it easy for the participant to follow the story read to her, it was expected that more proficient respondents could produce more sophisticated structures or vocabulary. The picture stimuli were also expected to ease cognitive loads in recalling and retelling the story. They would also trigger the participants to use certain words or phrases to describe a common item in the picture so that their use of these words or phrases could be compared. Two stories provided in BDAE—"The fox and the stork" and "The rabbit and the turtle"—were used for the English task, and two others—"The fox and the crow" and "The lion and the mouse"—were translated by the researcher from the same source for the Korean task (see Appendix B)<sup>49</sup>. The reason for using different stories for the L1 and L2 tasks rather than same stories in different languages was to prevent the participants from being prompted to memorise and translate the stories from one language to the other. Efforts were made to make the Korean version as natural as possible. This task was expected to elicit a relatively consistent set of comparable data for which *accuracy, fluency, grammatical complexity, lexical diversity, and morphological density* could be measured.

### **3.3.2 Stimulated recall**

The second measure was a stimulated recall or retrospective interview used to supplement the story-retelling data produced by the bilingual group. It was designed to be conducted on completion of the story-retelling task by replaying the audio-recording as a cue for recall and

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<sup>49</sup> While there are other versions of Aesop fables rewritten by professional writers in both Korean and English, there was a great degree of variation in the vocabulary, syntactic and discursal structures, and pictures used in various versions in both Korean and English. Therefore, it was deemed that data produced through the BDAE version specifically rewritten for an elicitation task and their translation would be more reliable than using other versions independently translated/rewritten.

asking what the respondent had been thinking at particular points during the task. It was expected that this measure would provide further understanding of the mechanisms of L1 attrition at the individual level, information on the nature of the processing of particular linguistic items manifested by performance measures (particularly fluency and accuracy) and the cause of the difficulties the participant encountered during the story-retelling task. Due to this reason, this measure was applied only to the Korean story-retelling task and was administered only to the bilingual group. After evaluating the results from the pilot study (see 3.4.1.2), it was decided to conduct a retrospective interview without replay of the audio-recording to those who were not agreeable to listening back to their own recording<sup>50</sup>. A retrospective interview was also used for English narratives in order to elicit the participants' comments on their own performance with respect to any difficulties and/or incidences of L1 interferences they experienced during the task.

### **3.3.3 Vocabulary test**

The third measure is a vocabulary test employed to measure the general productive vocabulary knowledge of the participants. Vocabulary knowledge is often considered to be closely related to general proficiency by both L1 and L2 researchers (Frederiksen, 1982; Grabe, 1991; Laufer, 2001; Laufer & Nation, 1999; Meara, 1996). Therefore, it was deemed that, by using a reliable vocabulary measure, it would be possible to estimate the participants' vocabulary size on the one hand and their general proficiency in L1 and L2 on the other (cf. Hulsen et al., 2002). Only a few studies on L1 attrition use a vocabulary measure for both languages involved, perhaps because of the rare availability of tests designed to target bilingual populations (Kohnert, Hernandez, & Bates, 1998; Schaufeli, 1992; Umbel, Pearson, Fernandez, & Oller, 1992) and the awareness of the risk of using translations (cf. Kohnert et al., 1998; Umbel et al., 1992). Some studies use instruments specifically designed to investigate particular aspects of vocabulary knowledge—e.g., collocational knowledge

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<sup>50</sup> Retrospective interviews for Korean story-retelling were not actually used since all the late bilinguals participating in the main study were agreeable to the stimulated recall method.

investigated using a cloze test (Hakuta & D'Andrea, 1992; Laufer, 2003). Others rely on a verbal fluency task, in other words, a word association task, where the participant is required to produce as many words of a certain category (e.g., animals, vegetables, etc) as possible within given time (Hakuta & D'Andrea, 1992; Waas, 1996; Yägmur, 1997). However, this type of task was considered to have a possible bias related to personal experience, preference, etc., and for these reasons, was not chosen as a measure for this study.

A picture-naming test is considered as an ideal vocabulary test since naming a picture is widely considered an elementary process in the use of language, where constraints stemming from on-line processing of speech production and any linguistic or pragmatic contexts are reduced to the minimum (Glaser, 1992). The Boston Naming Test (BNT: Kaplan, Goodglass, & Weintraub, 2001), originally designed and standardised for the English-speaking population, consists of drawings of 60 items ranging across various degrees of difficulty in naming, and includes norms for normal populations. Being a subset of larger test batteries in the BDAE (Goodglass, 2001, see 3.3.1), the BNT is one of the most widely used tests of its type (Kohnert et al., 1998; Roberts, Garcia, Desrochers, & Hernandez, 2002). A number of psycholinguistic studies utilise the BNT, and normative data related to gender, age, geographic region, educational level, and living environment are available from these studies (e.g., Guilford & Nawojczyk, 1988; Kohnert et al., 1998; LaBarge, Edwards, & Knesevish, 1986; Nicholas, Brookshire, MacLennan, Schumacher, & Parrazzo, 1989, among others). Of these studies, a recent study was conducted in New Zealand with L1 speakers of English as who were comparable to the present bilingual participants in terms of age and education (Barker-Collo, 2001). The Korean version of the Boston Naming Test (K-BNT: Hyanghee Kim & Na, 1997) is designed in the same format as the BNT. Independently developed for the Korean population, the items in the K-BNT are not identical to those in the BNT (see also Hyanghee Kim & Na, 1999)<sup>51</sup>. Normative data are also available for the Korean version.

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<sup>51</sup> The authors of the K-BNT note that they developed this version in recognition of the issues related to the cultural differences between Korean and English speakers (Hyanghee Kim & Na, 1997, 1999).

Considering these advantages, the BNT and K-BNT tests were chosen as a measure for vocabulary knowledge and general proficiency in the respective languages.

In spite of the advantages, it should be acknowledged that there are limitations in using a naming test, since it only measures performance restricted to specific lexical domains in a decontextualised situation and its validity in assessing non-pathologic bilinguals lexical retrieval difficulties has yet to be established (Köpke & Schmid, 2004). Therefore, results should be interpreted cautiously in conjunction with other types of data (Schmid & de Bot, 2004). In addition, the validity of using test items targeted for the North American population in New Zealand should also be taken into account (Barker-Collo, 2001; Worrall, Yiu, Hickson, & Barnett, 1995). This issue is further considered in 3.4.1.2 below.

### **3.3.4 Questionnaire**

The next measure, the questionnaire, investigated background information related to the personal history of L1 maintenance/loss and L2 learning, and patterns of L1/L2 use within various contexts. The questionnaire consisted of 67 questions divided into five sections (see Appendix C). Korean and English versions of the questionnaire were provided side by side for each item in Section I so that the participant could switch between the two languages as he/she needed<sup>52</sup>. The response mode for this section included both closed responses and short answers. Sections II-V all took closed responses on a 5 point Likert-type scale. These sections were constructed in a table format where the participant was asked to indicate his/her perceived L1/L2 use in certain contexts. The wording for these situations in the first column and the degree of language choice in the heading row was given in Korean first followed by English<sup>53</sup>.

Section I focused on the participant's general linguistic background. It included 13 questions that elicited information for the key extralinguistic variables—*age on arrival*, *time*,

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<sup>52</sup> While most participants preferred to use Korean in general, some started in English. These participants stated familiarity with the format of a questionnaire in English as the reason for their language choice in the follow-up interview. A few code-switched once and then switched back to the language they originally started with.

<sup>53</sup> The phrases in two languages could not be placed side by side in each cell within its limited width. Perhaps this restricted most participants in reporting that they read the Korean first while completing these sections..

*contact, self-perception on LI proficiency.* The four subsequent sections elicited information on language choices in various social contexts identified from other studies within the bilingualism and sociology of language paradigms (e.g., Baker, 2001; Dewaele, 2004b; Fishman, 1965; Pavlenko, 2002; Yăgmur, 1997), specifically *interlocutor types, social domains, and spontaneous language use.*

Five interlocutor types were considered: family members, school-/work mates, relatives, friends unrelated to school/work, and neighbours. The participant's language use with these types of interlocutor was investigated based on the dyad role relations of the addresser and addressee (see Fishman, 1965, see also 2.2.3.2). Section II investigated the participant's language use as the addresser to the given interlocutor and Section III what language was used when the participant was addressed by the same interlocutors listed in Section II. In these sections, the domains for school-/workmates were further specified in terms of the degree of formality of the situation where the language was used (i.e., during the class/work, etc.) and whether the interaction occurred among Korean speakers.

Section IV of the questionnaire included 13 questions which investigated the social domains where the participants used language for various functions, while another 13 questions in Section V elicited language use patterns in situations where different types of emotions were involved.

### **3.3.5 Interviews**

A follow-up interview was designed to supplement the questionnaire in order to gain in-depth understanding of the participant's personal history and language used and to expand on topics raised in the questionnaire items. Accordingly, the interview took the form of a semi-structured focused interview (Grotjahn, 1987, p. 66). That is, while the interview followed the general order of the questionnaire items, other relevant issues which arose spontaneously were probed ad hoc by the researcher as the interview proceeded. The interview schedule was

prepared bilingually so that the participant could choose either language according to her preference. A sample interview schedule is provided as Appendix D.

### ***3.4 Procedure***

A pilot study was conducted prior to the main data collection to test the feasibility of methods of data collection and the analysis designed for the main study. The following subsection summarises the pilot study and discusses how issues emerging from the pilot study were reflected in the main study. The subsequent subsection describes the general procedure followed for data collection and analysis.

#### ***3.4.1 The pilot study***

##### ***3.4.1.1 General description of the pilot study***

Five speakers participated in the pilot study. Three were K-E bilinguals and two were Korean monolingual children. An attempt was made to select participants according to the criteria outlined in 3.2. However, due to time and financial constraints, two recent monolingual arrivals living in Auckland were employed to represent monolingual speakers. They had resided in Auckland for less than 3 months at the time of data collection. The participants were recruited through the personal network of the researcher. The three bilingual respondents were aged 19-20 years and were from families with similar socio-economic status and similar residence histories (7 years). They were friends of each other and were university students at the time of data collection.

While all the instruments and methods designed or adopted for the main study were trialled, the picture-naming test was administered in the pilot study using only the items in the English version of the BNT test (Kaplan et al., 2001) since the K-BNT test (Hyanghee Kim & Na, 1997) was not available when the pilot study was conducted. Items named in Korean lexicon as established loans from English (e.g. *harmonica*) or those which had no equivalents to their English names (e.g. *trellis*) were excluded from the tests for both Korean and English. As a result, a substantial amount of the items were excluded (i.e. 23 items) for piloting and

this was revealed as one of the drawbacks of using a translated version of target responses to measure performance against without validation<sup>54</sup>.

The pilot study confirmed that the methodology designed for the main study was generally feasible. Nevertheless, some issues emerged from it and the relevant amendments were made as presented below.

#### *3.4.1.2 Issues emerging from the pilot study and amendments*

The first issue emerging from the pilot study was the need to employ participant recruitment methods other than the snow ball method in order to identify participants across a wide range of L1/L2 proficiency. Findings from the pilot study suggested that most of the potential participants who would be recruited by the snow ball method might be limited to those who were active within the L1 community since this method was reliant on the personal networks of the researcher and the potential participants. There was a concern that these individuals might not be differentiated in their degree of attrition and language use and might not represent others who were outside or less active members of the Korean community. The L1 of such potentially unrepresented bilinguals might be affected by attrition to a greater degree (e.g., Gross, 2000; Waas, 1996). In order to identify such individuals, it was decided to advertise more widely using additional sources as described in 3.2.

The second change is related to the English version BNT test (Kaplan et al., 2001). Since the test was originally developed in North America and it included some items specific to that region (e.g., ‘beaver’; ‘pretzel’), it was decided to check the validity of using such North-American specific items in the New Zealand context. In order to resolve this and other issues raised in the pilot study related to the BNT test, a panel of four members of the academic staff in the Department of Applied Language Studies and Linguistics at the University of Auckland, who had New Zealand or Australian backgrounds, was consulted. This panel suggested that I exclude two BNT items, ‘beaver’ and ‘pretzel’. This group was

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<sup>54</sup> In the main study, the full versions of the K-BNT (Hyanghee. Kim & Na, 1997) and BNT (Kaplan, Goodglass, & Weintraub, 2001) tests were employed.

also consulted regarding the omission or mispronunciation of the plural ‘-s’ (e.g., ‘scissor’ for ‘scissors’) or the use of synonyms (e.g. ‘chopper’ for ‘helicopter’) and variants of the lexical items (e.g., ‘clothes hanger’ for ‘hanger’), and all such responses were voted as acceptable.

Issues related to the administration of a vocabulary test in Korean (e.g., the validity of using a translated and reduced version; identifying the items to exclude) were resolved through the acquisition of the K-BNT (Hyanghee Kim & Na, 1997) test. There was only one problematic item—*pangtokmyen*: “gas mask”: a few respondents used a compound consisting of a Korean noun and an English loanword—that is, *pangtokmask*. Although this was not the target response, this seemed acceptable since this type of compounding is common in importing foreign lexical items to the Korean lexicon (H.-M. Sohn, 1999) and this response was listed as a dictionary entry in the Korean lexicon. Thus, all 60 K-BNT items were included in the analysis.

Some amendments were also made in the original design for the story-retelling and stimulated recall tasks. In the original design, the researcher planned to supervise the English-speaking assistant administering the story-retelling task in English staying quietly in the room where the task was conducted (for the issue of employing an English-speaking assistant, see 3.4.1.2). It was felt that the researcher’s presence prompted the participant to code-switch and to request assistance from the researcher when he/she had difficulties during the task in English, for example, in retrieving a required English word via translation from its Korean equivalent. Therefore, it was decided that the assistant would administer the task without supervision of the researcher and that she would have sufficient training so that she could administer the task independently with confidence.

The second amendment was to allow a retrospective interview as an alternative to the stimulated recall method. All three bilingual participants in the pilot study showed some degree of resistance to the stimulated recall on English data because they did not want to listen to their own recording. In order to reduce the risk of participant attrition due to task-anxiety related to low English fluency, it was decided that a retrospective interview would

replace the stimulated recall interview for English story-retelling. The resistance to the stimulated recall method for Korean data was relatively small in the pilot study. Considering that information relating to L1 performance elicited through this method would be crucial to understanding of L1 attrition as described in 3.3.2, it was decided that, only when participants did not want to listen to their own Korean speech, the researcher would ask them for comments in a retrospective interview.

A third amendment arose for proficiency data produced by the story-retelling task. While all the verbal data in the pilot study were transcribed and analysed by the researcher, the measurement of accuracy in English was completed first by the researcher and then by an NS of English who had similar qualifications to the researcher. It was found that assessment of accuracy needed NS intuition and that there was a considerable gap between the judgment of the assistant—NS rater, and the researcher—NNS rater (Coppieters, 1987; A. Davies, 2003; see also E. Davies, 1983; Hughes & Lascaratou, 1982; James, 1977; J. R. Ross, 1979; Sheorey, 1986). While it has been noted that NSs still show variations in their judgment on errors on grammatical items such as article use and that their intuition itself varies, studies suggest that the degree of variation is smaller among NSs than among NNSs (Coppieters, 1987; see also E. Davies, 1983; Hughes & Lascaratou, 1982; James, 1977). Given this, it was deemed that accuracy measures would be more reliable if judged by an NS rater of the given language. This resulted in a decision to employ an NS of English to analyse accuracy measures for the L2 data and for the researcher, an NS of Korean, to analyse the Korean data (see 3.6.5).

There were two issues that resulted as a consequence of this decision. The first was that the transcription of entire narratives would require validation. This was considered particularly important for English data because it was expected that participants would show various degrees of non-nativeness and/or disfluency which would make it difficult for an NS to comprehend the content of the speech. The second was the need to establish interrater reliability between NS raters of respective languages. As a result, it was decided to employ

one Korean assistant<sup>55</sup> and two English-speaking assistants for data analysis in the main study (for details, see 3.6.5). Funding for the employment of research assistants was sought and awarded by the Arts Faculty of the University of Auckland in 2004.

A few additional minor changes were also made to the wording, layout, and presentation of materials to the story-retelling and picture-naming tasks and the questionnaire, and to the administration procedure in order to facilitate the study.

### ***3.4.2 General procedure***

Prior to data collection, ethics approval was obtained from the University of Auckland (UAHSEC REF: 2003/001). The researcher made an initial contact with potential participants by telephone. Parents/guardians of the participants who were under 16 years of age at the time of data collection were also contacted for their verbal agreement. The participant (and his/her parent/guardian if the participant was under 16 years of age) was presented a Participant Information Sheet (PIS) and signed the relevant Consent Form at the beginning of the first meeting with the researcher (see Appendix A). Both bilingual and monolingual participants were given brief instructions in regards to the purpose of the research, protection of anonymity, and their right to withdraw, etc. as stated in the PIS.

Data were collected from the bilingual and monolingual groups in Auckland and in Seoul respectively. The researcher met the individual participant in the bilingual group twice over a one-week period. Both meetings took place in a room either at the participant's home or in the Arts Graduate Centre at the University of Auckland according to his/her preference and were not interrupted by others. All the tasks except for the story-retelling task for English were conducted by the present researcher.

In the first meeting, the bilingual participant filled in a language use questionnaire and participated in a story-retelling task in Korean and English. In the second, the bilingual participant completed a picture-naming task using the K-BNT (Hyanghee Kim & Na, 1997)

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<sup>55</sup> This assistant resigned after finishing her job related to transcription and romanisation of the Korean data. A visiting Korean scholar took part in interrater reliability check for Korean data later (see 3.6.5).

and the BNT (Kaplan et al., 2001), a picture-story task and an interview in that order. A brief break was given between the tasks. For the story-retelling and picture-naming tasks, the participants were allowed to select either language to start so that they would be given the option of starting the task with the language they were more confident with.

The organisation of the tasks for the two meetings with the bilingual participant was deliberately arranged to facilitate the activation of the relevant language for the expected type of data (cf. Grosjean, 2001). In other words, it was expected that the late bilingual might not be prompted to code-switch during the story-retelling task in the first meeting because the task was conducted by either the researcher for Korean or an assistant for English. In the same vein, it was expected that the bilingual mode might be activated in the second meeting during the picture-story task and interviews, and that more spontaneous use of language could be observed. It would have been ideal to have three sessions, each one of which was dedicated to a respective language mode—i.e. Korean monolingual, English monolingual, or bilingual respectively. However, given the busy schedule of the participants, the meetings with the bilingual participants were restricted to two. Data collection from the late bilinguals took place over a 4-month period from September to December, 2003. Most meetings with the late bilinguals took between 1-1.5 hours. The bilingual participant was given a ten dollar petrol voucher in appreciation of their participation.

The researcher visited Korea to meet the monolingual participants. Since the monolingual group only participated in the tasks designed for the bilingual group to perform in Korean, the researcher met the individual participant in this group only once. These meetings were held in a room provided by the family of one of the participants. The monolingual participants participated in a picture-naming task using the K-BNT (Hyanghee Kim & Na, 1997), the retelling of the same two Korean stories used for the bilingual group, and a picture-story task performed entirely in Korean. Since data elicited through the picture-story task were not used in this thesis (see 3.1.1), there will be no further discussion related to this task hereafter. It took 2 weeks to finish data collection from the monolingual group in

Korea. The meeting with a monolingual participant usually finished within an hour and s/he was given at the end of the meeting a key holder at the value of approximately ten dollars.

### ***3.5 Collection of data***

#### ***3.5.1 Tasks***

Three tasks were given to each late bilingual participant: the story-retelling task; a stimulated recall or a retrospective interview; and a picture-naming task. The monolingual group participated only in the Korean version of story-retelling and picture naming tasks. The story-retelling task was administered by either the researcher or English-speaker assistant in the relevant language (i.e. Korean and English respectively). No code-switching was allowed (see 3.1.1 and 3.4.1.2). At the beginning the story-retelling task, the participant was given instructions that two stories in Korean and another two in English would be read to him/her and that he/she would be required to retell the story in the same language. Each story was read at a speed slightly slower than normal. The participant was asked to retell the story to the researcher/assistant. Cartoon strips depicting the contents of the story were presented while the story was read to and retold by the participant. The same procedure was repeated for the second language. All the utterances made during the task were audio-recorded.

On completion of the story-retelling task, a stimulated recall interview was conducted to determine the difficulties the late bilingual participant had encountered and other behaviour noted by the researcher during the task. The audio-recording of Korean narratives was replayed and stopped at various points, where the researcher requested explanations. At each point, the participant gave an account of what occurred (e.g., long pause, repetition, etc.). Since all the late bilinguals were agreeable to responding to their stimulated recall protocols on the Korean data, a retrospective interview was not conducted on the Korean story-retelling task. A retrospective interview was conducted on the English story-retelling data (see 3.3.2 and 3.4.1.2). During the interview, the researcher showed the participant the picture stimuli used for the story-retelling task and asked him/her to recall and provide an account of any

specific incidences that had occurred in his/her mind while retelling the stories in English. All the interaction between the participant and the researcher during the session for the stimulated recall and the retrospective interview was audio recorded.

BNT (Kaplan et al., 2001) and K-BNT (Hyanghee Kim & Na, 1997) tests took place to evaluate the vocabulary knowledge for the respective language in the second meeting. Brief instructions in Korean<sup>56</sup> as to how to respond to each item were given according to guidelines provided in the BNT and K-BNT kits. The instructions were to “tell me the name of each picture. Tell me what you would call it as soon as it comes to your mind. I will give you 20 seconds for each picture.” If there was no response within 20 seconds or the response was different from those expected due to the picture being interpreted in a way in which it was not intended, the participant was given a *stimulus cue* and another 20 seconds. For example, if the participant said “an umbrella” for a mushroom, the researcher said, “it is something to eat,” as a stimulus cue. In such cases, the response to this cue was considered the first response. If the participant still failed to provide the target response, he/she was given a *phonemic cue*, consisting of the first phoneme(s) of the target word. The purpose of giving a phonemic cue was to alleviate the participant’s frustration at failure. Responses to the phonemic cues were excluded from consideration for scoring according to the instructions given in the BNT booklet<sup>57</sup>. A stimulus cue and a phonemic cue for each item were provided in the record booklet so that the administrator of this test could refer to it.

The tests started with the first item in the kit with a tape recorder on and a stopwatch ready to measure the wait time after each cue. The pictures for the 60 items in the kit were presented in order following the procedure introduced above. The researcher recorded the responses verbatim in the record book. Evaluation of the responses was made according to the target responses listed in the BNT record booklet and the K-BNT record sheet. Time spent for

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<sup>56</sup> The participants were told they would be given instructions in English if they preferred. But all the participants were agreeable to being instructed in Korean.

<sup>57</sup> Phonemic cues were available to all participants on request for the items in both K-BNT and BNT. In the K-BNT and BNT tests, 19 and 15 bilinguals respectively could name 1-3 items each correctly to these cues. Six monolinguals from the comparison group could name an item to a phonemic cue and one monolingual named two items correctly to their respective phonemic cues.

the administration of the test varied according to the proficiency of the participant. The participants took longer to complete the BNT than the K-BNT in general, ranging from 8 to 17 minutes for the BNT and from 5 to 15 minutes for the K-BNT.

### **3.5.2 Questionnaire and interviews**

The questionnaire was administered to the bilingual participants at the beginning of the first meeting. Brief instructions were given in regards to the purpose of the questionnaire, and how to respond to the questionnaire items. The participant was also instructed to request clarification if anything in the questionnaire was unclear. The participant completed the questionnaire in 10-20 minutes using the language that he/she chose for each item.

The responses to the questionnaire were used as the basis of a follow-up interview which was conducted in the second meeting. The interview started using Korean but the participant was allowed to code-switch afterwards<sup>58</sup>. Time taken to complete the interview varied from 15 minutes to an hour. All the verbal interactions were audio-recorded.

## **3.6 Analysis of data**

This section presents the procedure followed in analysing the data. Data are classified into three types—proficiency data, vocabulary data, and language use data. Proficiency data include data from the story-retelling task and the subsequent stimulated recall or retrospective interview. Vocabulary data are those obtained through the BNT and K-BNT. Language use data draw mainly from the responses to the questionnaire and interviews. All audio-recorded responses were digitised using the *Audacity* program (Mazzoni, 2004) prior to analysis.

### **3.6.1 Transcription**

Prior to transcription, the exact segments for the narratives and the subsequent stimulated recall/retrospective interviews produced by the participants were identified and digitized so that transcription could be completed through a computer program. By using sound-editing

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<sup>58</sup> While code-switching occurred at the word level to varying degrees in most cases and the phrasal level in a few, there was only one participant who code-switched at the sentence level.

software for replaying, it was expected that data would be safe from being lost or damaged during extensive replaying. It had also the advantage that time spent for production of a narrative and lengths of pause during the task could be measured with relative accuracy. Free software entitled *Audacity* (Version 1.2.1) (Mazzoni, 2004) was downloaded from a website: <http://audacity.sourceforge.net/> and subsequent procedures necessary for digitisation of the audio-recordings for the above-mentioned parts were followed.

Transcription of the story-retelling data produced through the task followed detailed transcription conventions developed with insights gained from the previous studies (Ellis, 1984; Schiffrin, 1994). Of the various units of analysis found in the literature (for a review, see Crookes, 1990; Foster, Tonkyn, & Wigglesworth, 2000), the AS-unit (Analysis of Speech unit), defined as “a single speaker’s utterance consisting of *an independent clause, or sub-clausal unit, together with any subordinate clause(s) associated with either*” [italics original] (Foster et al., 2000, p. 365) was deemed as the most suitable for an analysis of cross-linguistic data. The AS-unit is basically a syntactic unit like the T-unit (Hunt, 1966), which is widely used but frequently noted for its limitedness for spoken L2 data (Foster et al., 2000; Tarone, 1985). Unlike the T-unit, the AS-unit has the advantage that it accounts for structures such as subjectless clauses which frequently occur in utterances in *pro-drop* languages (e.g. Korean, Japanese, Spanish, etc. ) and often stem from NNS disfluency in a *non-pro-drop* language (e.g. English, German, etc.). These may otherwise be discounted as fragmentary utterances. This advantage of the AS-unit has been demonstrated in previous studies (S. H. Kim, 2001; S. H. O. Kim & Elder, 2005). The detailed accounts of the application of the AS-unit for L2 learner data provided by Foster et al. (2000) were adapted in this study in order to facilitate the identification of an AS-unit from data produced in both Korean and English. Korean data were transcribed in Korean script first and later converted into roman script using the Yale system (Martin, 1992) for the readers unfamiliar with Korean script and also to allow further analysis using computer software such as the CLAN programme (Computerised Language

Analysis: MacWhinney, 2000)<sup>59</sup>. Basic transcription conventions, guidelines for identifying an AS-unit, and the adaptation of the Yale Romanisation for Korean (Martin, 1992) are provided in Appendix E.

Since the *clause* serves as the basis of identifying an AS-unit, the next issue concerns what should be regarded as a clause in Korean data, given that Korean is a discourse-oriented language and allows any constituent of a sentence to be omitted. In addition, the rich morphology of Korean includes numerous conjunctive suffixes that establish coordinative or subordinative constructions between verbs. In order to ensure the reliability of the measurement of proficiency in terms of accuracy and grammatical complexity (for which the clause serves as the unit of analysis), another set of guidelines were prepared for the identification of a clause in the Korean data. These guidelines are accompanied with lists of commonly used Korean conjunctives, complementisers, and particles, as also provided in Appendix E.

### **3.6.2 Proficiency data**

The transcripts of story-retelling data in both L1 and L2 were analysed in terms of proficiency measures drawn on Skehan's (1996a; 1998; 2001) framework of fluency, accuracy, and complexity (Foster & Skehan, 1996, 1999; Mehnert, 1998; Skehan, 1996; Yuan & Ellis, 2003, among others; see also Ellis & Barkhuizen, 2005). While complexity is generally referred to as syntactic complexity, some studies consider *lexical diversity* as a complexity measure (Mehnert, 1998; Robinson, 2002; Yuan & Ellis, 2003). The present study takes both aspects of complexity into account considering that they represent different kinds of language processing ability related to complexity. By investigating lexical diversity, it was also possible to compare the vocabulary processing ability with the vocabulary knowledge measured in a decontextualised situation—i.e. through a picture-naming task (see 2.2.1.1 and 3.3.3). The analysis of proficiency data in terms of these four measures generally follows the

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<sup>59</sup> Since this software uses only roman script, data produced in languages that do not use roman script are required to be romanised to be entered into this programme.

methods widely recognised as reliable measures in L2 research. A third complexity measure *morphological density* (Huls & van de Mond, 1992) was considered in the present study specifically to analyse Korean data. Since this measure was employed to determine the degree to which the respondent's morphological system in Korean, an agglutinative language, might be affected by attrition (cf. Andersen, 1982; Kaufman & Arnoff, 1991; Seliger & Vago, 1991; Silva-Corvalán, 1996), this measure was not applied to the English data.

The participant's individual score for each measure was tallied for the two narratives they produced in the same language. The mean of the score across the two narratives was calculated for each measure to represent the participant's proficiency in that measure. Sets of detailed guidelines applied to the analysis of both L1 and L2 data are provided in Appendix E.

Audio-recorded verbal interactions during the stimulated recall and retrospective interviews supplemented the interpretation of the individual participants' verbal behaviour. Transcripts of these interactions were referred to during the data analysis as necessary. These data were mainly used for qualitative analysis for individual cases (see 3.6.7).

### 3.6.2.1 *Fluency*

*Fluency* in each narrative was measured by the number of syllables produced per second. The number of syllables produced in the entire narrative (discounting dysfluency phenomena such as repetitions or false starts) was divided by the total number of seconds the participant took to produce the narrative (see also Derwing, Rossiter, Munro, & Thomson, 2004; Mehnert, 1998; Wendel, 1997; Yuan & Ellis, 2003). The final part of two stories (i.e. "The rabbit and the turtle" and "The lion and the mouse"), where the moral of the story was expressed, was deemed to require cognitive skills in addition to fluency. As it was impossible to separate cognitive skills from fluency, this part was excluded from this analysis in order to increase the reliability of the test as a whole (see the guidelines for analysing fluency included in Appendix E). However, this part was included in the analysis of other measures not affected by processing time.

### 3.6.2.2 *Accuracy*

*Accuracy* was measured by calculating the ratio of the number of error-free clauses to the total number of clauses produced. L2 researchers use this method to evaluate L2 learners' general ability to produce utterances without errors (e.g., Foster & Skehan, 1996; Mehnert, 1998; Yuan & Ellis, 2003) as opposed to specific measures which focus on errors in specific grammatical items (Crookes, 1989; Ellis, 1987). A clause or a segment which was assigned clausal status (Foster et al., 2000) was identified following the same method applied to transcription (see 3.6.1 ). The number of error-free "clauses" was counted and divided by the total number of "clauses" to produce the accuracy measure for each narrative. The details of this procedure are provided in the guidelines included in Appendix E.

### 3.6.2.3 *Grammatical complexity*

*Grammatical complexity* was measured by the number of clauses divided by the total number of AS-units (see Appendix E for guidelines followed in measuring grammatical complexity). While the c-unit or T-unit was previously the preferred measure for the complexity in the L2 learner language (e.g., Foster & Skehan, 1996; Mehnert, 1998; Yuan & Ellis, 2003), the merits of using the AS-unit have been demonstrated in more recent L2 research (e.g., Skehan & Foster, 2005; Tavakoli & Skehan, 2005). Clausal status was assigned according to the method applied to the measurement of accuracy (see above).

### 3.6.2.4 *Lexical diversity*

While the validity of type-token ratio (TTR) and its modifications as a tool for the analysis of lexical diversity has frequently been questioned (for a review, see Malvern & Richards, 1997), most other measures developed for lexical diversity are suitable for written text and for the identification of more sophisticated use of difficult vocabulary (e.g., Laufer & Nation, 1995; Meara & Bell, 2001) and were deemed unsuitable as a measure for analysing the short narratives orally produced by the current participants.

A *lexical diversity* measure entitled *D*, devised to improve the limitations of TTR with respect to its sensitivity to the text length (Malvern & Richards, 1997, 2002), is deemed as a more appropriate measure for L1, L2, and cross-linguistic research in various areas including informal oral speech (Berman & Verhoeven, 2002; Durán, Malvern, Richards, & Chipere, 2004; Jarvis, 2002; Malvern & Richards, 1997, 2002; McKee, Malvern, & Richards, 2000; B. Richards & Malvern, 1997; Stromqvist et al., 2002). Given the various lengths, the cross-linguistic nature of the data and the different proficiency levels of the participants, this measure was considered the most acceptable for lexical diversity for the present study.

To produce the *D* value, it was necessary to install the CLAN programme (Computerized Language Analysis: MacWhinney, 2000) from the CHILDES (Child Language Data Exchange System: MacWhinney & Snow, 1990) website. The format of the transcript was converted manually into CHAT format (Codes for the Human Analysis of Transcripts: MacWhinney, 2000) for data analysis. The converted transcript was entered into the *vocd* software included in CLAN for the elicitation of the *D* value. Since *vocd* recognises words with different spelling as different types, the data needed to be standardised with respect to inconsistencies of spelling (e.g., ‘colour’ and ‘color’) or phonetic variants of the same words; homographs (e.g., ‘may’ as a modal verb and the month of ‘May’); pause fillers or backchannels; non-words (e.g., laughs, sniffs, etc.); inflected forms with bound morphemes<sup>60</sup>. Since Korean data were more complex to analyse due to the frequent drop of word-final consonants or compounding morphemes and phonemes which H.-M. Sohn (1994, p. 475) calls “coalesce process”, another set of detailed guidelines was produced for the analysis of Korean data in order to enter them into the *vocd* programme. These guidelines and a sample of original and converted transcripts for both languages are provided in Appendix E.

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<sup>60</sup> There are several methods to choose from with regards to the extent of treating inflectional/derivational variants of a lexical item as different words. The present study follows Durán et al. (2004) and Jarvis (2002) in treating derivations of the same root as different types, while all regular inflections of the same word are regarded as a single type so that lexical knowledge involving the latter might not be confounded with grammatical knowledge (see also Laufer & Nation, 1995; Vermeer, 2000). As for irregular forms, considering that they are stored in memory as opposed to the rule-governed process of regular forms (Pinker, 1998; Pinker & Ullman, 2002), different word forms are counted as different types. That is, ‘go’, ‘went’, ‘gone’ were counted as three different types while ‘go’ and ‘goes’ were counted as two tokens of a same type (see Appendix E).

### *3.6.2.5 Morphological density*

Considering the agglutinative nature of the Korean language, it was assumed that L1 attrition might bring about a decrease in the ability to use a range of morphemes. The investigation of the *morphological density* of the Korean narratives was based on a method, which Huls and van de Mond (1992) utilised in their study of Turkish L1 attrition. The *agglutination index* measured the number of morphemes per word (see 2.2.2.1). The transcripts were modified for the analysis of morphological density in Korean so that morphological boundaries might be identified (see Appendix E) and the *agglutinative index* for each transcript was calculated. This measure was obtained for narratives produced in Korean by both bilingual and monolingual participants and subjected to the subsequent statistical analysis.

### *3.6.3 Vocabulary data*

The measure of respondents' vocabulary knowledge served as the measure for their general proficiency. Individual participants' scores for the BNT and the K-BNT were produced by counting the number of correct answers given both spontaneously and to stimulus cues, according to the scoring instructions provided in the *BNT* record booklet (see 3.5.1) and to the suggestions by the consultation panel with regards to the ambiguous items or responses (see 3.4.1.2). Since the two items (i.e., 'beaver' and 'pretzel') were excluded from the analysis, 58 was the maximum raw score for English, while 60 was the possible highest score for Korean. The raw scores for the individual participants were converted to percentages to facilitate comparisons between the two languages. Since the accuracy of the scores was checked by replaying of the audio-recording of verbal responses and scoring procedure was relatively straightforward, interrater reliability for this measure was not sought.

### *3.6.4 Language use data*

The main sources of language use data are the responses to the questionnaire and data from the follow-up interviews. As a preliminary step for the statistical analysis, responses to the questionnaire were entered into the SPSS programme (Version 12.0). Variables classified into

extralinguistic variables were: *age* (Q3), *length of residence* (Q4), *degree of prior exposure* (Q6, Q7), *perceived changes in L1/L2 proficiency* (Q8-Q10), and *degree of contact* with the home language (Q11-Q13).

The next group of variables were related to the type of interlocutor. These variables were drawn from Sections II and III of the questionnaire. *Interlocutors* include specific family members, friends and people outside the domain of family and friends<sup>61</sup>. Family members are immediate family members—mother, father and siblings—and relatives living in Auckland. Friends are classified into those in daily contact—i.e., classmates or workmates, and those contacted occasionally—i.e., friends who are not related to school/work. Friends denoting class-workmates are further classified according to the (in-)formality of the situation where the interaction takes place—i.e., class/work time (formal) and breaks (informal—e.g., lunch time). Interlocutor types specifically denoting Korean class-/workmates are added in order to elicit the pattern of the participant's interaction with L1 speakers at school, university, or work—an L2 dominant environment. Thus, five friend variables are labelled as: FDI (friends in daily contact; informal context); FDF (friends in daily contact; formal context); KFDI (Korean friends in daily contact; informal context); KFDF (Korean friends in daily contact; formal context); FOI (friends in occasional contact; informal context). These variables are dubbed 'to-variables' denoting the situation where the participant speaks to the given type of interlocutor and 'by-variables' denoting the reverse (e.g., the variable 'to mother' denotes that the participant speaks to mother, and the variable 'by mother', the reverse). The participant actively chooses the language for the interaction with the interlocutor in the former situation, but responds passively to the choice by the interlocutor in the latter.

The variables identified from the 13 social domains listed in Section IV were categorised as either public or private domains and the three medium choices according to the type of medium used therein. See Appendix F for these classifications.

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<sup>61</sup> Of the 14 interlocutor types listed in these sections, *spouse* (i.e. Q17 and Q31), *teachers at school/university* (i.e., Q22 and Q36), and *Korean teachers* (i.e. Q23 and Q37), were excluded from the analysis because all the participants were not married when the data were collected and used only English to their school teachers or university lecturers. Only a few younger participants had Korean teachers/tutors for private tuition.

Section V investigated language choices during situations where various types of emotions are involved. The three categories representing the degree of emotional load—heavy, medium, and light—are derived from a survey with 17 applied linguistics academics. They indicated the relative degree of emotional load they would perceive in the individual situations listed in Section V on a continuum with three points with 3 denoting heavy, 2 medium, and 1 light. The items were classified into these three categories according to their mean scores: *light* for those with a mean score lower than 1.5; *medium* for those with a mean score of 1.5 - 2.5; and *heavy* for those with a mean score of 2.5 or higher. Table 3.1 summarises these classifications.

**Table 3.1 Classifications of the emotional load involved in the situations given in the questions**

Question	Situation: When...	Mean	SD	Label
55	Dreaming	1.67	0.72	Medium
56	Counting the number of objects	1.06	0.24	Light
57	Memorising numbers (e.g., ID numbers)	1.12	0.33	Light
58	Receiving incoming telephone calls	1.41	0.62	Light
59	Angry	2.71	0.59	Heavy
60	Shocked	2.76	0.80	Heavy
61	Tired	2.29	0.44	Medium
62	Stressed	2.76	0.69	Heavy
63	Embarrassed	2.56	0.44	Heavy
64	Arguing	2.71	0.63	Heavy
65	In a hurry	2.41	0.51	Medium
66	In danger	2.94	0.24	Heavy
67	Confused	2.24	0.66	Medium

Based on these classifications, individual participants' scores for the three categories were produced by calculating the mean score for the relevant items in each category.

The follow-up interviews were used as a supplementary tool to draw out information to support the questionnaire responses or other proficiency measures. Only the parts that were deemed to contain important information for the understanding of a response to the relevant questionnaire item or particular aspects of linguistic performance such as errors or disfluency were transcribed. Other parts of the interview data were summarised.

### 3.6.5 Reliability

While the analysis of the vocabulary and language use data and the transcription/summary of stimulated recall/retrospective interviews were completed by the researcher, the analysis of narrative data involved a research team. This was because the analysis of the proficiency data needed to be more robust due to the cross-linguistic nature and various degrees of comprehensibility of the data (see 3.4.1.2) in spite of the detailed guidelines and careful piloting. The research team consisted of the present researcher, a K-E bilingual assistant, a native Korean researcher<sup>62</sup>, and two native English-speaking assistants. The purpose of employing the research team was to enhance the reliability of the data and findings through validation and to establish interrater reliability as noted in 3.4.1.2. The various tasks where these individuals were involved are illustrated in Tables 3.2 and 3.3.

**Table 3.2 Division of labour for the analysis of proficiency data for Korean**

	Transcription	Romanisation of transcripts	Validation	Measurement of the proficiency measures
Researcher	Entire data	Entire transcripts	—	Analysis of entire
Assistant A	—	—	Validation of entire transcription and romanisation	—
Visiting Korean scholar	10 percent of data for interrater reliability check	—	—	10 percent of data for interrater reliability check

*Note.* Assistant A is a K-E bilingual.

The Korean data were initially transcribed and romanised by the present researcher, and subsequently validated by a K-E bilingual assistant (Assistant A), who was studying language teaching at the postgraduate level. All the proficiency measures were produced by the present researcher. A Korean researcher participated in interrater reliability checks for transcription and proficiency measures in Korean.

<sup>62</sup> This researcher was a visiting scholar to the Department of Language Studies and Linguistics at the University of Auckland during the period when data were analysed. She joined the research team after Assistant A resigned (see Table 3.2 and section 3.4.1.2)

**Table 3.3 Division of labour for the analysis of proficiency data for English**

	Transcription	Validation of transcripts	Measurement of the proficiency measures	Validation of measurement
Researcher	Second half of data	First half of data	All proficiency measures except accuracy	Accuracy measure for the entire data
Assistant B	First half of data	Second half of data	10 percent of data for interrater reliability check	—
Assistant C	—	—	Accuracy measure for the entire data	All proficiency measures except accuracy

*Note.* Assistants B and C are NSs of English.

The transcripts for English narratives were produced by both the present researcher and an NS of English (Assistant B), who had a postgraduate qualification in language teaching and experience of analysing speech data. They transcribed half of the data each and exchanged their transcripts in order to verify each other's transcription. Assistant B participated in the interrater reliability check later (see 3.4.1.2). Proficiency measures other than accuracy were produced by the present researcher while accuracy measures were produced by another NS of English (Assistant C), since the pilot study suggested that this required NS intuition (see 3.4.1.2). The accuracy judgement produced by Assistant C was verified by the researcher.

The reliability of transcription of the Korean data was checked on 10 percent of Korean data (i.e. data from three bilingual participants and one monolingual participant). The Korean researcher transcribed these data independently applying the same method used by the present researcher (see Table 3.2). There were some initial disagreements between the two researchers in terms of identifying a clause boundary and the function of some particles (e.g., conjunctives). After extensive discussion, a review of related literature (Ko, 1989; H.-M. Sohn, 1999), and consulting a Korean linguist (J.-H. Kim, Personal communication, Jan, 2005), the two researchers reached consensus on the transcription.

While there were few difficulties with most of the English transcription (see Table 3.3), some discussion arose on parts where a late bilingual demonstrated an extreme non-nativeness in pronunciation and prosody (i.e. unnecessary pauses, wrong places for pauses and addition of other sounds made by strong breaths or sniffing). Another disagreement was

on whether or not an article (or a *right* article) was pronounced at certain points where its use was obligatory (e.g. before “rabbit”). Since the two researchers could not reach agreement, these parts were consulted by another researcher, a linguist with extensive experience analysing spoken data. It was decided to follow her decision and omit parts that could not be analysed reliably, replacing that part with the symbol X/XX.

Inter-rater reliability for proficiency measures was checked on 10 percent of the data—that is, the Korean data from the three bilingual and one monolingual participants, as described above, and English data from the same three bilingual participants. The agreement rate for each measure was calculated by dividing the smaller number by the larger number. Note that accuracy in English was assessed by two NSs of English—Assistants C and B analysing the whole transcripts and three participants’ respectively. The overall level of agreement reached over 90 percent for both Korean and English, except for accuracy in English, which reached only 61.0 percent during the initial assessment. While disagreements in other measures arose from manual counting, an analysis of the discrepancies in judging English accuracy revealed differences in judgment. While one of the NS raters regarded the respondents’ non-use of an article for animal nouns in the Aesop’s fables as correct, the other followed the general rule of the obligatory use of an article. The data were reanalysed twice, taking into account of the use of the article first and ignoring it for animal nouns next. The agreement rate reached 88.9 percent for the use of an article and 91.4 percent without. Interviews with the late bilinguals revealed that most had not been exposed to English fables/fairy tales during their childhood. Given this and considering that article use is one of the most difficult features for L2 learners of English to use (Butler, 2002; Pica, 1994; see also Zobl, 1980), it was decided to use the accuracy measure with article use for the rest of the analysis involving other variables since this measure was considered to be more effective in differentiating the participants performance.

### ***3.6.6 Statistical analysis***

Descriptive statistics were carried out on each variable and scores for individual variables were plotted for central tendencies and general patterns using the SPSS program (Version 12.0). Initial plotting of the data revealed some skewness for some variables (i.e., L1 accuracy and L2 grammatical complexity). Although transformation of data was attempted in order to improve the skewness (cf. Tabachnick & Fidell, 2001), the initial results indicated that little benefit could be derived from this method. It was decided to use non-parametric statistics: Spearman rank order correlations for the investigation of the interrelationship between variables and a Mann-Whitney U test for statistical differences between samples. While a multiple regression analysis was initially considered, it was subsequently abandoned due to the small sample size and generally moderate correlations between the proficiency variables and sociolinguistic variables. Partial correlations were applied to investigate some aspects of relationships between the performance variables and some language use variables. In this case, skewed data were transformed following methods provided in Pallant (2003) so that they might approximate a normal distribution. An alpha level of .05 was used for all statistical tests.

### ***3.6.7 Qualitative analysis***

Qualitative analysis was conducted on five cases of bilingual participants selected on the basis of the statistical analysis. These late bilinguals were assumed to go through the greatest degree of attrition. Their personal history of immigration, linguistic backgrounds, language use patterns and other related variables were investigated drawing on their responses to the questionnaire and follow-up interviews. The linguistic samples produced by these participants were extensively scrutinised with reference to their responses to stimulated recall protocols.

## ***3.7 Summary***

In this chapter, the procedure followed in the present study has been summarised. The first part of the chapter investigates the methodological issues crucial to the procedure of data

collection and analysis. The later sections introduce the participants and the research tools designed and developed for collecting and analysing the data. After a brief description of the pilot study and the general procedure, the methods employed in the data collection and analysis is presented. Issues of reliability and validity were also discussed. The final part outlines the statistical and qualitative analyses employed in the analysis of data. The results based on the statistical analysis are reported in chapter 4 while the qualitative analysis is provided in chapter 5.

## **4 Interaction amongst L1, L2 and social measures**

This chapter reports the results derived from the analysis of data gathered through the picture-naming test, the story-retelling task, the questionnaire and interviews. The data gathered from the stimulated recall and retrospective interviews are also used to supplement the findings.

Section 4.1 analyses the participants' general performance on L1/L2 vocabulary and proficiency measures, and the relationships amongst the L1/L2 measures. Section 4.2 considers the relationship between the proficiency and social variables that might affect the performance. Variables that encourage or discourage L1 attrition are also considered in the same section. A summary of the chapter is provided in section 4.3.

### ***4.1 Relationship amongst proficiency and vocabulary measures***

This section presents the results on the L1 and L2 proficiency and vocabulary measures. First, L1 performance of the late bilinguals is compared with the monolingual comparison group in order to explore whether the late bilinguals' L1 proficiency and vocabulary knowledge may have changed since the time of their arrival in New Zealand. Next, the bilinguals' L1 performance is compared with their own L2 performance to determine the extent to which their L1 proficiency is associated with their L2 proficiency. Since this section concerns the relationship among the L1 and L2 measures, the results are reported mainly on the basis of quantitative data. Qualitative analysis of linguistic details follows in chapter 5.

#### ***4.1.1 Late bilinguals' L1 proficiency: Attrition or acquisition?***

The performance of the bilingual and monolingual groups on L1 proficiency and vocabulary measures was considered using a Mann-Whitney U test. Results presented in Table 4.1 reveal two significant underlying trends. The first concerns the higher performance of the bilingual group in vocabulary ( $U = 75.50; p = .02$ ). The second notable difference is the lower performance of the bilingual group in accuracy and lexical diversity ( $U = 85.00; p = .04$ ).

**Table 4.1 L1 vocabulary and proficiency measures of the late bilingual and monolingual groups**

Measures	Late Bilingual Group (N = 30)					Monolingual Group (N = 10)					Mann-Whitney	
	Mean	SD	Med	Min	Max	Mean	SD	Med	Min	Max	U	<i>p</i>
Vocabulary	81.78	8.60	84.17	61.67	95.00	75.17	4.94	73.33	70.00	86.67	75.50*	<b>.02</b>
Proficiency												
ACC	89.72	7.18	91.49	71.43	100.00	93.69	7.21	96.65	76.82	100.00	85.00*	<b>.04</b>
L-D	52.78	10.92	54.81	29.66	69.53	63.70	17.27	63.96	40.65	104.95	85.00*	<b>.04</b>
FLU	3.94	0.81	4.15	2.24	5.24	3.78	0.60	3.68	2.76	5.09	124.00	.43
G-C	2.45	0.44	2.29	1.79	3.58	2.47	0.60	2.61	1.72	3.43	146.00	.91
M-D	1.56	0.07	1.56	1.45	1.78	1.56	0.05	1.55	1.49	1.66	136.00	.68

*Note.* *p* = exact significance. \**p* is significant at the .05 level. ACC = accuracy (percentage of error-free clauses); L-D = lexical diversity (the *D* value obtained through the *vocd* program); FLU = fluency (syllables per second); G-C = grammatical complexity (clauses per AS-unit); M-D = morphological density (morphemes per word). Vocabulary knowledge is measured by the percentage of correct responses to the 60 K-BNT items.

In spite of their higher performance in vocabulary, the late bilinguals show greater variability than the monolingual group in vocabulary knowledge as revealed in the larger SD value and a greater difference between the highest and the lowest scores. Greater variability in L1 vocabulary knowledge among bilinguals than among monolinguals has been noted in previous studies (Ammerlaan, 1996, p. 94; Schaufeli, 1992; Waas, 1996; Yägmur, 1997; Yägmur et al., 1999). A comparison between the late bilinguals and a monolingual group of 12-year-olds suggests an overall increase in L1 vocabulary knowledge of the bilinguals since the time of their arrival in New Zealand at 12-13 years of age. Although it is well received that L1 vocabulary knowledge develops throughout and beyond adolescence (Daneman & Green, 1986; L. L. Long & Shaw, 2000; Nippold, 1992, 1998), L1 vocabulary development of recent adolescent immigrants has not been addressed to date. The findings from this study shed light on this issue, suggesting that the higher performance of the late bilinguals has the effect of L1 vocabulary development in an L2 environment.

In order to investigate the extent to which L1 vocabulary knowledge of the late bilinguals might have increased as a group, their scores were compared with those of 15-24 year olds in the K-BNT kit (Hyanghee Kim & Na, 1997). The latter group has a moderately higher score with a mean score of 87.8 percent<sup>63</sup>, while the mean score for the late bilinguals is 81.78 percent. Although these results come from two different studies, the findings suggest

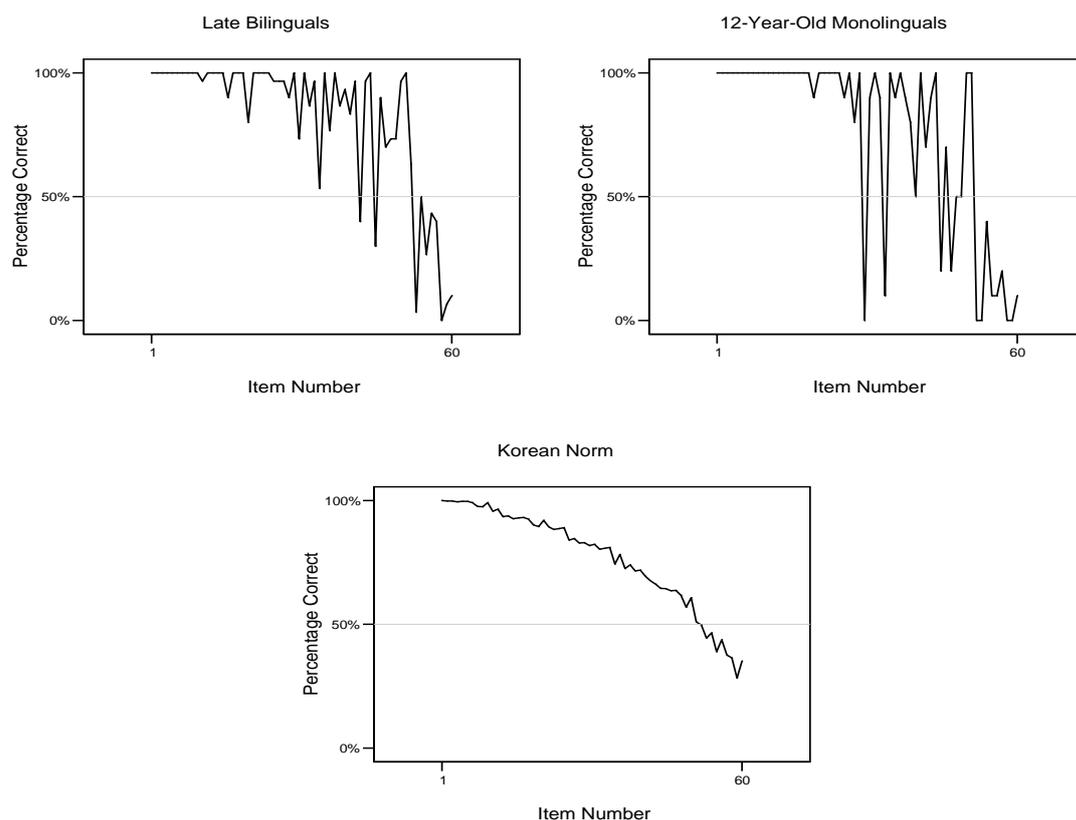
<sup>63</sup> The researcher converted the raw mean scores originally provided in the test kits into percentages in order to compare all the vocabulary scores in L1 and L2 of the present participants and data from L1 and L2 norms.

that the late bilinguals' L1 vocabulary knowledge is smaller than that of their age-matched monolingual norm. This pattern may be regarded as being in accordance with the results from experimental studies that report a reduction in vocabulary skills among bilinguals (Ammerlaan, 1996; Schaufeli, 1992; Waas, 1996; Yăgmur, 1997). The former studies regard such difference from the performance of age-matched monolinguals as evidence of attrition. However, the present findings involving the monolingual 12-year-olds and the monolingual norm, whose ages represent the late bilinguals' age of arrival and their current age respectively, suggest a notable possibility that this may be attributed to incomplete or unsupported learning of L1 vocabulary since the late bilinguals' time of immigration (for a discussion on this issue, see S. H. O. Kim, 2005).

A second issue relating to vocabulary is the pattern of responses. In order to determine the extent of difference in the patterns of responses to the test items, an item analysis was carried out by calculating the percentage of participants who named each picture correctly in the bilingual and monolingual groups in the present study and the group in the Korean norm provided in the K-BNT kit (see Appendix G). Mann-Whitney U tests carried out on pairs of groups revealed no significant difference between the bilingual and monolingual groups in the present study ( $U = 1784.000$ ;  $p = .928$ ), while there were significant differences between both groups in the present study and the Korean norm (Bonferroni  $p < .01$ )<sup>64</sup>. Figure 4.1 illustrates the findings from the three groups.

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<sup>64</sup> A Kruskal Wallis test, a nonparametric equivalent of an ANOVA, suggested a significant difference in the patterns of responses among the groups ( $\chi^2 = 14.537$ ;  $p = .001$ ). Since there is no nonparametric equivalent for post hoc tests for an ANOVA, a Mann-Whitney U test was run for each pair of groups and the Bonferroni adjustment was applied.



**Figure 4.1** Patterns of responses to the stimulus items in the L1 vocabulary test among the groups

Figure 4.1 shows that the pattern of responses of neither the bilingual nor the monolingual group of the present study follows the norm of the monolingual Korean age-mates for the bilingual group. The difference between the bilingual group and the Korean norm may be due to different linguistic environments. It is possible that in an L2-dominant environment, the late bilinguals' L1 vocabulary could not develop in the same fashion and to the same extent as monolingual L1 speakers' vocabulary in a natural L1 environment. Perhaps this has led the bilinguals' pattern of responses to more resemble that of 12-year-old monolinguals than their age-matched monolingual norm as illustrated in Figure 4.1.

Figure 4.1 shows that the patterns of the performance of the bilingual and monolingual groups for the first half of the test are almost identical and, in most instances, even higher than the monolingual norm<sup>65</sup>. There is considerable variation in the results of both groups in the second half of the test. Given that the picture stimuli of the test are presented in the order of

<sup>65</sup> Note that the Korean norm has been derived from a random sample recruited from a large population while the reference and target groups are relatively homogeneous in their socio-economic status and all of them have minimum 6 years' primary education in Korea.

increasing difficulty, the result for the first half of the test suggests that high-frequency lexical items are well learned by both groups. In the second part of the test, none or very few of the monolingual participants could correctly name a number of items, some of which were correctly named by some bilinguals. Given the 12-year-old monolinguals' high performance in the first half and their younger age at the time of the study, it is deemed that their poor performance on these low-frequency items was due to incomplete acquisition. If this is the case, it is possible that the late bilinguals might not also have learned many of such items until the age of 12-13 years—the time of their immigration—and that their better performance suggests some learning has occurred after their exposure to an L2 environment. In order to address this issue, the items on which the monolingual group's performance was particularly low were identified and subjected to a Mann-Whitney U test. Table 4.2 presents the results.

**Table 4.2 Percentage of bilingual and monolingual participants correctly naming the selected L1 vocabulary items**

Lexical items	Bilingual group (N = 30)	Monolingual group (N= 10)
No    Name	% correct	% correct
Q30    대패 ((a carpenter's) plane)	73.33***	0
Q34    끌무 (thimble)	53.33*	10
Q45    석류 (pomegranate)	30.00	20
Q47    도르래 (pulley)	70.00*	20
Q52    방독면 (gas mask)	63.33**	0
Q53    고깔 (peaked hat worn by	3.33	0
Q55    평행봉 (parallel bars)	26.67	10
Q56    토시 (wristlet)	43.33	10
Q57    작살 (fish spear)	40.00	20
Q58    흙손 (trowel)	0	0
Q59    풍경 (wind-bell)	6.67	0
Q60    (소)코뚜레 ((a cow's) nose ring)	10.00	10

*Note.* *p* is exact significance. \**p* < .05; \*\**p* < .01; \*\*\**p* < .001

Table 4.2 shows that the bilingual group's performance on these items is generally better than that of the monolingual group. A relatively large proportion of the bilingual group could name many of the items which the monolingual group had difficulty naming. Although the results for items Q58 and Q60 strongly suggest that these lexical items might not have been learned by all of the bilingual participants, results for other items support the possibility of a learning effect. Particularly, the significantly better performance of the bilingual

participants on four items (i.e., Items 30, 34, 47, and 52) strongly suggests that vocabulary learning has occurred after they arrived in New Zealand at the age of 12-13 years.

Figure 4.1 above also shows that the bilingual group underperformed the monolingual group on some items. In most cases where the bilingual group's performance is lower than both the monolingual group and the Korean norm, the difference between the bilingual group and the Korean norm is very small. There is only one item on which the performance of the bilingual group is considerably lower than that of both the monolingual group and the Korean norm. This lexical item is Q42 *첨성대 chemsengtay*, the name of an ancient observatory in Korea. This lexical item is learned by Year 5 in Korea as a component of Korean language and social studies. Seven monolingual children and 12 late bilinguals gave correct responses to this item. Although the difference between the bilingual and monolingual groups was not statistically significant ( $U = 105.000$ ;  $p = .167$ ), the late bilinguals' responses to the phonemic cues and their verbatim record reveal that the bilinguals seem to have more difficulties in accessing this lexical item. While all three monolingual participants who failed to give a correct response to the first cue could name it at the phonemic cue (i.e., the first syllable of the word—*chem-*), 13 late bilinguals could only think of either the second or the third syllable while 5 bilinguals gave the correct name of the lexical item at the same phonemic cue. The difficulty seemed due to its low frequency of use in an immigrant environment rather than permanent loss. Most expressed frustration at being unable to recall the name of the lexical item while some explicitly said that they had learned it at primary school.

The second interesting trend revealed in Table 4.1 concerns the scores for accuracy and lexical diversity (L-D). Both scores for the late bilinguals were significantly lower than the 12-year-old monolinguals' ( $U = 85.00$ ;  $p = .04$ )<sup>66</sup>. Their lower performance on L-D contrasts with their higher performance on vocabulary. In spite of their larger vocabulary size, the late bilinguals seem to have a narrower range of vocabulary available during on-line production than the monolingual group, perhaps due to their difficulty in accessing some

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<sup>66</sup> The Mann-Whitney U test yielded the same statistics for both accuracy and lexical diversity measures.

lexical items and constraints stemming from the task requiring on-line production. This might have led to frequent/repeated use of more general terms as alternatives to more specific ones, a trend also noted in Olshtain and Barzilay (1991; see also Schmid, 2004c). The issue related to the pattern of lexical use during production will be revisited in chapter 5.

Accuracy is the second area where the bilingual participants' performance was significantly lower ( $U = 85.00$ ;  $p = .04$ ; see Table 4.1). Since accuracy takes into account lexical and grammatical errors (see 3.6.2.2; Appendix E), this result suggests that the late bilinguals' L1 system is less robust and more prone to errors than that of 12-year-old monolinguals. Studies that analyse linguistic samples also suggest the susceptibility of the L1 system to attrition and regard the errors as evidence of attrition (e.g., Olshtain & Barsilay, 1991; Polinsky, 1996; Wass, 1996). However, due to the differences between the methods and perspectives taken in the former studies and the present study (see 2.2.2), the findings are not comparable to each other.

As for the remaining measures for L1 proficiency—fluency, grammatical complexity (G-C) and morphological density (M-D)—the Mann-Whitney U test identified no statistical significance in the group differences (see Table 4.1). This seems to suggest either that a larger sample is needed to differentiate these measures amongst types of participants, or that L1 attrition in these aspects of proficiency is an individual phenomenon that could not be described collectively, or that the measures were not powerful enough to differentiate between the two groups. A brief description of the results on these measures is provided below.

While the mean difference for fluency between the groups is smaller than 0.2 syllables per second, scrutiny of the highest scores and lowest scores of the two groups reveals a greater discrepancy between the scores at the bottom of the scales. That is, the difference between the lowest scores is 0.52 syllables per second and between the highest scores is 0.15 syllables per second. Given that the top score of the bilinguals is higher than that of the monolinguals while the lowest score of the bilinguals is lower than that of the monolinguals, it appears that late bilinguals with lower fluency experience a greater degree of reduction in

speech rate. While fluency in L1 attrition is seldom investigated through a quantitative measure, reduction in L1 fluency during spontaneous discourse is observed by some researchers through frequent hesitation phenomena (i.e., repetitions, false starts, self-corrections, etc.) and/or lengthy pauses (Andrews, 1999; Pavlenko, 2003; Polinsky, 1996; Silva-Corvalán, 1996; Yukawa, 1997). Some of these aspects of attrition in fluency found in the current data are discussed in more detail in chapter 5.

Since the Mann-Whitney U test suggested no significant differences between groups on G-C and M-D and the two groups showed very similar descriptive statistics on both measures, the distribution of scores was examined for potential differences. There was little skewness amongst the monolingual group. In contrast, the distribution among the bilingual participants was positively skewed with scores clustering around the medians with some higher scores for both grammatical complexity and lexical diversity (see Appendix I).

The current result for G-C that suggests neither development nor attrition is in line with de Bot and Clyne (1994), who report on a small and non-significant decrease in *mean length of utterance (MLU)* among their older participants in their longitudinal study. De Bot and Clyne (1994) do not provide any information related to the distribution among their data nor on individual attrition and their methodology was different from the present one. This makes it difficult to draw any further comparisons from this study. As for M-D, little research has been done on the performance level<sup>67</sup>. There is a clear need for qualitative analysis on these two measures.

It is difficult to directly compare the present findings with existing ones due to their differences in the types of measures and the nature of the monolingual comparison groups (for a discussion on this issue, see de Bot, 2004; Schmid, 2004a; Yăgmur, 2004). In spite of these differences, there are some parallels in the findings for individual aspects between the present study and other studies that use one or two similar measures to the ones used here. That is, the

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<sup>67</sup> Although the *agglutination index* (Huls & van de Mond, 1992) was used by its original authors, their study was on inter-generation shift in two families, which is not comparable with the present study.

present findings confirm that late bilinguals' vocabulary knowledge is smaller than that of monolingual adults (Ammerlaan, 1996; Waas, 1996; Yägmur, 1997) and that their on-line L1 production is prone to errors (see 2.2.1) and undermined by the reduced accessibility to lexical items (Schmid, 2004a). However, the present study suggests that the smaller vocabulary of late bilinguals compared to the monolingual adult norm should not be regarded as evidence of attrition but that general vocabulary learning in L1 takes place to some degree among adolescent immigrant children. The findings for accuracy and L-D, rather than pointing out specific grammatical or lexical errors, highlight a general decline in the ability to attend to L1 forms and to retrieve lexical items among the late bilinguals. Schmid (2004a) used a different measure (i.e., TTR) in a different research context with older participants. Most of these participants were late bilinguals who had passed their adolescence before their onset of bilingualism. Schmid reports that the L1 lexical diversity of her participants was low but that their L1 vocabulary knowledge was almost intact (see 2.2.2.1)<sup>68</sup>.

Although the above analysis provides the late bilinguals' general pattern of performance in the L1 and accounts for the probable changes that might have occurred in their L1 proficiency since the time of immigration, other variables such as L2 skills and social variables may have an effect. These are discussed in the subsequent sections. The above report also highlights the need for an analysis of individual differences and attrition at different linguistic levels. These are provided in chapter 5.

#### ***4.1.2 Comparison of L1 and L2 performance amongst the late bilinguals***

This section compares the late bilinguals' L1 and L2 performance on the proficiency and vocabulary measures. Table 4.3 presents the descriptive statistics for the late bilingual group's performance on L1 and L2 measures. A Mann-Whitney U test revealed that the late bilinguals performed significantly better in L1 than in L2 on all measures ( $p < .000$ ). These findings

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<sup>68</sup> While de Bot & Clyne (1994) also investigated lexical diversity among their older participants using TTR, their data are not directly comparable to the present data since their point of reference was not the proficiency at the onset of bilingualism/attrition but the one measured several years later. While the authors report a decrease in the measure for TTR in the latter set of data, they do not regard this as evidence of decline in proficiency, arguing that the low measure was due to an increase in the number of tokens in the latter data set (see 2.2.2.1).

suggest that their L1 is the dominant language for these late bilinguals (further details for individual participants' performance are provided in Appendix H).

**Table 4.3 Comparison of descriptive statistics for L1 and L2 measures (N = 30)**

Measures	L1 (Korean)				L2 (English)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Vocabulary	81.78	8.60	61.67	95.00	59.94	11.68	37.93	89.67
Proficiency								
ACC	89.72	7.18	71.43	100.00	45.33	19.83	12.50	88.97
L-D	52.78	10.92	29.66	69.53	28.59	7.28	14.04	45.52
FLU	3.94	0.81	2.24	5.24	1.90	0.51	0.97	2.94
G-C	2.45	0.44	1.79	3.58	1.46	0.22	1.21	2.02

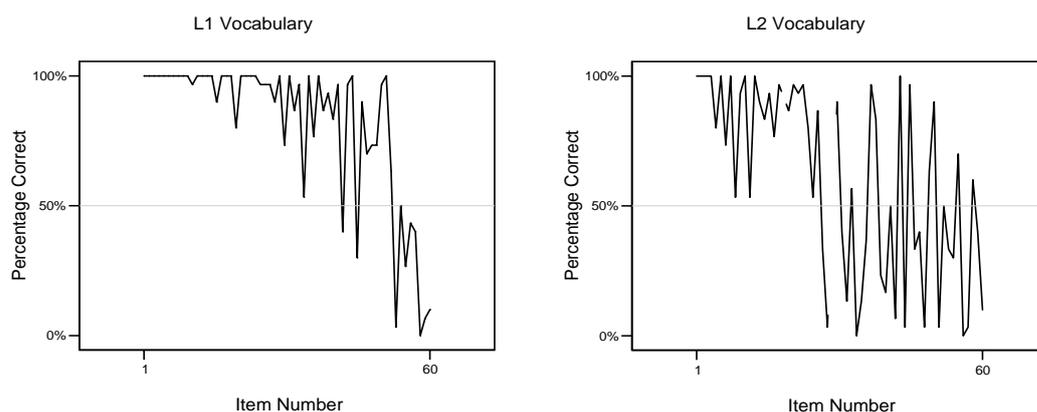
*Note.* Scores are rounded to two decimal places. ACC = accuracy; L-D = lexical diversity; FLU = fluency; G-C = grammatical complexity. Morphological density is excluded from this comparison since it was applied only to Korean data. For the methods employed to calculate the measures, see the notes to Table 4.1.

Table 4.3 shows that the late bilinguals' performance on the vocabulary measure was better in L1 than in L2 and that there was greater variability in their L2 vocabulary knowledge. In order to determine the difference between the extents to which the late bilinguals' performance differs from their age-matched monolingual norm for the respective languages, the late bilinguals' performance on the BNT is compared with the monolingual norm for 18-39 years of age in the BNT kit<sup>69</sup>. This result is considered against the result for the K-BNT test reported in 4.1.1. The bilinguals' performance on the BNT is lower and more variable than that of the English monolingual norm. The extent to which their performance differs from the monolingual norm is greater in English than in Korean. The highest score of the late bilingual group (i.e., 89.67 percent) is lower than the mean score for the English monolingual norm (i.e., 93.0 percent) provided in the BNT kit (for further details, see S. H. O. Kim, 2005). This contrasts with the results for the K-BNT reported in 4.1.1, where the best performer of the bilinguals achieved 95 percent—a much higher score than the mean score for the Korean monolingual norm in the K-BNT kit (i.e., 87.8 percent). The discrepancy between the late bilinguals' mean score for the BNT and the English monolingual norm is much greater than that between their mean score for the K-BNT and the Korean monolingual norm (see 4.1.1). The comparison of performance of bilinguals with that of monolingual speakers of

<sup>69</sup> This age range in the BNT kit is the closest to the present participants'.

their L1 or L2 should not be taken as conclusive evidence for their degree of competence in either language since bilinguals' linguistic behaviour is different from that of monolinguals (Cook, 2003; Grosjean, 1992; Kohnert et al., 1998; Roberts et al., 2002). Nevertheless, this result clearly suggests that the relative level of L1 vocabulary knowledge of the late bilinguals is higher than that of their L2 vocabulary knowledge. Given the association between vocabulary knowledge and general proficiency, one might conclude that this bilingual group is generally more proficient in L1 than L2.

The late bilinguals' performance on the L1 and L2 vocabulary measures also differed in the variability of their responses across the stimulus items. Figure 4.2 shows the different patterns of their responses to the items in the vocabulary tests in the respective languages.



*Note.* Stimulus items assigned the same number in both versions do not represent the same object.

**Figure 4.2 Comparison between the patterns of responses to Korean and English vocabulary test items of the late bilinguals**

The result for L2 (English) vocabulary shows variability in the early part of the test, increasing in the second half (a full list of the BNT items with these results is provided as Appendix J). This contrasts with the late bilinguals' performance on K-BNT items, which shows a great degree of variability only in the latter half. Given that items in both versions are presented in increasing order of difficulty—i.e. decreasing order of frequency—(Kaplan et al., 2001; Hyanghee Kim & Na, 1997, see also Figure 4.1), it appears that vocabulary knowledge of the late bilinguals is more variable in L2 than L1. This result is in accordance with the

findings of Kohnert et al. (1998) that suggest a greater variability in the vocabulary knowledge of bilinguals in their less dominant language<sup>70</sup>.

Comparison between L1 and L2 performance on the four proficiency measures in Table 4.3 yields similar results showing better performance in L1 than in L2. It is noteworthy that there is a greater variation in L1 performance than in L2 performance as suggested by the SD values, with the exception of accuracy. During the story-retelling task, the late bilinguals did not exactly know what was being measured and were under more pressure of producing oral narratives in English—their less proficient language. There may have been a *trade-off* effect in their L2 performance between accuracy and fluency (cf. Wendel, 1997; Yuan & Ellis, 2003). Since message conveyance is the primary goal during oral tasks, speakers with low proficiency may prioritise fluency under pressure of communication while more proficient speakers are more able to attend to accuracy while maintaining fluency. As a result, the late bilinguals whose proficiency in the L2 was lower might experience more difficulties. This seems to have resulted in a greater degree of variation in accuracy in L2 than in L1.

The above results for L1 and L2 proficiency measures show that this group of late bilinguals is generally more proficient in L1 than L2. The results also suggest differences in the degree of variability in L1 and L2. The greater variability in L1 measures than L2 measures except for the case of accuracy and vocabulary may be viewed as evidence of individual difference in L1 proficiency in contact situations. The lesser variability of L2 measures may be attributed to a generally low level of L2 proficiency. The above results also highlight the relationship between fluency and accuracy in this particular context of language contact. Since the late bilinguals' L1 proficiency is relatively higher than their L2 proficiency, they seem to be better able to maintain accuracy without additional attention while prioritising fluency during L1 production than during L2 production. This seems to suggest that the relationship between accuracy and fluency during L1 production of the late bilinguals is

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<sup>70</sup> The bilingual participants in Kohnert et al. (1998) are balanced or dominant in English. They showed a greater variability in their responses to the items in the Spanish (L1) version translated from BNT than their performance in English (L2). The authors argue against using a translated version to test bilinguals' L1 proficiency.

similar to that of NSs, who are able to attend to both aspects of proficiency since their on-line planning of oral production is a highly automatised process (Faerch & Kasper, 1983; Levelt, 1989; see also Poulisse, 1997).

The above interpretations highlight the need to investigate the participants at the ends of the proficiency continuum in both the L1 and L2 in order to have a clearer understanding of attrition in L1 proficiency. It also calls for investigation of the interrelationship between L1 and L2 skills among the participants. This relationship is investigated in the next section, while some details of individual attrition are provided in chapter 5.

### 4.1.3 Relationships amongst L1 and L2 measures

This section analyses the relationships amongst L1 and L2 measures in order to determine the extent to which attrition in L1 proficiency might be affected by acquisition of L2 proficiency. Since the data did not show normal distribution, Spearman rank order correlations were used for the investigation of these relationships. Investigation is made on the interrelationships between L2 measures, between L1 measures, and between L1 and L2 measures with the L1/L2 vocabulary and proficiency measures as variables.

Table 4.4 summarises the relationships between L2 measures. There are two positive moderate correlations, each with a high level of significance. These are between vocabulary and fluency ( $r_s = .486$ ;  $p = .006$ ) and between G-C and L-D ( $r_s = .563$ ;  $p = .001$ ).

**Table 4.4 Correlations among L2 measures for the late bilinguals (N = 30)**

Measures	VOC	Proficiency			
		FLU	ACC	G-C	L-D
Vocabulary (VOC)	—	.486**	.344	.303	.311
Proficiency	Fluency (FLU)	—	.335	.351	.021
	Accuracy (ACC)		—	.199	.040
	Grammatical Complexity (G-C)			—	.563**
	Lexical Diversity (L-D)				—

Note. \*\*  $p < 0.01$ .

The highly significant correlation between vocabulary and fluency suggests that the bilinguals who are more proficient in L2, as estimated by L2 vocabulary size, tend to be more fluent and vice versa. This result supports the traditional view of vocabulary size being an estimator of

fluency (Fillmore, 1979; see also Daneman & Green, 1986). It also suggests that the L2 fluency of this group is largely dependent on their relatively small vocabulary (see 4.1.2)<sup>71</sup>. However, given the moderate strength of correlation between vocabulary and fluency, it should also be considered that there are a substantial number of participants whose L2 proficiency is not explained by these two measures.

The second statistically significant correlation is between the two complexity measures—L-D and G-C. It is the strongest among the correlations presented in Table 4.4. The high correlation between these two L2 measures suggests that these abilities to produce lexically and grammatically complex utterances in the L2 are closely-related constructs for a substantial proportion of this late bilingual group. The correlation coefficients between L-D and the other two measures—fluency and accuracy—are very low, suggesting that the ability for L-D is not related to the ability to speak fluently or accurately. There seems to be very little relationship between accuracy and G-C<sup>72</sup>.

Table 4.5 presents correlations among L1 measures. The pattern shown here is very different from that presented in Table 4.4 for L2 measures. First, there are two statistically significant correlations between vocabulary and two proficiency measures—fluency ( $r_s = .395$ ;  $p = .031$ ) and accuracy ( $r_s = .434$ ;  $p = .017$ ). Second, while vocabulary seems to have a substantial negative relationship with M-D, a measure used only for L1, its relationships with the remaining proficiency measures—G-C and L-D—are relatively weak. Third, the relationships among the L1 measures other than vocabulary are generally low and none of the correlation coefficients suggest any substantial relationships among themselves.

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<sup>71</sup> Note that there are substantial relationships between vocabulary and the three proficiency measures other than fluency revealing the potential strength of their correlations although they are not statistically significant.

<sup>72</sup> There may be some relationship between fluency and both accuracy and G-C (although not at a level of statistical significance).

**Table 4.5 Correlations among L1 measures for the late bilinguals (N = 30)**

Measures	VOC	Proficiency				
		FLU	ACC	G-C	L-D	M-D
Vocabulary (VOC)	—	.395*	.434*	.075	.221	-.325
Proficiency		—	.127	.087	.147	-.031
Accuracy (ACC)			—	.128	.096	.092
Grammatical Complexity (G-C)				—	-.016	-.067
Lexical Diversity (L-D)					—	-.145
Morphological Density (M-D)						—

Note. \* $p < .05$ .

Of the two proficiency measures that are significantly correlated with vocabulary, it is noteworthy that accuracy has a stronger relationship with vocabulary than fluency does. Due to their limited processing capacity during on-line tasks, perhaps, some participants whose L1 proficiency is declining may not be able to attend to accuracy while maintaining other aspects of proficiency, while others find it difficult to maintain fluency while attending to other aspects. Given that vocabulary knowledge is generally considered a strong indicator of general proficiency, the higher correlation between vocabulary and accuracy suggest that the late bilinguals' general proficiency in L1 is better represented by accuracy than by fluency.

The generally weak correlations among L1 proficiency measures other than those involving the vocabulary measure suggest little interaction between L1 proficiency measures. In other words, the aspects of L1 proficiency measured in this research seem to be highly independent constructs. This pattern contrasts with that shown in the results for L2 proficiency measures. In order to determine whether the differences between the results for L1 and L2 measures are due to the native-/non-nativeness of the languages to the bilinguals, the correlations between the L1 measures among the ten 12-year-old monolinguals were also investigated. The result is presented in Table 4.6.

**Table 4.6 Correlations among L1 measures for the monolingual group with Spearman's rho (N = 10)**

Measures	VOC	Proficiency				
		FLU	ACC	G-C	L-D	M-D
Vocabulary (VOC)	—	.472	.041	.327	-.264	.793**
Proficiency		—	.183	.103	-.345	.358
Accuracy (ACC)			—	.041	-.189	-.006
Grammatical Complexity (G-C)				—	.327	.103
Lexical Diversity (L-D)					—	-.041
Morphological Density (M-D)						—

Note. \*\* $p < .01$ .

Table 4.6 shows only one statistically significant correlation between vocabulary and M-D ( $r_s = .793$ ;  $p = .006$ ) among all pairs of measures<sup>73</sup>. This result seems to suggest that the ability to attend to the complicated morphology of an agglutinating language is an estimator of general proficiency among these monolingual speakers. This contrasts with the results for the late bilinguals examined in Table 4.5 above where no significant relationship between the same L1 measures was observed. From this contrast, an interesting pattern of relationships emerges among aspects of L1 skills between the bilingual and monolingual groups. The results for both groups show no significant similarities and many differences. One possibility is that the bilinguals' L1 pattern resembles their L2 pattern more than the pattern of the 12-year-old monolinguals, in which case it could be suggested that the bilinguals' L1 proficiency has started to lose the characteristics of their native language and that some aspects of their L1 proficiency might have become similar to those of their L2 proficiency.

In order to examine the relationships between L1 and L2 measures of the late bilinguals, correlation coefficients between L1 and L2 measures were scrutinised. Table 4.7 reveals several significant positive correlations between L1 and L2 measures. It is noteworthy that only three L1 measures—vocabulary, fluency, and L-D—are correlated with some L2 measures. Of these correlations, the one between L1 and L2 vocabulary is the strongest and is highly significant ( $r_s = .601$ ;  $p = .000$ ). L1 fluency is significantly correlated with three L2 measures—vocabulary, fluency and G-C. Of these correlations, the ones involving L2 vocabulary and fluency are relatively strong and highly significant, while the correlation involving L2 G-C is modest and barely significant ( $r_s = .325$ ;  $p = .046$ ). L1 L-D is correlated with L2 fluency and accuracy. Of the two, the correlation with L2 accuracy is particularly high and highly significant ( $r_s = .539$ ;  $p = .002$ ).

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<sup>73</sup> According to Hatch and Lazaraton (1991, p. 605), the correlation coefficient for a group of ten must be greater than .648 in order to reject the null hypothesis at the .05 level of significance.

**Table 4.7 Correlations between L1 and L2 measures in the performance of the late bilinguals**

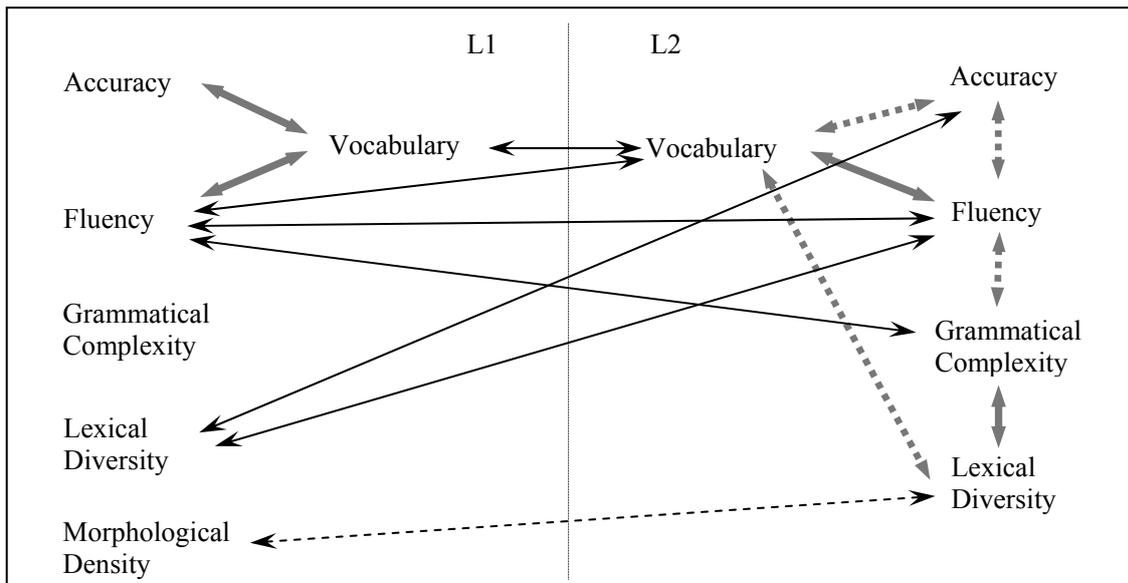
Measures		L1 Vocabulary	L1 Proficiency		G-C	L-D	M-D
			FLU	ACC			
L2 Vocabulary		.601**	.517**	.161	.247	.218	-.193
L2 Proficiency	FLU	.153	.598**	-.281	.168	.382*	-.299
	ACC	.141	.116	.133	.144	.539**	.017
	G-C	-.065	.368*	-.293	.024	-.009	.202
	L-D	-.062	.130	-.130	.108	-.111	.325

*Note.* FLU = fluency; ACC= accuracy; G-C = grammatical complexity; L-D = lexical diversity; M-D = morphological density. \* $p < .05$ ; \*\* $p < .01$ .

Table 4.7 shows no significant negative correlations across languages. Although there are some negative figures, they are all non-significant. Given that these bilinguals performed better on L1 measures than L2 measures, the results presented in Table 4.7 seem to suggest that there is general positive transfer of L1 skills to L2 skills in this group, many of whom are not at an advanced level of L2 development. Further, the results also suggest that transfer may not occur in all aspects of linguistic skills. It is also noteworthy that L1 skills appear to be associated with L2 skills in different ways. That is, while L1 vocabulary skills are associated only with the same type of L2 skills (i.e., L2 vocabulary skills), L1 fluency is associated with L2 fluency as well as with L2 vocabulary and G-C. On the other hand, L1 L-D correlates with L2 fluency and accuracy, but not with L2 L-D.

These interactions among the measures within and across languages are summarised in Figure 4.3, based on the information reported in Tables 4.4, 4.5, and 4.7. Measures for L1 and L2 are juxtaposed on each side of the figure. The arrows with solid lines represent statistically significant correlations, while those with dotted lines represent relationships that are not significant but are deemed as substantial (i.e.,  $.3 < r_s$ ;  $.05 < p < .1$ )<sup>74</sup>. Thin black lines are used for correlations across languages, while thick lines in a softer tone represent the relationship between measures within a language. There are no arrows for correlations which are weaker (i.e.,  $r_s < .03$ ), and less substantial (i.e.,  $p > .1$ ).

<sup>74</sup> Although the  $r_s$  between L2 vocabulary and L2 grammatical complexity is .303, there is no arrow between these measures because the statistical significance of this correlation is low ( $p = .103$ ).



*Note.* Morphological density does not appear among the L2 measures since it was applied only to Korean data. Arrows with solid lines represent statistically significant correlations. Arrows with dotted lines represent relationships which are not statistically significant but are deemed as substantial. Thin black lines represent correlations across languages. Thick lines in a softer tone represent correlations within language.

**Figure 4.3 Interaction among measures within and across languages**

As shown in Figure 4.3, some of the correlations between L1 and L2 measures involve a third measure, suggesting that one of the three-way interactions may have conflated the  $r_s$  values. For example, L1 vocabulary and L2 vocabulary correlate relatively highly with each other compared with other correlations. But in a three-way relationship where L1 fluency correlates with both measures, it needs to be examined whether the strength of correlation between L1 and L2 vocabulary measures is influenced by L1 fluency. Four sets of three measures are identified as having such three-way relationships between L1 and L2 as illustrated below:

L1 fluency; L1 vocabulary; L2 vocabulary

L1 fluency; L2 vocabulary; L2 fluency

L1 fluency; L2 fluency; L2 G-C

L1 L-D; L2 fluency; L2 accuracy

In order to identify the underlying relationship between the measures in each set, a series of partial correlations were carried out by alternating the two measures in the same language as the controlling variables for each set. For example, in order to examine the

underlying relationship among L1 fluency, L1 vocabulary, and L2 vocabulary, partial correlations were run twice—controlling for L1 fluency first, and L1 vocabulary next.<sup>75</sup> Prior to this statistical analysis, the normality of distribution of data for the measures illustrated above was examined, since partial correlations are based on Pearson correlations which assume normal distribution of data. While it was confirmed that the distribution of data for most of the measures identified above was close to normal distribution, the data for L2 grammatical complexity showed a highly positive skewness. In order to meet the assumption for partial correlations, square roots for the scores for grammatical complexity were entered into the partial correlation (cf. Pallant, 2003; Tabachnick & Fidell, 2001).

Partial correlations carried out on L1 fluency, L1 vocabulary and L2 vocabulary revealed that controlling for L1 fluency had very little effect on the strength of correlation between L1 and L2 vocabulary. However, as shown in Table 4.8, there was a substantial decrease in the strength of correlation between L1 fluency and L2 vocabulary when effects of L1 vocabulary were controlled. This suggests that the relationship between L1 and L2 vocabulary is independent of the effects of L1 fluency but that L1 vocabulary contributes in part to the strength of the correlation between L1 fluency and L2 vocabulary. Note however that the correlation is still statistically significant at the .05 level.

**Table 4.8 Partial correlation among L1 and L2 vocabulary and L1 fluency**

Control variable	Correlation between L1 fluency and L2 vocabulary		
	<i>R</i>	<i>p</i>	df
None	.490	.006**	28
L1 vocabulary	.375	.045*	27

Note. \* $p < .05$ ; \*\* $p < .01$ .

Partial correlations carried out on L1 fluency, L2 vocabulary, and L2 fluency revealed that there was little change between the strength of correlation between L1 and L2 fluency when effects of L2 vocabulary were controlled. However, as shown in Table 4.9, when effects of L2 fluency were partialled out, there was a substantial decrease in the strength of

<sup>75</sup> Since partial correlations are based on Pearson correlations, the correlations coefficients (*r*) for correlations without controlling for a variable as reported below are different from the values reported in Table 4.7.

correlation between L1 fluency and L2 vocabulary and the statistical significance of this correlation has disappeared.

**Table 4.9 Partial correlation among L1 fluency, L2 fluency and L2 vocabulary**

Control variable	Correlation between L1 fluency and L2 vocabulary		
	<i>R</i>	<i>p</i>	df
None	.490	.006**	28
L2 fluency	.308	.105	27

*Note.* \*\**p* < .01.

Partial correlations were carried out on the next set of measures—L1 fluency, L2 fluency, and L2 grammatical complexity (i.e., square root of L2 G-C). Again, the effects of the two L2 measures were partialled out alternately. The results revealed that controlling for the square root of L2 G-C had very little effect on the strength of the relationship between L1 and L2 fluency. However, the strength of correlation between L1 fluency and the square root of L2 grammatical complexity was reduced substantially and its statistical significance disappeared when L2 fluency was controlled (see Table 4.10).

**Table 4.10 Partial correlation among L1 fluency, L2 fluency and L2 grammatical complexity**

Control variable	Correlation between L1 fluency and the square root of L2 G-C		
	<i>R</i>	<i>p</i>	df
None	.413	.023*	28
L2 fluency	.251	.189	27

*Note.* \**p* < .05.

The last set of measures in a three-way relationship—L1 lexical diversity, L2 accuracy, and L2 fluency—was also subjected to partial correlations. As shown in Table 4.11, controlling for L2 fluency had little effect on the strength of the relationship between L1 lexical diversity and L2 accuracy. However, the strength of correlation between L1 lexical diversity and L2 fluency decreased substantially when effects of L2 accuracy were controlled.

**Table 4.11 Partial correlation among L1 lexical diversity, L2 fluency and L2 accuracy**

Control variable	Correlation between L1 lexical diversity and L2 fluency		
	<i>R</i>	<i>p</i>	df
None	.384	.036*	28
L2 accuracy	.261	.171	27

*Note.* \**p* < .05.

An interesting pattern among the relationships between measures emerges from the results of a series of partial correlations. When it comes to the L1/L2 correlation between

fluency measures and another L2 measure (whether L2 vocabulary or a proficiency measure), the strength of correlation between L1 fluency and this L2 measure decreases when L2 fluency is controlled. In other words, the correlation between L1 fluency and other L2 measures are largely explained by the relationship between L1 and L2 fluency. As for the relationship among L1 fluency, L1 vocabulary and L2 vocabulary, L1 vocabulary largely contributes to the correlation between the remaining two, suggesting this intercorrelation involving L1 fluency can be largely explained by the relationship between vocabulary measures in the L1 and L2. On the other hand, in the three-way relationship between L1 L-D, L2 accuracy and L2 fluency, where L1 fluency is not involved, L2 fluency does not play a role either, suggesting this cross-linguistic correlation is little more than the two-way relationship between L1 L-D and L2 accuracy. These results highlight the role of vocabulary and fluency in both L1 and L2, L2 accuracy, and L1 lexical diversity, which are at the core in the interactions among various aspects of the L1 and L2 skills of late bilingual participants.

The analysis of the relationships between measures within L1 and L2 and across languages revealed that the late bilinguals' L1 and L2 proficiency in general is not negatively associated with each other. The result suggests that there might be positive transfer of some aspects of L1 proficiency to L2 skills. However, the results also suggest that, although the bilinguals tend to maintain the characteristics of their native language proficiency, some aspects in the pattern of relationships between their L1 skills has started to resemble those in their L2 skills. A close examination of the interactions between the L1 and L2 measures revealed that vocabulary and fluency in both L1 and L2, L1 lexical diversity, and L2 accuracy play an important role in these interactions. Since these bilinguals are in a contact situation, social variables as well as individual difference may be at work in these interactions.

#### ***4.2 Relationship between L1/L2 measures and social variables***

This section reports the results on the relationship between the L1/L2 vocabulary and proficiency measures and social variables which have been derived from the questionnaire

data. The purpose of the analysis of this relationship is to identify social variables that may be related to bilinguals' language choice and have effects on the increase or decrease of their linguistic skills in a language contact situation. The social variables are broadly categorised according to the topics for the sections in the questionnaire as described in 3.6.4 (see also Appendix C). These include general extralinguistic background of the late bilingual participants and other variables that may be related to their patterns of language choice. In 4.2.1, the patterns of responses to demographic/extralinguistic variables and their relationships with L1/L2 measures are analysed. Section 4.2.2 investigates the relationship between L1/L2 measures and the patterns of language choice according to three categories of variables related to types of interlocutor, social domains within which language choices are made, and emotional load involved in spontaneous language use. In order to protect the identity of the participants, pseudonyms are used when referring to individual participants.

#### ***4.2.1 Relationship between L1/L2 measures and extralinguistic variables***

The extralinguistic variables considered in this section are age, length of residence in New Zealand, perceived change in L1 proficiency since the time of immigration, and degree of contact with the home country. These variables were derived from Questions 3, 4, 10, 11 and 13. Section 4.2.1.1 describes the general pattern of the responses. The relationship between these variables and the L1/L2 measures are investigated in 4.2.1.2.

##### ***4.2.1.1 General pattern of responses for extralinguistic variables***

The ages of the participants ranged between 15 and 25 years with a mean of 21.1 years (SD = 3.35 yrs; Median = 22 yrs). The mean length of residence was 8.8 years (SD = 3.32 yrs; Median = 9.5 yrs) and the range of length of residence was from 2 to 14 years. Since the selection criteria restricted the school year on departure from Korea to Year 6 of primary school or Year 1 of middle school in Korea, and the minimum length of residence in New Zealand to 2 years, there is a very strong correlation between age and length of residence (*LoR* hereafter) with a very high statistical significance ( $r_s = .965$ ;  $p < .000$ ).

The next variable is perceived change in L1 proficiency since the time of immigration (*perceived L1 proficiency* hereafter). As a response to Q10, the participant selected one out of four choices representing different extents of change, with 4 representing the greatest increase in L1 proficiency (to the level of age-matched NSs) and 1 representing the greatest decrease in L1 proficiency since the time of departure from Korea. The other choices, 3 and 2, represent a limited degree of increase and no change in L1 proficiency respectively. The mean score was 2.67 (SD = .76), suggesting a low level of self-perception of L1 skills overall. While the majority of the participants selected one of the two middle options (N = 13 and N = 12 respectively), four participants considered their current L1 skills as good as their age-mates in their home country, and one participant thought that her L1 skills had deteriorated greatly since the time of immigration. In order to determine whether these participants' self-estimation reflects their actual proficiency, the L1 measures for these five participants are compared with each other and with the group means for both the entire group of late bilinguals and the 12-year-old monolinguals. The result revealed that the four participants may have overestimated their L1 skills while the latter participant may have underestimated hers, as presented in Table 4.12.

**Table 4.12 Comparison of L1 skills between participants with different perceptions on their own L1 skills**

	Vocabulary	Proficiency				
		FLU	ACC	G-C	L-D	M-D
Group statistics for late bilinguals						
Mean	81.78	3.94	89.72	2.45	52.78	1.56
Median	84.17	4.15	91.49	2.29	54.81	1.56
Group statistics for 12-year-old monolinguals						
Mean	75.17	3.78	93.69	2.47	63.70	1.56
Median	73.33	3.68	96.65	2.61	63.96	1.55
"L1 skills are at the age-appropriate level of monolinguals"						
Minsu (#04)	90.00	4.60	100.00	2.43	52.11	1.56
Miri (#08)	86.67	3.15	97.61	3.01	48.67	1.49
Insu (#20)	81.67	4.14	87.63	2.23	56.37	1.53
Jin (#22)	85.00	4.16	93.21	3.58	51.33	1.60
"L1 skills have deteriorated"						
Nari (#15)	90.00	3.96	91.48	2.72	69.53	1.54

*Note.* FLU = fluency; ACC = accuracy; G-C = grammatical complexity; L-D = lexical diversity; M-D = morphological density.

As can be seen in Table 4.12, the performance of the four participants who rated their own L1 proficiency as showing improvement or loss was not always better or worse than the overall performance of the bilingual group and/or the 12-year-old monolinguals. Given that the mean score for the vocabulary of their age-mates in the Korean monolingual norm in the K-BNT kit was 87.8 percent (see 4.1.1), the above result suggests that, of the five participants, only Minsu and Nari may have reached the age-appropriate level of general L1 proficiency<sup>76</sup>. Nari is particularly interesting in that she recorded the highest score for L-D among the entire late bilingual group. Comparison of her results with that of 12-year-old monolinguals suggests that accuracy is the only area that might have decreased.

During the follow-up interviews, it was revealed that the four participants confident in their L1 skills were culturally oriented to Korea. Their attitude to L1 use was very positive and they reported that they always used Korean for interactions with their family members and with their Korean friends in their Korean churches. They also reported that they had not felt any frustrations while talking to Koreans during their return visits. On the other hand, in spite of her high scores for vocabulary and lexical diversity, Nari reports that she often could not recall lexical items that she should have known. In contrast to the Korean-oriented life style of the above four participants, Nari seems more acculturated to the L2 culture. She commented that she spoke English frequently to her brother, went to the local church, and did not feel strong about using Korean with family members or Korean friends.

Inaccuracies in self-estimated L1 proficiency is also found among bilinguals other than the above five participants. Of the remaining two groups, the group who estimated their L1 proficiency higher generally performed better than the other on vocabulary. In fact, 5 out of 13 participants in this group performed better than average or above the 53<sup>rd</sup> percentile in the Korean norm (see fn 76), and one of them was the best performer of all the participants in

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<sup>76</sup> Since the Median for the Korean norm is not provided in K-BNT, an alternative resource in the test manual was consulted for validation of this estimation. The K-BNT manual provides tables for percentiles assigned to raw scores obtained by the normal controls within the age-groups of 15-19 years and 20-24 years. According to these tables, the raw score of 52 (86.67 percent) was assigned a 44<sup>th</sup> percentile and 53 (88.33 percent) a 58<sup>th</sup> percentile in the latter age group with 10-12 years of education (Hyanghee Kim & Na, 1997, pp. 20-21 of the manual).

the bilingual and monolingual groups, almost within the top 10 percent of the monolingual norm (for more discussion on this participant, see S. H. O. Kim, 2005). The performance of the two groups on other L1 proficiency measures was ambivalent, showing no clear pattern. There was no statistical difference between their performance on each measure except for G-C. Although the former group showed a significantly better performance on this measure ( $U = 40.5$ ;  $p = .40$ ), their performance on other measures was not always better and seemed more variable in general than the latter group (see Appendix K for details).

The above result for the five bilinguals suggests that self-estimation of their L1 skills may depend on the degree of acculturation and may not reflect their actual proficiency in L1 skills. Hakuta and D'Andrea (1992) raised the issue of discrepancy between self-reported proficiency and actual proficiency. They claim that “attitudinal orientation contaminates self-reported proficiency” (p. 95). Other researchers have commented on possible problems related to using this type of measure to consider proficiency (Baker, 2001; Fishman, 1971, 1991; Köpke & Schmid, 2004; Pauwels, 2004; Schmid, 2004c). The ambivalent results on some proficiency measures suggest that other social variables might have influenced their self-perception on their L1 proficiency. This will be further investigated in 4.2.1.2.

The next variable is degree of contact with the home country, considered in terms of the frequency of return visits to the home country (*frequency of return visits* hereafter) and the visits by visitors from the home country (*visitors from Korea* hereafter), derived from Q11 and Q13 respectively. The response to Q11 was given as the total number of return visits to Korea since the time of immigration. While one participant responded that he had not visited since the time of immigration, 12 reported that they visited Korea only once and 6 reported twice. The highest stated 9 times ( $N = 1$ ). Others ( $N = 10$ ) reported variously between 3 and 8 times. An examination of the responses revealed that raw counts of visits might not be a reliable measure for the degree of contact because there was a great degree of variation among the participants in the length of intervals between the visits and the total time elapsed since the time of immigration (i.e., LoR).

In order to standardise the responses to Q11, the mean number of visits per year for an individual participant was calculated to represent the frequency of visits for that participant. The group mean was 0.34 times per year ( $SD = 0.34$ ) while the median was 0.21 times per year. In other words, return visits were made approximately once in every 3 years, while half of the participants visited their home country less frequently. Descriptive statistics for the standardised frequency of return visits showed that the highest measure for this variable was 1.5 times per year and that the lowest measure was zero times. It was interesting that the four participants in Table 4.12, who had high perception of their L1 and a strong cultural orientation to Korea, showed very low frequency of return visits ranging from 0.08 to 0.2 times per year, while Nari reported visiting twice in her 4 years' residence. This seems somewhat contrary to some findings reported in literature on language maintenance that suggest a correlation between self-reported proficiency and frequency of return visits (Cho, 1998; Demos, 1988). While correlation analysis will reveal the general trend among the entire bilingual group in terms of these two variables, the result for the five participants seems to suggest that, for those who have very high or low levels of self-perception of L1 proficiency, frequency of return visits is less relevant than degree of acculturation.

Visitors from Korea were derived from responses coded on a scale of 1-4, with 4 representing the most frequent visits by visitors from Korea (i.e., more than twice per year) and 1 representing no visitors from Korea. Results show that, while 13 families reported once or twice a year and 4 more often than twice a year, another 4 families have never had a visitor from Korea since the time of their immigration, and 9 had visitors less than once a year (Mean = 2.57;  $SD = 0.90$ ). Follow-up interviews revealed that most of the participants had little interaction with the visitors regardless of their frequency of visits since most were acquaintances of their parents. Some reported that, although relatives in the participants' generation had visited, they had minimal contact with such visitors because both parties were busy and the visitors usually came to learn English and preferred to spend more time with

other English speakers. A small number of participants reported that they showed the visitors around the city on behalf of their parents who had limited English.

#### 4.2.1.2 Relationships between the L1/L2 measures and extralinguistic variables

This section reports the results on the relationship between the L1/L2 measures and the extralinguistic variables in the late bilinguals. The extralinguistic variables are those identified in 4.2.1.1—age, length of residence, perceived L1 proficiency, and degree of contact with the home country. Spearman rank order correlations in Table 4.13 identified three significant correlations between the L1 measures and the extralinguistic variables, and two between the L2 measures and the extralinguistic measures.

**Table 4.13 Correlation coefficients between L1/L2 measures and extralinguistic variables**

Measures		Age	LoR	Perceived L1 proficiency	Frequency of visits	Visitors from Korea
L1 (Korean)						
Vocabulary		.035	.006	.109	.274	.222
Proficiency	FLU	.114	.088	-.147	.156	-.105
	ACC	-.157	-.202	.161	-.032	.196
	G-C	.366*	.341	.410*	-.167	-.226
	L-D	-.161	-.233	-.137	.428*	.059
	M-D	-.161	-.068	.066	-.245	-.093
L2 (English)						
Vocabulary		.395*	.331	.072	.015	-.043
Proficiency	FLU	.093	.054	-.132	.197	-.017
	ACC	-.259	-.251	-.145	.193	.197
	G-C	-.012	.005	-.339	-.010	.101
	L-D	.227	.238	-.145	-.388*	-.058

*Note.* \* $p < .05$ . LoR = length of residence in New Zealand; FLU = fluency; ACC = accuracy; G-C = grammatical complexity; L-D = lexical diversity; M-D = morphological density.

The first variables to investigate are age and length of residence (LoR). Since these two variables are highly correlated with each other, it was expected that they would have similar relationships with L1 measures. However, there was only one statistically significant positive correlation between age and L1 G-C ( $r_s = .366$ ;  $p = .046$ ). The generally weak and non-significant correlations between age and most of the L1 measures (except for G-C) is partly in line with the general view that age does not have significant effects on loss/maintenance of L1 proficiency in late bilinguals (de Bot & Clyne, 1994; Jaspaert & Kroon, 1992; Köpke & Schmid, 2004). Length of time elapsed since the onset of bilingualism

(i.e., LoR), which is closely related to age in the case of the present participants, was also found not to be correlated with any of the L1 measures investigated in the present study. Length of residence alone also did not seem to play a significant role in loss or maintenance of L1 proficiency among this late bilingual group perhaps because they were keeping regular contacts with L1 speakers from various sources. This pattern is in line with the findings from de Bot et al. (1991) that spell out that LoR only becomes relevant among those who have very little or no contact with L1 speakers.

In order to determine whether the positive correlation between age and L1 G-C suggests an increase in proficiency in the older participants, the highest and lowest bands in the continuum of scores for L1 G-C were examined. Recall that there was no significant difference between this late bilingual group (aged 15-25 years) and the 12-year-old monolingual group in their performance on L1 G-C, and that this could suggest neither attrition, nor maintenance, nor development in the late bilinguals as a group (see 4.1.1). Scrutiny of the distribution of data revealed that all the five participants at the top end of the scores for this variable were 23 years old or older and had lived in New Zealand for 10-14 years. While there seem to be some age effects in the group with higher performance, in the case of those with lower scores, it is not clear whether there is any age effect since all the scores that fall between the group median (2.29) and the lowest of the group (1.79) are higher than the lowest score (1.72) for the 12-year-old monolinguals but at the same time lower than the monolinguals' mean and median scores (2.47 and 2.61 respectively) (see Table 4.1). Without determining what underlies the higher scores, it is not clear whether the higher scores truly represent improvement in skills for L1 G-C.

Higher L1 G-C may be a reflection of a limitation in the methodological tool employed in the study (i.e., number of clauses per AS-unit). More complex structures may not always imply greater syntactic maturity, but may sometimes be the result of an inability to use a concise verb phrase or various linguistic devices such as compounding or formulaic constructions (Fillmore, 1979; Nippold, 1998), or just verbosity (Romaine, 1984). In fact,

some older participants in the present study expressed that they sometimes paraphrased when they could not find the appropriate word during L1 production. Others commented during stimulated recall/retrospective interviews that they had difficulties in ending a sentence during the L1 task and that they had kept putting conjunctive/coordinative suffixes on the verbs<sup>77</sup> to end up with a unit with several clauses. This suggests that these participants might be losing control over sentence-/clause-enders in the Korean morpho-syntax. As can be seen in more detail in chapter 5, some participants appeared to have a tendency to use certain specific types of conjunctives with multiple functions rather than precise ones. These findings are in accordance with those from Schmitt's (2001) study of younger participants, where she found an increase in L1 complexity over time. The young Russian boys in Schmitt's study were undergoing other forms of L1 attrition. Thus, it is possible that the relationship between L1 G-C and age might have been compounded by compensatory strategies and lack of control over L1 morphosyntax.

While age effects are not entirely clear among the L1 measures in the late bilinguals, any positive correlation between L2 measures and age would clearly suggest an age effect since the late bilingual participants had started learning English around the same age and were still learning English at the time of data collection. In this case, the age effect is confounded with education, since all the participants were going through or recently had gone through an English-medium education. A positive moderate correlation is found between L2 vocabulary and age ( $r_s = .395$ ;  $p = .031$ ), suggesting L2 vocabulary knowledge and general proficiency have increased in a significant portion of the participants as they got older while this appeared not be the case with any other L2 proficiency measures.

Perceived L1 proficiency was also correlated with L1 G-C while no other L1 measures have a significant correlation with this variable. This suggests that perception of the late bilinguals on their L1 proficiency is associated with their L1 skills for G-C in their

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<sup>77</sup> Note that, in Korean, the canonical word order is SOV, and that pre-modification is obligatory. In a complex sentence in Korean, the neighbouring clauses are related with a clause-ender suffix attached to the predicate of the preceding (i.e., embedded) clause, which is subordinate to the following clause (see H.-M. Sohn, 1999).

performance. A Kruskal-Wallis test was performed to determine whether there was any difference in the performance on L1 G-C according to the four degrees of perceived change in L1, but no significant difference was noted among the groups. Subsequently, these four groups were regrouped into two larger groups—higher and lower perception groups. The higher perception group includes those who perceived their L1 proficiency as having increased and the lower perception group those who perceived their L1 proficiency as not having increased. A Mann-Whitney U test was performed to compare the measures of L1 G-C of these groups. There was a significant difference between them ( $U = 57.000$ ;  $p = .025$ ). The result is presented in Table 4.14.

**Table 4.14 Breakdown of descriptive statistics for L1 grammatical complexity of the late bilinguals according to their perceived change in L1 proficiency (N = 30)**

Perceived change in L1 proficiency	N	Mean	SD	Med	Min	Max
“Increased” (higher perception)	17	2.61	0.46	2.43	2.05	3.58
“Not increased” (lower perception)	13	2.25	0.34	2.14	1.79	2.92

*Note.*  $U = 57.000$ ;  $p = .025$

Since the above result could be due to the increase of proficiency in L1 G-C since the time of immigration, a Mann-Whitney U test was performed on L1 grammatical complexity between both lower and higher perception groups and the 12-year-old monolingual group, but again no significant difference was observed between the 12-year-old monolingual group and both groups. This suggests that the bilinguals’ perception of an increase or decrease in their L1 skills may not always reflect the actual change but only reflect their perception of their own skills relative to what they regard as the norm.

While the above result seems to suggest that the late bilinguals tended to perceive the degree of change in their L1 proficiency as their L1 G-C changes, follow-up interviews revealed that most did not seem to be concerned about their L1 G-C. When asked during the interview why they believed their proficiency had changed, most referred to vocabulary, while some in the low perception group mentioned word order, pragmatics, and their increasing desire to code-switch to English. No participant mentioned difficulties or improvement in producing grammatically complex utterances. A possible reason for this may

be that vocabulary is the first and the most salient area in which a bilingual perceives its (non-)availability during language production (de Bot, 1992; Ecke, 2004; Levelt, 1989; Myers-Scotton, 2002a). Perhaps the bilinguals might not have had an experience that might have prompted them to reflect on their level of G-C since it is not essential for L1 communication in everyday life.

The next variable investigated is frequency of visits to the home country. As presented in Table 4.13, there is a significant positive relationship between this variable and L1 L-D. Given the results suggesting attrition among the late bilinguals in L1 L-D as a group (see Table 4.1), this correlation seems to suggest maintenance and/or attrition. That is, the ability to access and retrieve a range of lexical items during on-line production seems likely better maintained (or improved in a few cases) among the participants who had visited their home country more frequently than among others who had visited their home country less frequently. From a psycholinguistic point of view, since the participants visiting the home country more often were forced to use the L1 exclusively more often, they could access and activate more various L1 lexical items more easily than those who visited the home country less often. This result is generally in accordance with the findings from other studies that report the positive effects of visiting the home country (Clyne, 1991; Holmes et al., 1993) and the amount of contact with L1 speakers in maintaining L1 proficiency (e.g., de Bot et al., 1991; Hulsen et al., 2002; Stoessel, 1998, see 2.2.3.1.4 for details of these studies).

While frequency of return visits seems to have a positive effect on L1 maintenance in L-D, it seems that the return visits are made at the expense of opportunities to improve L2 skills to some degree, as suggested by the negative correlation between the same variable and L2 L-D ( $r_s = -.388$ ;  $p = .034$ ). It is interesting that this variable is correlated with both L1 and L2 L-D, but positively with the former and negatively with the latter, while there was no significant correlation between the L1 and L2 L-D measures (see Table 4.7 and Figure 4.3).

Another variable representing a different kind of L1 contact—frequency of visits by visitors from Korea (i.e., visitors from Korea)—had no correlation with any L1/L2 measures,

as expected from the preliminary report in 4.2.1.1. Although this type of contact may provide some support from the current version of the home language and reinforcement for L1 maintenance (Pauwels, 2005), it does not seem to play a significant role in L1 maintenance for such bilinguals as the current participants who have a number of other types of L1 contact.

The findings reported in this section are generally in accordance with other studies that investigate the relationship between maintenance/attrition of L1 proficiency and a range of extralinguistic variables. Of the extralinguistic variables, age and frequency of return visits to the home country were found to have effects on L1 maintenance/attrition among the late bilinguals. However, the moderate correlation coefficients suggest that the effects may not be great. The investigation of the relationships between L1 measures, these variables and perceived L1 change has highlighted the complex interaction between the social, psychological, and developmental factors manifested in a given aspect of L1 proficiency. The mismatch between the aspect of L1 proficiency which the participants perceived as going through change (i.e., vocabulary) and that which actually show change (i.e., grammatical complexity) also highlights the importance of validating self-report data which may not be reliable enough to be used as the sole basis of analysis, a point also raised by many previous researchers (Baker, 2001; Fishman, 1991; Hakuta & D'Andrea, 1992; Kohnert et al., 1998; Pauwels, 2004; Stoessel, 1998). The result for frequency of visits and visitors from Korea shed light on the importance of the quality of L1 input and the intensity of L1 contact rather than the quantity measured by participants' estimation that has led to mixed findings among many studies (e.g., de Bot et al., 1991; Hulsen et al., 2002; see also Köpke, 2004 for a review). In the next section, the relationships between the L1 measures and the pattern of language choices in various contexts are investigated.

#### ***4.2.2 Relationships between L1/L2 measures and language use variables***

This section reports the results on the relationships between L1/L2 measures and the patterns of language use in various social contexts. The social contexts investigated in this section are

broadly categorised according to the topics of Sections II-V in the language use questionnaire (see Appendix C). These include: types of interlocutor that the participant addresses or is addressed by (*interlocutor types* hereafter); social domains where the participant uses L1 or L2 (*social domains* hereafter); and spontaneous language use involving emotions (*spontaneous language use* hereafter). Variables related to interlocutor types are derived from Sections II and III; those related to social domains from Section IV; those related to spontaneous language use from Section V. The response mode of these sections was multiple choice with five choices representing the extent of L1/L2 use for the given situation. These responses were coded on a scale of 1 to 5, with 5 representing the greatest use of L1 Korean (always in Korean) and 1 the least use of L1 Korean (always in English). The following sections consider relationships between L1/L2 measures and these social variables based mainly on the results from Spearman rank order correlations and Mann-Whitney U tests.

#### 4.2.2.1 *Interlocutor types*

This subsection reports the results relating to interlocutor types. It first considers the participants' pattern of language choice according to interlocutor types<sup>78</sup>. The findings suggest a general pattern of L1 dominance in language use with family members and Korean class-/workmates while L2 use appears to be a general norm for interaction with interlocutors other than family members and Korean peers. Next, it presents the results from the investigation of the relationship between the L1/L2 measures and variables related to interlocutor types. While there are no significant relationships between L1/L2 measures and language use with friends, the results suggest some significant relationships between L1/L2 measures and language use variables related to family interlocutors. Based on these findings, a model of the interactions between L1/L2 measures and language use within the family domain is proposed to describe the possible outcome of L1 maintenance or attrition.

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<sup>78</sup> The interlocutor types representing spouse and grand parents are excluded from consideration since all the participants responded that they were living together with neither of them. Korean teachers and teachers are also excluded since only seven participants had various types of Korean teachers and all the participants who were currently students unanimously responded that they were using English exclusively with their teachers at school/university. This variable was not applicable to others who were working full-time.

#### 4.2.2.1.1 General pattern of language use related to interlocutor types

The general pattern of the participants' language choice related to interlocutor types was examined based on descriptive statistics on their responses to the questions (see Appendix L for the distribution of scores for each variable). This result is presented in Table 4.15.

**Table 4.15 The late bilinguals' pattern of language choice according to various interlocutor types**

Interlocutor types		TO			BY		
		N	Mean	SD	N	Mean	SD
Family	Mother	30	4.83	0.46	30	4.90	0.31
	Father	29	4.79	0.41	29	4.79	0.41
	Siblings	25	4.12	0.93	25	3.96	0.93
	Relatives	16	4.44	0.81	16	4.50	0.73
Friends	Daily contact; informal context (FDI)	30	2.53	1.31	30	2.37	1.38
	Daily contact; formal context (FDF)	30	1.87	1.04	30	1.90	1.09
	Korean; Daily contact; informal context (KFDI)	28	4.36	0.68	30	4.23	0.82
	Korean; Daily contact; formal context (KFDF)	26	4.15	1.05	29	4.07	0.92
	Occasional contact; informal context (FOI)	30	3.20	1.45	30	3.27	1.36
Others	Neighbours	28	1.54	1.20	29	1.31	0.81

*Note.* TO = the situation where the participant is the addresser to the interlocutor; BY = the situation where the participant is addressed by the interlocutor. 1 = always in English; 2 = more frequently in English than in Korean; 3 = almost equally in English and Korean; 4 = more frequently in Korean than in English; 5 = always in Korean.

Table 4.15 reveals three major trends relating to the late bilinguals' pattern of language choice in terms of interlocutor types. The first trend is the clear dominance of L1 use for interactions in the family and with Korean interlocutors regardless of their role as the addresser or addressee. All the mean scores for both the TO and BY variables for these interlocutor types are over 4 or very close to 4 (i.e., in the case of by siblings), suggesting that the participants and their Korean interlocutors are generally more willing to use the L1 than the L2. The second trend is the preference of L1 use in spite of the L2-dominant social environment where the participants' daily routines take place. The mean scores for friends and neighbours are low, suggesting that the participants have limited control over their language choices in such contexts. However, it seems that they still prefer using the L1 if there is room for L1 use—i.e., for informal interaction—as shown in the higher mean scores for language use in informal contexts. This preference is also shown in the higher mean score for friends contacted occasionally compared to that of friends in daily contact (i.e., FDI and FDF). That is, when it came to activities other than their daily routines, the participants

seemed to socialise more often with Koreans and/or speak more Korean. The third trend is the general similarity in the patterns of language choice between TO and BY variables for the same interlocutor type shown by their similar mean scores. This suggests that similar patterns of language choice are made by the late bilingual and her interlocutor.

With the general trends of language choices for various interlocutor types identified above, a few points in regards to these trends are worth noting. First, while the L1 generally appears to be the primary language for interaction with family members, Table 4.15 shows that the late bilinguals are using less L1 for interaction with their siblings than with their parents, a point frequently noted in the literature for language maintenance/shift (e.g., Clyne, 2003; Clyne & Kipp, 1999; Extra & Verhoeven, 1999; Huls & van de Mond, 1992; Li Wei, 1994; Rivera-Mills, 1998). Also in line with other studies (e.g., Clyne & Kipp, 1999; El Aissati & Schaufeli, 1999; Hlavac, 2000), it shows that there is a great degree of variation in their pattern of language choices for siblings, contrasting with the very homogeneous patterns for father and mother. At the follow-up interviews, some bilinguals revealed that they code-switched at various levels—lexical to sentential—in interacting with their siblings, while others reported similar patterns for siblings and their parents—occasional insertion of L2 lexical items in the L1 sentences or never using L2 items. However, it is noteworthy that none of the participants reported conversing entirely in English with their siblings. Many of those who stated more frequent use of English or equal use of English and Korean for siblings could not give specific reasons for their patterns of language choice but only said they code-switched unconsciously or were responsive to the language that their sibling used. While there may be a number of underlying motivations constrained by the context for their code-switching behaviour, discussion on this issue is beyond the scope of this research (for discussion on this issue from various perspectives, see Auer, 1995; Bell, 1984; Dabène & Moore, 1995; Gardner-Chloros et al., 2000; Giles, Coupland, & Coupland, 1991; Gumperz, 1982; Kang, 2003; Myers-Scotton, 1993b; Treffers-Daller, 1994, among many others).

With respect to the second trend relating to L1 preference in L2 dominant contexts outside the family, it is noteworthy that the degree of variation in language use with Korean friends is greater in formal contexts than in informal contexts. The formal context for daily routine is defined as class/work time, where non-L1-speaking class-/workmates and teacher/boss are ever present. The smaller SD value for friends in daily formal context (FDF) than that in daily informal context (FDI) suggests that the participants tend to conform more to the general norm of L2 use in the classroom/workplace than outside. However, while L1 is still preferred for interaction with Korean friends in such situations, more people seem to diverge from this general tendency in the classroom/workplace than outside given the greater SD values for Korean friends in daily formal contexts (KFDF) than those in informal contexts (KFDI). Some participants seem to experience conflicts between two norms—‘speaking the L2 where L2 use is the general norm’ and ‘using the L1 between L1 speakers’ in formal situations. The greater SD value for the TO variable for Korean class-/workmates in formal contexts suggests that the participants’ preference of language choice as the addresser varies to a greater degree than the addressee’s preference in such a context.

Interview data were examined in order to determine the difference in the degree of variation between the above two contexts. At interviews, participants who chose ‘always in Korean’ (N =12) reported that they always used Korean when they were engaged in small talk during class or work, irrespective of the presence of other speakers in the group because they thought it was natural to use Korean between Koreans. Others seemed to have somewhat negative or ambivalent attitudes commenting that they tried to use English in consideration of non-Koreans so as not to be seen as ignoring them. These participants chose ‘more frequently in Korean’ or ‘almost equally in Korean and English’ (N = 9 and N = 3 respectively). Some reported being obliged to switch to Korean if the other Korean seemed to prefer using Korean, while others seemed to consider the non-Koreans’ presence more than the other Korean’s preference. The remaining two participants (with pseudonyms Sumi and Sora) chose ‘more frequently in English’ and ‘always in English’ respectively. It was revealed at interviews that,

Sumi chose ‘more frequently in English’ simply because she was not close to the other Korean—her only Korean classmate. Sora, who chose ‘always in English’, had a very negative attitude toward L1 use during class time. The above results reveal that, while Korean was still dominantly used for such interactions, the late bilinguals’ attitudes towards L1 use in formal L2 situations vary and this difference is reflected in their language choices when addressing fellow L1 speakers.

The above analysis of the general pattern of language choice according to interlocutor types revealed that the late bilinguals’ primary language for interaction with family members and Korean friends was the L1 (Korean). As for the interaction within the family, the participants were found to follow a classic pattern of language choice in many first-generation immigrant families—using more L1 with parents than with siblings. This trend is also found in some previous studies on the Korean community in New Zealand (J. Kim & Starks, 2005; S.-H. Park, 2000). In contexts outside the family, with less control over their language choices, they were using more L2 in interacting with their friends (Korean and/or non-Koreans) in formal contexts than in informal contexts. When it came to interaction with Korean friends in formal context, there were some conflicts in their language choice patterns. Differences appeared to be due to their attitudes toward L1 use in the presence of Koreans and speakers of other languages including English (see S.-H. Park, 2000, for similar findings). In the next section, the relationship between L1/L2 measures and language choices according to interlocutor variables is investigated.

#### *4.2.2.1.2 Relationship between L1/L2 measures and interlocutor variables*

This subsection investigates the relationship between L1/L2 measures and the variables related to interlocutor types. Spearman rank order correlations were conducted on L1/L2 measures and the degree of L1/L2 use for interlocutor types as variables. A variable name was given to each interlocutor type. It consists of either TO or BY and the three letters associated with the word (string of words) for the interlocutor (e.g., TOFAT for the degree of L1/L2 use

when speaking to father and TOFDF for the degree of L1/L2 use when speaking to friends in daily contact in formal context).

While there were significant correlations between some L1/L2 measures and some of the TO/BY variables and also between the TO and BY variables, the results showed different patterns of interaction between these variables according to the domains of *family*, *friends*, and *other*. Since interlocutors other than family members and friends are usually non-Koreans, the bilinguals' language choice for 'others', which heavily converges on L2 use for both TO and BY variables, is not associated with their L1/L2 proficiency. In the domain of friends, as expected from the results in Table 4.15, there were highly significant correlations ( $p < .01$ ) between TO and BY variables for the same interlocutor types (e.g., FDI and FDF), but no interaction was found between different types of interlocutor (e.g., FDI and KFDI). This suggests that the participants have very different patterns of language choice according to whether the interlocutor is (non-)Korean. There was no significant correlation between TO and BY variables and L1/L2 measures in the results for the five 'friends' interlocutor types. This suggests that L1/L2 proficiency is not a determining factor for the late bilinguals to make language choices in interacting with their Korean friends and that interaction with their L1-/L2-speaking friends contribute little either to their L1 maintenance or the improvement of their L2 proficiency. Of the results relating to family interlocutors, language use variables involving relatives do not show any significant correlations with either L1/L2 measures or variables related to other family interlocutors. These results contrast with those for interlocutor variables related to immediate family members, where some significant correlations are found between TO and BY variables for different family members as well as between these variables and L1/L2 measures. Therefore, discussion on the relationship between L1/L2 measures and interlocutor variables that follows in 4.2.2.1.3 and 4.2.2.1.4 is limited to the results relating to the immediate family interlocutors.

#### 4.2.2.1.3 Interaction among interlocutor variables in the family domain

In order to determine the role of family interlocutor variables in the participant's language use, maintenance/attrition of L1 proficiency and acquisition of L2 proficiency, the relationships among these variables are examined. Table 4.16 presents the correlations among the variables for interlocutor types within the immediate family.

**Table 4.16 Correlations among TO and BY variables for family members**

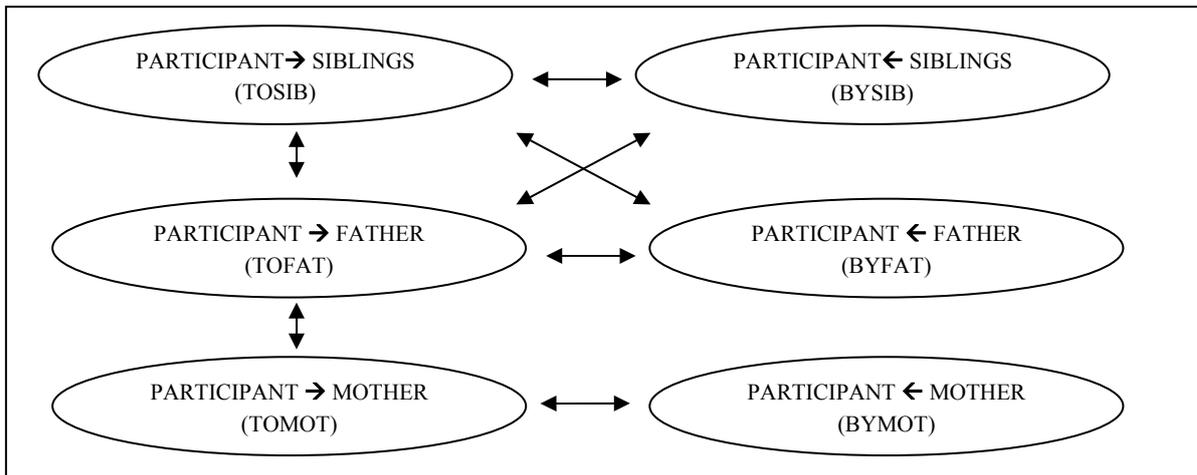
	TOFAT	TOMOT	TOSIB	BYFAT	BYMOT	BYSIB
TOFAT (N = 29)	—	.544**	.674**	.580**	.106	.510*
TOMOT (N = 30)		—	.375	.272	.544**	.225
TOSIB (N = 25)			—	.412*	.110	.849**
BYFAT (N = 29)				—	.106	.343
BYMOT (N = 30)					—	.022
BYSIB (N = 25)						—

Note. \* $p < .05$ ; \*\* $p < .01$ .

Table 4.16 shows a number of correlations which are all positive and mostly moderately high, suggesting that language choice behaviours of the participants and their family members are associated with each other to some degree. There are two important patterns among these relationships. First, TOFAT seems to play a central role among the relationships between the variables related to family members since it is correlated with all the variables other than BYMOT. The participants' language choice in addressing their mothers and siblings follows the pattern they use to address their fathers. The correlations between BYFAT and TOSIB, which is again highly correlated with BYSIB, suggest that the fathers' language choice in addressing the participants is related to the language choice made by their children (i.e., the participants and their siblings) when addressing each other. Second, while the language choice patterns involving the father and siblings seem intertwined with each other, the language choice made between the participants and the mother does not seem to be related to the complex relationship involving the father and siblings. The correlation between TOMOT and TOFAT seems to suggest that the participant addresses his/her mother and father in similar patterns. The variable BYMOT is not correlated with variables other than TOMOT. In short, the participant's pattern of language choice for the interaction with the

mother does not seem to have great influence on his/her overall tendency of language choice made in the family domain, compared with that for the interaction with the father or siblings. However, the result also suggests that the mother's pattern of language choice, which has been seen as very much L1-dominant (see Table 4.15), may be affected by her child's general pattern of language use when interacting with the father because of the mutual relationships between TOFAT and TOMOT and between TOMOT and BYMOT. Again this may reinforce the language choice behaviour of the participant, which is in turn affected by the complex interaction between language choice patterns of him-/herself and other family members.

This interesting relationship among these variables is illustrated in Figure 4.4 below, which clearly shows that the interaction with the father—particularly TOFAT—is at the centre of the participant's language choice behaviour in the family domain. The six oval shapes represent the six variables in Table 4.16—the six contexts of language use. The contexts representing the TO variables are on the left and those representing the BY variables are on the right. The arrows inside the ovals represent the direction of speech. For example, the first oval in the figure represents the context where the participant makes language choices to address his/her siblings (i.e., TOSIB). There are seven arrows connecting pairs of oval shapes that represent significant correlations between variables identified in Table 4.16. Most of the arrows are concentrated among the variables related to the father and siblings.



*Note.* An arrow with heads at both ends ( $\leftrightarrow$ ) between the ovals represent a significant correlation; an arrow with the head at one end ( $\rightarrow$  or  $\leftarrow$ ) represents the direction of speech between the participant and the interlocutor where language choices are made.)

**Figure 4.4 Interrelationship between patterns of language choice in interaction between the participant and the family members**

The father's role in the general language choice pattern within the family is echoed in some participants' comments in S.-H. Park (2000, p. 139) and Johri (1998, p. 109), which suggest that the language use policy in Korean families is mostly decided by the father and that children are expected to follow the rule the father sets. In Confucian tradition, the father's authority in the family is regarded as most important. It may also be due to the changed life style that allowed the Korean father to spend more time in the family in their life in New Zealand (cf. Lidgard et al., 1998). It is not clear from the current data whether the solo parent takes over the other parent's role in language use and how language choice patterns of family members interact in solo-parent immigrant families. However, given that the mother plays a relatively passive role in the bilingual's language use in the family and is monolingual in most families in this community, it is speculated that the absence of the father may have a substantial impact on the bilingual child's language use patterns. Although further discussion is beyond the scope of the present analysis, the above result suggests that language use of children in such families may follow a different pattern from language use in the family domain described in this section.

While the above analysis reveals the complex interactions between variables related to language choice patterns and family members as the interlocutors, it also suggests that family

members' language use may play different roles in the participant's changing L1/L2 skills.

This issue is considered in the next section.

#### 4.2.2.1.4 Role of family members in L1 attrition

In order to investigate the possible role of language use of family members that may promote or discourage L1 attrition in the late bilinguals, statistically significant correlations between L1/L2 measures and the TO and BY variables are identified from the results for Spearman rank order correlations. The results are presented in Table 4.17.

**Table 4.17 Correlations between L1/L2 measures and variables for interlocutor type**

L1/L2 Measure	Variable	N	$r_s$	$p$
L1				
ACC	TOSIB	25	.401*	.05
M-D	TOSIB	25	.504*	.01
G-C	BYSIB	25	.412*	.04
G-C	BYFAT	29	.458*	.01
L2				
VOC	TOFAT	29	-.433*	.02
L-D	TOMOT	30	-.456*	.01
FLU	TOSIB	25	-.504*	.01
FLU	BYSIB	25	-.457*	.02

*Note.*  $p$  is significant at the .05 level. ACC = accuracy; M-D = morphological density; G-C = grammatical complexity; VOC = vocabulary; L-D = lexical diversity; FLU = fluency. TOSIB = degree of L1/L2 use by the participant speaking to siblings; BYSIB = degree of L1/L2 use by siblings addressing the participant; BYFAT = degree of L1/L2 use by the father addressing the participant; TOFAT = degree of L1/L2 use by the participant speaking to the father; TOMOT = degree of L1/L2 use by the mother addressing the participant.

Table 4.17 shows that the late bilinguals' L1 skills are positively correlated with L1 use with family members and that their L2 skills are negatively correlated with L1 use. Note that the greatest amount of L1 use also denotes the least amount of L2 use, while the least amount of L1 use denotes the greatest amount of L2 use. Therefore, the positive correlations between L1 measures and L1 use may also be converted to negative correlations between L1 measures and L2 use and vice versa. For example, participants with better L1 skills for accuracy tend to address his/her siblings more often in the L1 and less often in the L2.

Some important aspects in the relationships are revealed in Table 4.17. First, the L1 proficiency measures associated with interlocutor variables—i.e., accuracy, morphological density, and grammatical complexity—are related to grammatical forms, while L2 proficiency

measures associated with interlocutor variables—i.e., vocabulary, lexical diversity, and fluency—are less related to grammar. It is also interesting that there is no overlap in the individual interlocutor variables in the correlations involving the same L1 and L2 measures. For example, while L1 accuracy is correlated with TOSIB, there is no correlation between L2 accuracy and either TOSIB or BYSIB. This seems to confirm the suggestion that the pattern of language choices involving family members operates differently on the bilinguals' L1 and L2 skills. Related to the differential roles of family members, it is noteworthy that there is only one correlation between a BY variable for a parent (i.e., BYFAT) and an L1 measure (i.e., L1 G-C). Of the parents, only the father seems to have a possible but limited influence on the child's L1 skills—i.e., only on L1 G-C. Second, there is no correlation between any L1 measures and variables related to the mother. Given the high mean score for 'To Mother' and 'By Mother' (see Table 4.15), it seems that the interaction between the mothers and the participants was predominantly in the L1 irrespective of L1 proficiency on any measures, and therefore could not be evaluated here. Third, of the specific types of L1 skills that were identified as possibly undergoing attrition among the late bilinguals—i.e., accuracy and L-D (see Table 4.1)—only accuracy emerges as being associated with the degree of L1/L2 use by the participant according to the interlocutor type (i.e., TOSIB).

Of these relationships, the role of siblings in possible L1 attrition/maintenance and L2 development is particularly prominent. Of the eight correlations identified, five involve variables related to siblings—three for L1 measures and two for L2 measures. Of the three L1 measures, L1 ACC and L1 M-D are positively correlated with TOSIB, suggesting that there is mutual reinforcement between the bilinguals' habit of using the L1 to address their siblings and maintaining L1 skills in accuracy and M-D. In other words, the more frequently they use the L1 to address their siblings, the more likely they are to maintain their L1 accuracy and M-D and vice versa. Since this procedure is reciprocal, it may lead to an increase in L1 use and to maintenance of the L1 skills, or at least to less attrition in these skills. Conversely, the less frequent use of L1 in addressing siblings could also lead to attrition in L1 skills.

Language use involving siblings is also correlated with the third L1 measure—L1 G-C. It is interesting that this L1 measure is correlated with BYSIB, but not TOSIB, suggesting the more frequently the participant is addressed in L1 by his/her sibling, the more likely he/she is to have better skills in L1 G-C. Since age and L1 G-C were positively correlated (see Table 4.13), it was speculated that older children in an immigrant family might have better skills for L1 G-C and would speak more often in L1 to their siblings than the younger ones would do (cf. Fishman & Nahirny, 1966; Huls & van de Mond, 1992). Since the participants and their siblings tended to follow each other’s language choice pattern (see Tables 4.15 and 4.16), it was deemed that participants who had older siblings would have more opportunities to learn the skills from them and would have performed better on this L1 measure than those who had younger siblings. In order to determine if this was the case, the participants were grouped into two according to their birth order in their families<sup>79</sup>. The two groups’ performance and L1/L2 use were compared using a Mann-Whitney U test. There was no statistical difference between the two groups in both the performance on L1 G-C and L1/L2 use. However, it is noteworthy that, contrary to the expectation, the performance of the group with older siblings was lower than the other, in spite of their greater L1 use. Table 4.18 presents the result.

**Table 4.18 Comparison of performance on L1 G-C and L1 use between groups with older siblings and younger siblings (N = 25)**

Group	L1 Grammatical Complexity			L1/L2 use (BYSIB)	
	Mean	Median	SD	Mean	SD
Have younger sibling(s) (N = 16)	2.49	2.28	0.50	3.75	0.93
Have older sibling(s) (N = 9)	2.34	2.21	0.39	4.33	0.87

The above result seems to suggest that whether the sibling is older or younger than the participant is not a factor in the relationship between L1 G-C and BYSIB. In order to determine whether there is a difference between the two groups in the relationship between the two variables, Spearman rank order correlations were conducted on L1 G-C and BYSIB within both groups. There was a change in the strength of correlations in both groups from the results for the whole bilingual group. The result is presented in Table 4.19.

<sup>79</sup> None of the participants had both older and younger siblings.

**Table 4.19 Correlations between L1 G-C and BYSIB in the groups having older/younger siblings**

Group	$r_s$	$p$
Have younger siblings (N = 16)	0.532*	0.03
Have older sibling(s) (N = 9)	0.361	0.34

*Note.*  $p$  is significant at the .05 level.

As can be seen in Table 4.19, the correlation between the two variables became stronger with higher statistical significance in the group with younger siblings, while the reverse has occurred in the other group. From this, it could be said that the L1 use of younger siblings plays a role in late bilinguals' L1 G-C. That is, those who are addressed by younger siblings more often in L1 have more opportunities to use the L1, which in turn leads to better skills for L1 G-C than others who are addressed by younger siblings less often in L1. Since the correlation is only significant in the interaction with younger siblings, whose L1 proficiency is usually considered lower than older ones' in immigrant families, it is deemed that the L1 use in such interactions may contribute to L1 maintenance but not improvement.

Although not as prominent as siblings, the role of the father is deemed to have an important bearing on the maintenance/attrition of the participant's L1 proficiency. Table 4.17 shows that BYFAT is correlated with L1 G-C. While the majority of the responses for this variable were 'always in Korean' (i.e., given 5 points in the Likert scale), six responses were 'more often in Korean than in English' (i.e., given 4 points in the Likert scale). While the fathers of the late bilinguals who chose the latter option were all assumed proficient speakers of the L1, there were no quantitative data for these fathers' L2 proficiency. Interview data were scrutinised in order to estimate their L2 proficiency and possible reasons for their occasional use of English while interacting with their children. Four of the six participants reported that their fathers were fluent in English: one reported her father could speak some English, and another reported his father spoke a little English. Examination of the L1 G-C of these late bilinguals revealed that their performance on this measure was relatively low. Table 4.20 presents the result with some related information.

**Table 4.20 Performance on L1 grammatical complexity of the late bilinguals whose fathers sometimes use the L2 to address them**

Father's L2 fluency	Participant (Pseudonym)	Gender	Age	L1 G-C
Fluent	#18 (Yumi)	F	15	1.85
	#23 (Sumi)	F	24	2.43
	#24 (Kiho)	M	22	1.98
	#27 (Bomi)	F	24	2.21
Good	#03 (Suji)	F	22	2.13
Not good	#25 (Jisu)	M	22	2.14

*Note.* The mean and median for L1 G-C of the bilingual group are 2.45 and 2.29 respectively.

Examination of the interview data revealed some underlying reasons for these fathers using English to address their children. The two ‘less fluent’ fathers in Table 4.20 were found to use English for their own English practice while the ‘more fluent’ fathers either had more English speaking background due to international business dealings or had majored in English at university. It is noteworthy that the five participants’ LoR was relatively long—9-11 years. The exception was Yumi (LoR = 2 years). Yumi reported that her father used English just “because he could and wanted to speak English” even though she did not want to use English at home. Yumi reported that she was still struggling with English and that using English outside the school reminded her of the stress she experienced in exclusively using English at school. Sumi reported that her father liked speaking English and that he taught her English expressions that he had learned recently and corrected her mistakes while interacting with her in English. The ‘fluent’ fathers seemed to encourage their children to use the L2 in the home so the children could improve their L2 skills (in the case of Yumi and Sumi) or seemed to be socially/pragmatically motivated to code-switch to interact with their children (in the case of Kiho and Bomi). Bomi reported that her father used English to make jokes which either were not found in Korean or would not be socially accepted in the presence of her mother, who could be excluded from such conversation because she could not understand them.

Four other ‘fluent’ fathers used Korean exclusively to address their children in spite of their L2 fluency. As might be expected, examination of the interview data reveals that these fathers’ attitudes to L1/L2 use were very different from the above group, and their children’s performance on L1 G-C was far better than that of the four participants discussed above. The result for this group is presented in Table 4.21 with related information.

**Table 4.21 Performance on L1 G-C of the participants whose fathers are fluent in the L2 but always use the L1 to address the participants and related information**

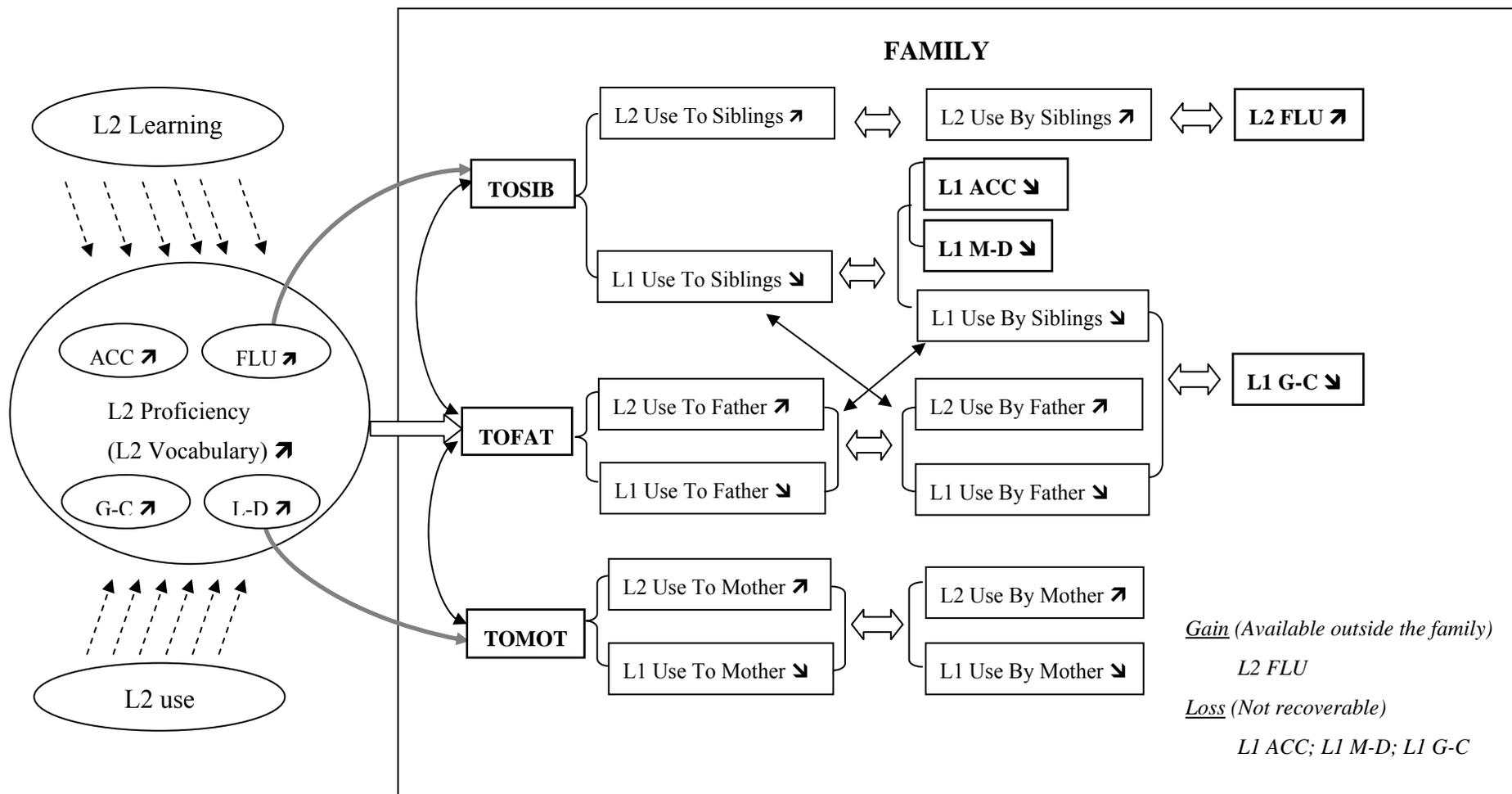
Participant (Pseudonym)	Gender	Age	L1 G-C	Summary of comments from the participants
#6 (Yuna)	F	25	2.79	"I'm more careful not to code-switch in the presence of my father because he frequently warns me of my code-switching behaviour...."
#8 (Miri)	F	23	3.01	"We found English simply did not work between family members...."
#17 (Inho)	M	24	2.21	"Although using English itself is not difficult for both of us, we always use Korean. I feel closer to father by using Korean. English is not suitable for conversation with parents. There are a lot of things in Korean that we can't say in English...."
#19 (Jun)	M	25	3.06	"We just use Korean just because we have been using it. I have never felt it would be easier to use English for certain things [than to use Korean]..."

The father's role as the addressee to the participant is noteworthy in the results related to L2 measures in Table 4.17. Of the TO variables involving L2 measures, only TOFAT is shown as correlated with vocabulary, while others are correlated with proficiency measures other than vocabulary. Given that the vocabulary measure is considered closely related to general proficiency, the correlation between L2 vocabulary and TOFAT might suggest that the bilinguals use more L2 to address their fathers as their general proficiency increases. Note that TOFAT is correlated with TOSIB and TOMOT, which don't have a correlation between themselves (see Table 4.16 and Figure 4.4). Given this, this result seems to suggest that, due to the increase of general proficiency in the L2, the participants might address their fathers using more L2 and that this tendency might affect their patterns of language use to address their mothers and siblings, which might be in turn respectively differentiated according to their L2 L-D and fluency.

While fathers' L1 use seem to be conducive to the maintenance of their children's L1 skills, their L2 use does not seem to have any effects on their children's L2 proficiency. In the results for L2 measures (Table 4.17), there is no correlation involving BYFAT. The only correlation involving a BY variable occurs between L2 fluency and BYSIB. The correlations between L2 fluency and both BYSIB and TOSIB seem to suggest that improvements in bilinguals' L2 fluency may lead to an increase in L2 use with their siblings who are also acquiring L2 fluency and increasingly use the L2 with the bilinguals. Therefore, while L2 use

and L2 fluency may mutually reinforce each other in the late bilinguals' interaction with siblings, their L2 use to address the father or the mother seems to only reveal an increasing tendency to use the L2. This is likely due to their increasing L2 skills learned outside the family, a similar trend found by Hakuta and D'Andrea (1992) in their first and second generation immigrant participants' families (see 2.2.3.2.1).

The above analysis highlights the father's role as addresser and his language choice in addressing children. It is revealed that the father's practice affects the overall pattern of language choice and L1 maintenance in the family. Since BYFAT is not correlated with any L2 measures, the father's L2 use is not likely to contribute to improvement of the children's L2 skills. More importantly, fathers who use more L2, such as those examined in Table 4.20, may reinforce their children's tendency to L2 use, which is already increasing due to their increasing L2 proficiency, and this is likely to affect their language choice pattern when addressing their mothers and siblings. The direct association between BYFAT and TOSIB suggests that these interactions may affect their children's pattern of language use, which may negatively affect their L1 skills. Even though this may result in indirect improvements in their children's L2 fluency, its impact on their L2 acquisition may be slight since most L2 proficiency is acquired outside the family. A Korean father in Johri's (1998) study reports that his family was using English at home, which he believed was "the way to have a [*sic*] better English" but that they "couldn't do that very well" (p. 110). In S.-H. Park's (2000) study, children were found to increasingly use more English in spite of their parents' policy of using Korean in the home. Perhaps many fathers implicitly encourage their children to use English in the home by being tolerant or expressing their satisfaction with their children's improvements in English proficiency (S.-H. Park, 2000, p. 152). The interactions between the variables and L1/L2 measures which may be largely affected by the father's role in their children's increasing L2 use are illustrated in Figure 4.5 overleaf.



Note. An arrow with a solid line or a white arrow between the shapes represents a significant correlation. A slanted arrow in the small box or oval represents the direction of change—i.e., an increase or decrease. Multiple arrows with dashed lines outside the family domain represent general influence of L2 learning and L2 use.

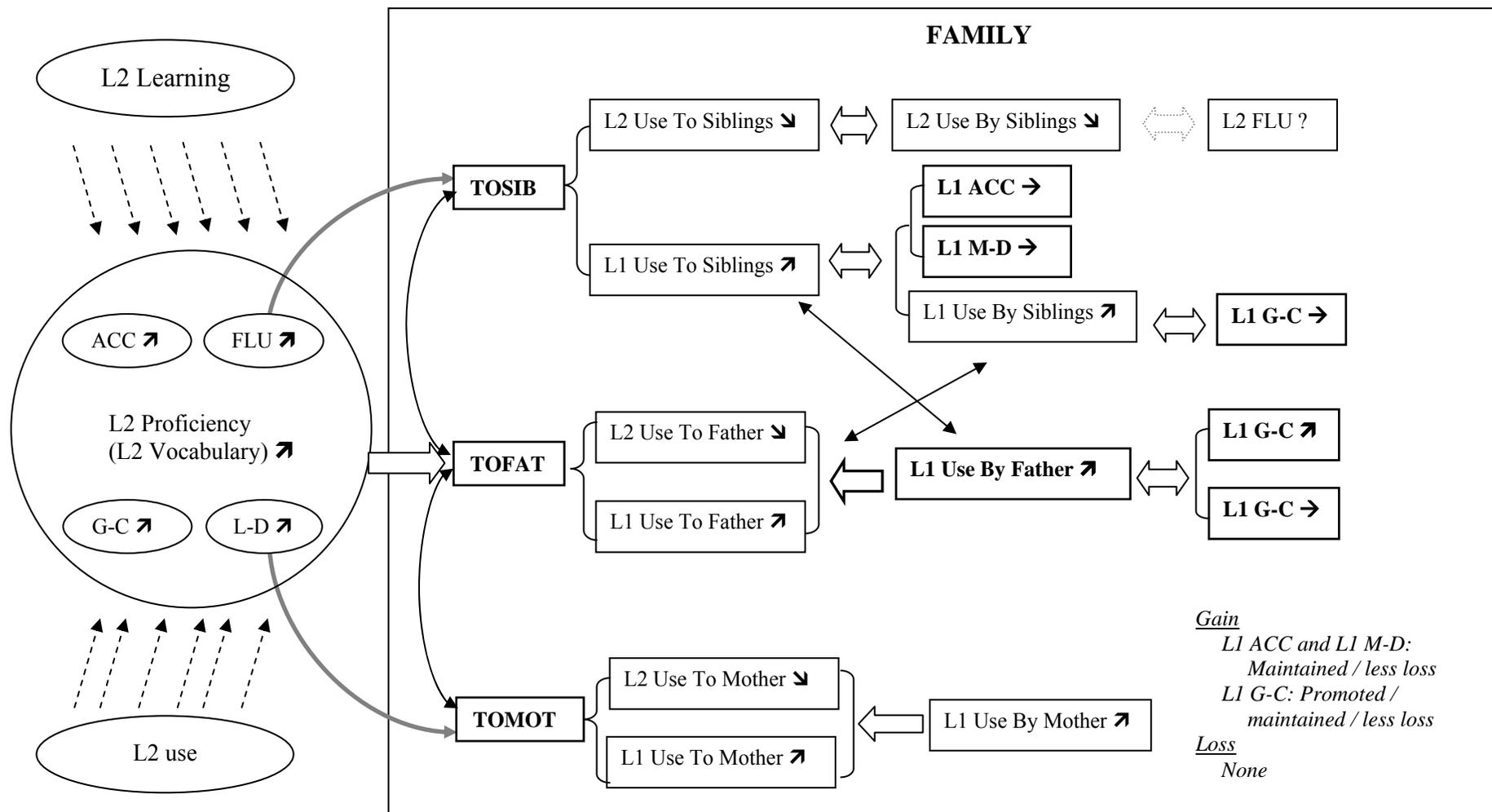
Figure 4.5 Unfavourable outcome to L1 maintenance: Interaction between L1/L2 measures and language use variables related to family interlocutors

Figure 4.5 represents the family domain, where the participant and the family members interact using the L1 or L2. It contains many small boxes that represent L1/L2 measures and the *interlocutor variables* discussed above. Outside the family domain is an L2 environment, where most L2 proficiency is acquired by learning and using the L2. The four proficiency measures and the vocabulary measure investigated in the present study are part of L2 proficiency, which is best represented by the vocabulary measure (see 3.3.1 and 3.3.3 for details). Arrows between the shapes represent significant correlations; slanted arrows in the small boxes or small ovals represent the direction of change—i.e., increase or decrease. For example, L-D ↗ in the small oval shape designates an *increase in lexical diversity*; L2 Use To Father ↗ an *increase of L2 use in addressing the father*. Two small oval shapes representing increasing L2 fluency and L-D and the whole circle representing general L2 proficiency are connected with arrows to the three TO variables—TOSIB, TOMOT, and TOFAT. These arrows designate only one-way direction—from the L2 measures to TO variables—indicating the influence of L2 skills on the language choice in addressing the interlocutor as a result of L2 acquisition. From the points where these three arrows reach, various interactions between variables and L1/L2 measures take place. The possible outcome of these interactions is a gain in L2 fluency at the expense of L1 accuracy, morphological density, and grammatical complexity.

Figure 4.5 illustrates how increased use of the L2 may impact on the L1 skills of late bilinguals even though increased L2 proficiency does not have direct negative influence on the late bilinguals' L1 proficiency. It also highlights the complementary roles of family members as the interlocutor to the participants related to an increase/decrease of specific skills in L1 or L2 (cf. Boyd, 2001). Of these roles, those played by the father and siblings seem to be particularly crucial in L1 loss, which may be even further accelerated if the father takes the initiative of using the L2.

While Figure 4.5 shows the negative side of the father's role in possible L1 loss, there may be the reverse outcome given the significant correlations between the variables related to

patterns of language choice. That is, if the father keeps to L1 use, it may be possible that the participant uses less L2 to address the father, which may have a ripple effect in his/her language choice pattern in addressing the mother and siblings. The possible outcome may be maintenance or at least less loss of L1 proficiency in L1 accuracy, morphological density, and grammatical complexity. There may be no loss in L2 fluency since L2 fluency may develop regardless of this interaction due to daily exposure to an L2 learning environment. As noted earlier, L1 G-C may even improve due to learning from the father's utterances which are more grammatically sophisticated. Figure 4.6 overleaf illustrates this alternative version of interaction between L1/L2 measures and variables.



*Note.* An arrow with a solid line or a white arrow between the shapes represents a significant correlation. A slanted arrow in the small box or oval represents the direction of change—i.e., an increase or decrease. Multiple arrows with dashed lines outside the family domain represent general influence of L2 learning and L2 use.

**Figure 4.6 Favourable outcome to L1 maintenance: Interactions between L1/L2 measures and language use variables related to family interlocutors**

Most of the participants and their families seem to follow the version described in Figure 4.6 given their L1 dominant pattern in language choice in the family domain. In addition, most of the parents of the participants (except those fathers identified in Tables 4.20 and 4.21 and a few mothers who were mentioned during the interview) do not seem to be proficient enough in L2 to initiate L2 use for conversation with their children. However, the results reported in section 4.1.1 show that L1 accuracy of the late bilinguals is significantly lower than that of the 12-year-old monolinguals, suggesting possible attrition in progress as a group. The findings suggest that improved L2 proficiency might have an indirect effect on the late bilinguals' L1 proficiency via reduced interaction in L1 between the participant and the father, who are (or wish to be) proficient in the L2, and whose language use influences the participant's language use with siblings.

The findings suggest that, by influencing his child's pattern of language choice for interaction, the father may indirectly encourage either maintenance or attrition in L1 skills. The positive relationship between L1 G-C and the father's tendency of L1 use suggests that the father may be the only direct source for his child's further L1 development in an L2 environment which is not favourable to L1 development. Like the fathers in many child language development studies (for a review, see Barton & Tomasello, 1994, see also 2.2.3.2.1), the late bilinguals' fathers may be more demanding and less capable to adjust their language to the level of the child than the mother. As noted by child language researchers (Barton & Tomasello, 1994; Rondal, 1980; Tomasello et al., 1990), since the father is less familiar with the child's linguistic behaviour and daily routines, interaction between the father and child leads to frequent communication breakdowns. In order to repair the communication breakdowns and get the message passed across, the child has to repeat or rephrase his/her utterances until the father understands. The Korean fathers, who might not have been able to spend much time with their children in their home country because of busy work and social life, may be particularly more uncompromising when interacting with their children. Since the participants were in their mid-/late teens or early twenties, the fathers might expect their

children's speech would be at a similar level to their own. In addition, after their immigration, the fathers could be involved in their children's daily life more actively and affect the children's linguistic behaviour due to a less busy and more family-oriented life style in New Zealand. Given this, not only the father's language use and attitude toward his children's language use (cf. Luo & Wiseman, 2000) but also his presence itself in the immigrant family seems crucial in possible L1 attrition or maintenance according to his linguistic orientation. It follows therefore that the father's absence in the first-generation family is likely to lead to more rapid shift to L2 use and loss in L1 proficiency in children due to increased interaction with siblings and the limited role of the mother in their language use. As noted earlier, the present data are not enough, however, either to ascertain this pattern or to determine whether the mother in the so called 'astronaut family' would not take over the father's role in children's language use and maintenance of L1 skills. Further research is needed to explore this issue.

The present findings related to the mother's role seem to be partly in accordance with the traditional view of the mother as the transmitter of the L1 across generations and the gatekeeper of language maintenance (Extra & Verhoeven, 1999; see also Winter & Pauwels, 2005a). However, it is not clear whether these mothers were making conscious efforts to induce their children to maintain the L1. When asked about the reason for the mostly L1-dominant pattern of addressing their parents (except for the "fluent" fathers and the fathers who preferred to use the L2), most of the participants mentioned their parents' lack of L2 proficiency and many of them added that they would switch to English if their parents could speak English. This echoes Pauwels' (2005) observation that L1 use by children will decrease once they become aware that the interlocutor in the family understands the L2. Mothers are often regarded as more responsive to the child's linguistic needs than fathers (Barton & Tomasello, 1994; Rondal, 1980; Tomasello et al., 1990) and more likely to be susceptible to children's tendency to shift away from the L1 to L2 in immigrant families (Clyne, 1967; 2003). These are first-generation immigrant families where mothers are largely monolingual.

It is possible that the L1-dominant pattern of language use in the mother-child interaction shown in the present data could shift to a bilingual or L2 dominant pattern in some families in the future when the mother acquires L2 proficiency. Some of the participants already started to mix English when addressing their mothers and this tendency is found to be related to their increasing L2 lexical diversity. Signs of such a shift were also reported by some participants during the interview. For example, Hyun (#28), whose score for TOMOT was the lowest, reported that his mother asked him to use English when he hesitated speaking in Korean since she understood English and did not want her son to feel frustrated by being unable to find a Korean word (see also 5.3.1). While this issue will be further investigated in some individual cases in chapter 5, there are not sufficient data to evaluate this issue fully at the present time.

The results reported in this section show the dynamics of interaction among language choice behaviours of family members and L1/L2 skills of the participants. The findings shed light on the selectivity of L1 skills that are susceptible to attrition and the complementary roles played by family members in L1 maintenance/attrition in a Korean context. In the next section, the relationship between L1/L2 measures and social domains where the participants make language choices is investigated.

#### *4.2.2.2 Social domains*

This section investigates the relationship between the L1/L2 measures and the pattern of participants' language choices made within social domains. Analysis reveals that, while the degree of L1/L2 use varies according to individual social domains, the general pattern of language choice in social domains tends toward L2 use. There is no clear relationship between L1 proficiency and language use variables defined according to the types of domains, suggesting that the late bilinguals' tendency to L1 use in social domains is constrained by factors other than L1 proficiency. However, there are associations between some L2 measures and language use variables related to certain domains, suggesting an increase in L2 proficiency has started to influence the bilinguals' language choices in social domains.

The responses to 13 questions in Section IV of the questionnaire (Appendix C), which listed social situations where the participants were thought to make language choices, were investigated. Scores from 1 to 5 were given to the responses according to the same procedure outlined above for the analysis of responses to the questions in Sections II and III. Table 4.22 provides descriptive statistics for the responses to the individual questions.

**Table 4.22 Language choices made within social domains**

Question No		N	Mean	SD
42	TV/video/DVD	30	2.63	.93
43	Sunday services/Mass	26	4.12	1.14
44	Prayer/reading the Bible	26	4.00	1.06
45	Newspaper/cartoons	30	2.90	1.06
46	Record/cassettes/CDs	29	3.14	1.06
47	Listening to radio	24	1.88	1.15
48	Shopping	30	1.67	.66
49	Playing sports	27	2.63	1.08
50	On the telephone	30	3.43	.82
51	Reading books	29	2.69	.89
52	Earning money	22	2.50	1.14
53	Club/societies	25	3.04	1.49
54	Other leisure activity	25	3.04	1.17
Overall		30	2.91	.75

*Note.* The generic question: “which language do you use these days for the following?” Response modes: 1 = always in English; 2 = more frequently in English than in Korean; 3 = almost equally in English and Korean; 4 = more frequently in Korean than in English; 5 = always in Korean.

Table 4.22 shows that the participants’ language choices vary according to social situations. Of the 13 categories, the L1 is reported to be predominantly used in situations related to religion, and least frequently when shopping. The high number of respondents and the high scores for the responses to Q43 suggest that the majority of the participants were attending Korean community churches rather than local churches. However, the great SD value also suggests that some may deviate from this trend (see Appendix L for the general distribution of the responses). Scrutiny of the distribution revealed that, while about half of the respondents chose exclusive use of the L1 as the response to both Q43 and Q44, a substantial proportion of the group also chose an English-dominant pattern of language choice or equal use of L1 and L2. A single participant reported exclusive use of English for attending Sunday services but none reported the same for prayers or reading the Bible.

While the responses to other questions suggest the participants' use of language generally converges on using both languages to more or less similar degrees, the L1 seems least used for 'listening to radio' and 'shopping'. The interviews revealed that the low degree of L1 use within these domains was due to the relatively scarce availability of the L1. Although there was a radio frequency provided for broadcasting in various community languages including Korean in Auckland, most participants were not aware of it. A few who knew reported that such programmes were not interesting. As for 'shopping', many participants reported that going to a Korean grocery shop was their mothers' job. Only a few participants reported occasionally using a Korean shop close to their homes.

In order to determine the degree of differences in language use according to both the types of context where the interaction occurs and the medium used for the interaction, the categories in Table 4.22 were classified into broader categories of public-private domains and domains of verbal, print, and audio-visual media. For the first classifications, categories were collapsed into *public* domains (Q43, 48, 52, 53) and *private* domains (Q42, 45-7, 50, 51)<sup>80</sup> and the mean scores for the respective groups of questions were calculated to represent the degree of L1/L2 use within public and private domains respectively. The descriptive statistics for these variables are provided in Table 4.23.

**Table 4.23 Language choices made within public/private domains (N = 30)**

Variable	Question No.	Mean	SD
Public	43, 48, 52, 53	2.79	.91
Private	42, 45-7, 50, 51	2.82	.76

*Note.* Public = the degree of L1/L2 use within public domains; private = the degree of L1/L2 use within private domains. 1 = always in English; 2 = more frequently in English than in Korean; 3 = almost equally in English and Korean; 4 = more frequently in Korean than in English; 5 = always in Korean.

As shown in Table 4.23, there seems little difference between the patterns for language choices by the participants in public and private domains, conforming to the overall pattern shown in Table 4.22, although there is a slightly greater variation for public domains. On the other hand, there is also a relatively strong correlation with high significance ( $r_s = .615$ ;  $p <$

<sup>80</sup> Questions 44, 49, and 54 were excluded from these classifications since the situations represented by these questions were considered ambiguous.

.000) between the two variables suggesting that the participants tended to choose similar patterns of language choice in both domain types.

The second classifications of the social domains were made by collapsing the individual categories in Table 4.22 into three broader categories according to the medium used within the given social domain—i.e., verbal medium (Q43, 48, 50, 53); print medium (Q44, 45, 51); and audio-visual medium (Q42, 46, 47)<sup>81</sup>. The mean score for the given questions for each category was calculated to represent the degree of L1/L2 use as presented in Table 4.24.

**Table 4.24 Language choices made according to types of medium used within domains (N = 30)**

Variable	Question No.	Mean	SD
Verbal	43, 48, 50, 53	3.01	0.84
Print	44, 45, 51	3.15	0.82
Audio-visual	42, 46, 47	2.63	0.89

*Note.* Verbal = degree of L1/L2 use within domains where the verbal medium is mainly used; print = degree of L1/L2 use within domains where the print medium is mainly used; audio-visual = degree of L1/L2 use within domains where the audio-visual medium is mainly used.

The overall patterns for variables *verbal* and *print* shown in Table 4.24 seem relatively similar to each other, suggesting that the participants tend to use almost equal amounts of L1 and L2 within both domains, but that slightly more L1 is used in the domains where print medium is used rather than verbal medium. On the other hand, the mean score for *audio-visual* (which is lower than 3) in contrast to those for the other two variables suggests that the participants tend to use more L2 for the activities where audio-visual medium is used. A series of Mann-Whitney U tests were conducted with the types of medium as independent variables. There was a significant difference between the results for audio-visual and print ( $U = 289.000$ ;  $p = .017$ ), suggesting that the participants tended to use significantly less L1 in the domains where the audio-visual medium was used than in those where the print medium was used. No other differences were noted. The high correlations between pairs of variables presented in Table 4.25 suggest that individual participants' language choices for different types of medium are likely to follow similar patterns.

<sup>81</sup> Questions 49, 52 and 54 were excluded from these classifications since the situations represented by these questions were ambiguous in terms of the types of medium.

**Table 4.25 Correlations among variables for medium types (N = 30)**

	Verbal	Print	Audio-visual
Verbal	—	0.712**	0.593**
Print		—	0.756**
Audio-visual			—

Note. \*\* $p < .01$ .

In order to investigate the relationships between L1/L2 measures and language choice patterns according to types of social domains, Spearman rank order correlations were conducted on L1/L2 measures and the five domain types as variables. There were some modest correlations between these variables and L2 measures, while none of these variables were correlated with any L1 measures. The result is presented in Table 4.26.

**Table 4.26 Correlations between L1/L2 measures and variables related to domain types**

	Location		Verbal	Medium type		Overall
	Public	Private		Print	Audio-visual	
<b>L1</b>						
Vocabulary	.090	.014	.067	.163	-.019	.022
Proficiency						
ACC	.264	.123	.248	.204	.234	.236
FLU	.015	.303	-.008	.078	.106	-.008
G-C	.043	-.319	.051	-.209	-.286	-.150
L-D	-.121	-.199	-.181	-.129	-.153	-.212
M-D	.090	-.036	.088	-.094	-.066	-.036
<b>L2</b>						
Vocabulary	-.153	-.235	-.190	-.195	-.247	-.253
Proficiency						
ACC	.155	-.116	.058	-.129	-.055	-.013
FLU	-.375*	-.154	-.393*	-.249	-.055	-.335
G-C	-.145	-.178	-.161	-.213	-.124	-.222
L-D	-.076	-.356	-.187	-.451*	-.324	-.309

Note. \* $p < .05$ . FLU = fluency; ACC = accuracy; G-C = grammatical complexity; L-D = lexical diversity; M-D = morphological density. Public = the degree of L1/L2 use within public domains; private = the degree of L1/L2 use within private domains. Verbal = degree of L1/L2 use within domains where the verbal medium is mainly used; print = degree of L1/L2 use within domains where the print medium is mainly used; audio-visual = degree of L1/L2 use within domains where the audio-visual medium is mainly used.

Table 4.26 shows only three modest correlations between L2 measures and the variables for domain types. This suggests that, for some late bilinguals, L2 proficiency plays a role in making language choice in some social domains and that this tendency is significant, while L1 proficiency in making language choice shows no such pattern. It is interesting that only L2 fluency and L2 L-D are associated with language choice patterns in some social domains. Since the verbal medium requires skills in fluency by definition, it is plausible that individuals who are more fluent in L2 may use more L2 in domains where verbal skills are

required. L2 verbal skills are also required for activities in L2 public domains. The correlations between L2 fluency and both public and verbal were confounded with each other since three out of four questions collapsed into the respective categories were the same (see Tables 4.23 and 4.24). The relationship between L2 L-D and print also seems straightforward as increased L2 L-D and using L2 for print medium seem to mutually reinforce each other. While this result reveals some signs of the influence of increasing L2 proficiency on language choices of the bilinguals, the moderate and few correlations suggest that L1/L2 proficiency is not a relevant factor.

In order to investigate the relationship between the late bilinguals' L1/L2 skills and their language choice patterns in individual social situations represented by the questionnaire items, the results for Spearman correlations on L1/L2 measures and scores for individual questions were examined. There were only 4 correlations involving L1 measures, and 3 involving L2 measures. These details are presented in Table 4.27.

**Table 4.27 Correlations between L1/L2 measures and language choice patterns within individual social domains**

Measures	Social domain	N	$r_s$	$p$
L1				
FLU	Shopping	30	.437*	.016
ACC	Reading	29	.380*	.042
ACC	On the phone	30	.397*	.030
G-C	Reading	29	-.447*	.015
L2				
FLU	Sunday service/Mass	26	-.519**	.007
G-C	Sunday service/Mass	26	-.428*	.029
L-D	Newspaper/cartoon	30	-.394*	.031

*Note.* \* $p$  is significant at the .05 level. \*\* $p$  is significant at the .01 level. FLU = fluency; ACC = accuracy; G-C = grammatical complexity; L-D = lexical diversity.

Table 4.27 shows particular social situations where given L1/L2 skills are most relevant in making language choices. Most of the correlations presented in Table 4.27 appear plausible. For example, the positive correlation between 'reading' and L1 accuracy suggests that the more time the participant spent reading in L1, the more accurate forms he/she was likely to produce due to more exposure to L1 input through reading. However, there are two trends worth noting. One is the association between an increase in L2 fluency and L2 G-C and

an increase in L2 use/decrease of L1 use within domains represented by ‘Sunday services/mass’. Although the results reported in Table 4.22 suggest that L1 use is predominant within these domains among the late bilinguals and that this would contribute to L1 maintenance within this group, the association of the above L2 proficiency measures with an increase of L2 use seems to suggest that shift from L1 to L2 among these bilinguals might have already started within this domain.

The next trend is related to the negative correlation between L1 G-C and the degree of L1 use in reading. The result in Table 4.27 suggests that the more grammatically complex L1 utterances the participant produced, the more he/she tended to use less L1 and more L2 in reading. This seemingly contradicting result may be attributed to the different types of reading associated with the L1 and L2. That is, most of the bilinguals reported in the interview that they read only light essays or popular novels in L1 casually while their L2 reading was more serious and related to their studies or work. Given this, those who spent much time in reading in their L1 may not have learned skills required to express complex ideas using the L1 (cf. Skehan, 1996b), while intense L2 reading might have contributed more to the development of cognitive ability in organising several propositions in a sentence. This tendency might have been reflected in their performance on L1 G-C. This result may also be attributed to the mismatch between perception and production in L1. The participants who spent more time in L1 reading than L2 reading might have been able to comprehend complex structure, but, due to their reduced L1 skills, they might have been less able to produce such structures. Young participants in some L1 development studies show a similar mismatch between comprehension and production while their L1 syntactic development is still underway (Nippold, 1998; Romaine, 1984). This result may also be attributed to the limited ability of those who are more exposed to an L2 reading environment in using concise L1 verb phrases or various linguistic devices (Fillmore, 1979; Nippold, 1998), and/or age factors which might be confounded with cognitive development and verbosity that may increase with age (Laufer & Nation, 1995; Romaine, 1984). This interpretation remains highly speculative and this

relationship may not be clearly spelled out without separating intervening factors out.

Although this is beyond the scope of the present study, some individual cases are investigated to shed light on this relationship in chapter 5.

In this section, the relationships between the bilinguals' patterns of language choice within various social domains and measures for L1/L2 skills have been investigated. While the dominance of L1 use within domains related to religion suggest that the L1 may be relatively well maintained among these late bilinguals as a group, the result shows that shift from L1 to L2 might already be in progress within most social domains including religious domain (see J. Kim & Starks, 2005, for similar findings). While there was no correlation between L1 measures and the variables related to the types of social domains, proficiency in L1 fluency and accuracy were associated with the individual social situations 'shopping' and 'reading'/'on the phone' respectively, suggesting the language choice patterns within these situations may be indicators of maintenance of these skills in individual participants. However, the relationship between L1 G-C and 'reading' is found to be ambiguous, calling for further investigation. Of the L2 measures, L2 fluency was found to play a role in increasing L2 use within 'public' domains and domains where the verbal medium is used, and L2 L-D within domains where print medium is used. As for individual social situations, language use patterns for 'Sunday services/masses' and 'newspaper/cartoons' seem to serve as indicators for increasing L2 proficiency which may lead to shift to L2. In the next section, the relationship between L1/L2 measures and language choice patterns in situations involving spontaneous language use with different degrees of emotion is investigated.

#### *4.2.2.3 Spontaneous language use and emotional load*

This section investigates the relationship between the L1/L2 measures and the pattern of participants' language choices in spontaneous language use involving different degrees of emotion. Findings show a general pattern of L1 dominance in most situations, while there is a sign of shift to L2 use particularly in contexts where a heavier emotional load is involved. A further analysis reveals that this tendency is particularly related to decreasing L1 accuracy and

increasing L2 fluency. Data from the interviews suggests that the bilinguals' L2 socialisation during their adolescence has played an important role in this tendency.

In order to elicit the general pattern of language choice made in such situations represented by questions 55-67 in section 5 of the questionnaire (Appendix C), responses to these questions were investigated according to the same procedure outlined above for the analysis of responses to the questions in previous sections. Descriptive statistics for the responses to individual questions are provided in Table 4.28.

**Table 4.28 Language choices in spontaneous language use involving various emotions**

Question No.	Situations	N	Mean	SD
55	When dreaming	28	3.50	1.04
56	When counting the number of objects	30	3.60	.93
57	When memorising numbers	30	3.50	1.11
58	When receiving incoming telephone calls	30	4.03	1.19
59	When angry (swearing)	30	2.83	1.21
60	When shocked	30	3.17	1.23
61	When tired	30	3.57	1.01
62	When stressed	30	3.53	1.01
63	When embarrassed	30	3.43	.94
64	When arguing	30	3.40	1.10
65	When in a hurry	30	3.40	1.00
66	When in danger	30	3.37	1.03
67	When confused	30	3.40	.93
Overall		30	3.44	.78

*Note.* The generic question: "which language do you use on the following occasions these days?" Response modes: 1 = always in English; 2 = more frequently in English than in Korean; 3 = almost equally in English and Korean; 4 = more frequently in Korean than in English; 5 = always in Korean.

Table 4.28 reveals two trends in the participants' language choice patterns in the given situations. The first trend is related to the general trend showing overall L1 dominance in the given situations, while the second trend is related to the idiosyncratic pattern of L2 dominance in situations represented by Q59—*when angry*. Although the L1 is the dominant language in most of the given situations, a relatively substantial amount of the L2 seems to be used as well (see Appendix L for the general distribution of the responses). When asked at interview to explain their responses, many participants commented that they generally made language choices depending on the environment where such occasions took place and that this occurred automatically according to whether the people involved could understand their utterances in

one language or the other. Thus, it seems that those who interacted more often with speakers of their L2 tended to use more L2 and vice versa<sup>82</sup>.

The second trend worth noting in Table 4.28 is that the L1 is no longer the dominant language in situations related to ‘anger/swearwords’ (Q 59). It is also noteworthy that the variation across the participants for the response to Q59 is greater than that for most of the other responses. In order to investigate this trend, individual responses to Q59 were compared with the individual participants’ overall mean scores for the entire section. The scores for this particular item for the majority of the participants (i.e. 21 people out of 30) were lower than their overall mean scores for the entire section, suggesting that they generally tended to use more L2 in this situation than usual. This trend was also supported by comments by many participants at interview. Many reported that they had learned L2 swearwords very quickly in coping with difficulties in expressing their anger due to their limited L2 fluency when teased by their NS peers during the early period of their immigration, while some of them had not known how to swear in their L1 up until that time. On the other hand, many others noted that they tended to use the L2 when they were angry because they felt using the L1 for swearing or expressing intense feeling hurt the addressee as well as the addresser him-/herself. The following remarks are excerpts from some of these participants on this topic:<sup>83</sup>

Kids use swearwords pretty often, for example, when they are in Form 3 or something like that. When I entered the high school, it looked tough and cool to use lots of swearwords. Because, at that time, I could not express verbally that I got angry when I was teased by some guys [because I could speak little English], I found using [L2] swearwords was effective in letting them know how I felt... Sometimes English works better for some *serious* matters. When I use Korean for such matters, my feeling passes over to the person too *directly*.... (Kiho: #24)

Somehow swearwords in Korean seem too intense. I knew how to swear back in Korea. But, at some point since coming to New Zealand, I became unable to swear in Korean.... (Jimin: #12)

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<sup>82</sup> Many participants commented that they seemed to follow such patterns in dreams where they interact with speakers of their L1/L2.

<sup>83</sup> Plain regular type-faces are used for the part originally expressed in Korean and translated into English by the researcher. Italic type-faces are used for the parts where English was originally used by the participant.

If I use Korean to swear, it becomes too *real*, or rather, *rude*. So I feel very uncomfortable.... (Hyun: #28)

Perhaps, many of these participants might not have been exposed to this type of L1 input because they left their home country when they were too young as commented by some participants (Mina, #5; Jinho, #10; and Jimi, #16). Others might have developed “a kind of psychological barrier” against the use of L1 swearwords (Dewaele, 2004a, p.213), which might have been reinforced by their parents and social environment during their childhood in their home country. When exposed to an L2 environment as they entered their teens, partly due to their limited English skills (as revealed in Kiho’s comments) and partly due to their desire to be approved as an in-group member by their English-speaking peers (cf. Dewaele, 2004a), they might have started using L2 swearwords to express themselves. Since these L2 swearwords or intense expressions are less associated with the L1 psychological barrier, their use for such situations is less emotionally charged and might have lead to habitual use<sup>84</sup>.

In order to determine whether the late bilinguals’ language choice patterns involving emotions depend on the interlocutors and context, the correlation matrices between the scores for the given questionnaire items and the variables representing language choice patterns relating to interlocutor type and social domains were scrutinised (see Appendix L). The pattern of correlations shown in the matrices was generally in accordance with participants’ comments. That is, there are numerous positive correlations between language choice patterns related to individual situations given in Section V and individual social domains given in Section IV. When correlated with variables related to types of social domains identified in Tables 4.23 and 4.24, almost all the correlations were statistically significant, and many were very strong and highly significant. As for interlocutor types, the scores for most of these questions were correlated with the variables related to the types of interlocutor that the late

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<sup>84</sup> There are a number of lexical items that express ‘anger’ in Korean according to its degree of emotionality, the situation, and the agent who experiences the ‘anger’. There are even various types of ‘anger’ expressed in Korean. Some late bilinguals might not have learned this calibration of emotionality until they learned how to express ‘anger’ using the L2. Perhaps the late bilinguals might increasingly choose L2 to express ‘anger’ due to their inability to assess the appropriateness of expressing the ‘anger’ using certain L1 lexical items (see 5.4.2 for some examples illustrating use of L1 lexical items related to ‘anger’.)

bilinguals might interact with most often—i.e., family members and (Korean/non-Korean) friends at school/work. This suggests that, although the bilingual's language choices may be made under differential emotional stress, they are also constrained by the social context where the bilingual functions as a language user. It also suggests that the relationship between emotional situations and language choice patterns is a complex one, confounded by variables related to social domains and interlocutor types, and many others that are not identified in the present research.

Scrutiny of the correlation matrices revealed another underlying trend related to language choice patterns involving numbers. While the scores for other questions in Section V are correlated with several variables related to social domains and the interlocutor (or at least a few in the case of Q59—when angry), it was not the case with the variables represented by Questions 56 and 57, which were related to numbers (see Table 4.28). There was no correlation between the scores for Q56 (when counting...) and any variables related to the type of social domains. As for variables related to interlocutor types, the scores for Q56 and Q57 are each correlated with one of these variables. This suggests language choices for counting or memorizing numbers do not follow the general pattern of language choices of a late bilingual. This was confirmed by many participants' debriefing on their responses to these two questions during the interview. For example, Hyun (#28), who seemed very much oriented to L2 use, stated that he only used the L1 for memorizing telephone numbers, although he consistently chose 'always in English' to other questions in Sections III and IV. Many participants, regardless of general L1/L2 dominance or proficiency, revealed similar trends in memorizing numbers. Others seemed to have developed their own unique ways of utilising their bilingual resources for this kind of cognitive activity. For example, Yumi (#18) prefers to use English in memorizing chronological years; Jisu (#25) commented that he counted in Korean more often only because he did not have to move his lips for pronouncing; Nari (#15) commented that English was quicker and easier for small numbers and so was

Korean for larger numbers. Bilinguals seem to choose L1 or L2 as a cognitive rather than linguistic tool in these cognitive activities involving numbers.

The above findings on the late bilinguals' general pattern of language choices involving spontaneous language use suggest that the pattern of language choices in this regard may be determined by several independent factors operating in the particular context. Social domains where the late bilinguals operate and the interlocutor they interact with were identified as some of these factors, hence their general language dominance in language use. However, a closer look at their language choice patterns related to anger and numbers revealed that these constructs are in more complex relationships with their habitual L1/L2 use. With this in mind, the relationship between their language choice patterns for spontaneous utterances and their L1/L2 proficiency is investigated in the next paragraphs.

In order to investigate the relationship between the late bilinguals' L1/L2 skills and their language choice in spontaneous language use, the results for Spearman correlations on L1/L2 measures and scores for individual questions in Section V of the questionnaire were scrutinised. In this analysis, key words for individual questions are used as the names of the variables representing the degrees of L1/L2 use for spontaneous utterances in the given situations. For example, the variable 'dreaming' represents 'the degree of L1/L2 use when spontaneously speaking in a dream'. There were a number of correlations, most of which were concentrated on L1 accuracy and L2 fluency. Table 4.29 presents these correlations (for a full result including non-significant correlations, see Appendix L).

**Table 4.29 Correlations between language choice patterns in spontaneous language use and L1/L2 measures**

	Angry	Hurry	Stressed	Tired	Embar- rassed	Arguing	Danger	Confused	Shocked	Counting
L1	ACC	ACC	ACC	ACC	ACC	ACC	ACC	ACC	—	M-D
$r_s$	.493**	.467**	.419*	.368*	.399*	.384*	.364*	.373*	—	-.398*
$p$	.006	.009	.021	.045	.029	.036	.048	.042	—	.029
L2	G-C	—	FLU	FLU	FLU	FLU	—	FLU	L-D	—
$r_s$	-.378*	—	-.577**	-.470**	-.364*	-.402*	—	-.373*	-.394*	—
$p$	.039	—	.001	.009	.048	.028	—	.042	.031	—

*Note.* \* $p < .05$ ; \*\* $p < .01$ . ACC = accuracy; M-D = morphological density; G-C = grammatical complexity; FLU = fluency; L-D = lexical diversity.

As can be seen in Table 4.29, eight variables related to spontaneous language use are correlated with only the L1 accuracy measure, while five of these are also correlated, albeit negatively, with the L2 fluency measure. This seems to suggest that L1 accuracy and L2 fluency count most in language use for spontaneous utterances in the given situations. However, this may not always be the case since the strength of the correlations is generally modest. Furthermore, it should be noted that these L1 and L2 proficiency measures are not directly associated (i.e., negatively correlated) as suggested in the previous sections. There are also three correlations involving other L1/L2 measures. They are L1 M-D, correlated with ‘counting’; L2 G-C, correlated with ‘angry’; L2 L-D, correlated with ‘shocked’. Of these correlations, it is surprising that the correlation between ‘counting’ and L1 M-D is negative, suggesting that the less often the L1 is used in counting (i.e., the more often she/he uses the L2), the better morphological skills in the L1 would be, and vice versa. Although it has previously been suggested that the bilingual’s language choice patterns related to numbers might not always be associated with his/her general language dominance or proficiency, it is difficult to interpret this negative correlation with the data analysed so far. Investigation into some individual participants in the next chapter may shed light on this result.

Since the participants were generally L1-dominant in both their language use and proficiency, it was deemed that they might use more L1 in situations involving more emotional load, where less attention might be paid to the choice of language. Three variables related to emotional load were derived by classifying the questionnaire items in Section IV

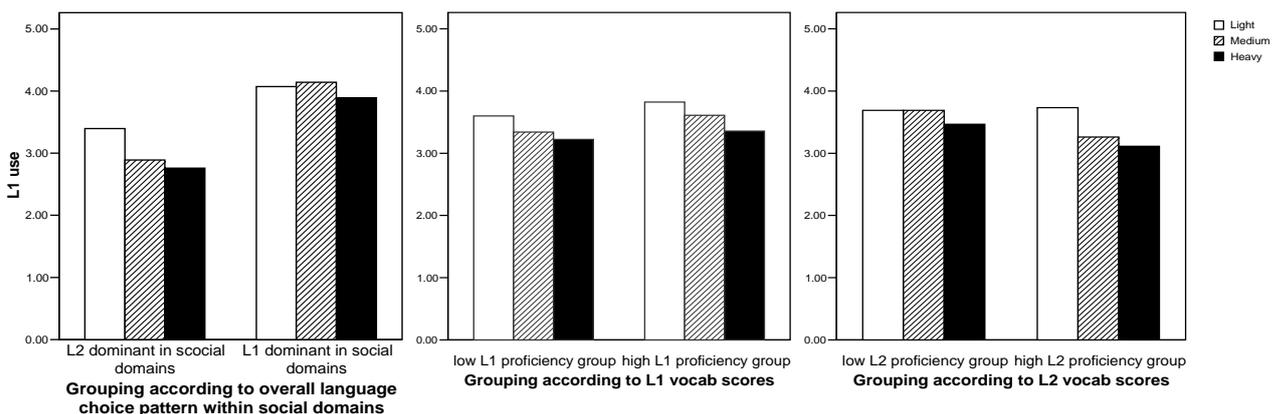
using the method described in 3.6.4. The situations for spontaneous language use represented by the question items were collapsed into those where emotional load is light, medium, and heavy. Table 4.30 presents descriptive statistics for these variables.

**Table 4.30 Language choices made according to the degree of emotional load involved in spontaneous language use (N = 30)**

Variable name (Emotional load)	Question No	Mean	SD
Light	Q56; Q57; Q58	3.71	.76
Medium	Q55; Q61; Q65; Q67	3.48	.91
Heavy	Q59; Q60; Q62; Q63; Q64; Q66	3.29	.89
	Overall	3.44	.78

*Note.* Light = degree of L1/L2 use in spontaneous language use where the relative emotional load is light; medium = degree of L1/L2 use in spontaneous language use where the relative emotional load is medium; heavy = degree of L1/L2 use in spontaneous language use where the relative emotional load is heavy.

Contrary to the prior expectation, Table 4.30 shows that the late bilinguals' tendency toward L1 use as a group decreases as the degree of emotional load involved in the situation increases. In order to determine whether this pattern is consistent in terms of language dominance in language use and L1/L2 proficiency, the participants were separated into two groups, firstly by the 'overall language choice pattern within social domains' represented by the mean score for variables related to social domains, and secondly by general proficiency in L1/L2 represented by L1/L2 vocabulary measures. The results are shown in Figure 4.7.



**Figure 4.7 Comparison of the patterns of language choice according to the degree of emotional load between groups based on overall language choice pattern and general proficiency in L1/L2**

Figure 4.7 reveals the late bilinguals' tendency to use consistently more L2 in situations involving heavy emotional load than in the other two situations, regardless of the

given variables, albeit there are varying degrees of overall L1/L2 use between pairs of groups. While Figure 4.7 suggests that general proficiency in both L1 and L2 might not be related to individuals' language choice patterns involving different degrees of emotional load, it calls for more investigation into this relationship in terms of proficiency measures. Spearman rank order correlations were conducted on L1/L2 measures and the variables 'light', 'medium', and 'heavy' for this investigation. The result shows that only L1 accuracy and L2 fluency were moderately correlated with 'medium' and 'heavy'. Table 4.31 presents this result.

**Table 4.31 Correlations between variables related to the degree of emotional load and L1/L2 measures**

Variable	L1 Accuracy		L2 Fluency	
	$r_s$	$p$	$r_s$	$p$
Light	.258	.168	-.234	.212
Medium	.455*	.012	-.425*	.019
Heavy	.402*	.028	-.436*	.016
Overall	.362*	.050	-.403*	.027

*Note.* \* $p < .05$ ; \*\* $p < .01$ . Light = degree of L1/L2 use in spontaneous language use where the relative emotional load is light; medium = degree of L1/L2 use in spontaneous language use where the relative emotional load is medium; heavy = degree of L1/L2 use in spontaneous language use where the relative emotional load is heavy.

While Table 4.31 shows no relationships between 'light' and either L1 accuracy or L2 fluency, it also shows an interesting contrast between the results involving the other two measures. In the results for L2 fluency, the degree of correlations parallels the degree of emotional load related to the variables, although the strengths of correlation are moderate and the difference between the two  $r_s$  values is minimal. This result seems plausible—fluency in the L2 is more closely associated with more frequent use of L2 in more emotionally-laden situations, since more fluent speakers may have more control over the L2 and they are therefore able to keep their fluency in that language in spite of the heavy emotional load than less fluent ones.

The relationship between L1 accuracy and language choices related to emotional load does not seem to be as simple as the case with L2 fluency. While Table 4.31 shows that the strengths of relationships between 'medium'/'heavy' and L1 accuracy are opposite to those involving L2 fluency, the difference between the strengths of correlation involving L1 accuracy is greater. That is, the association between L1 accuracy and the degree of L1 use is

significantly weaker when emotional load is heavy than when it is medium. As Harris (2004) notes, the L1 does not seem to be the language which always facilitates emotional expressions among some late bilinguals in spite of its powerful emotional connotations and their L1 proficiency (Dewaele, 2004a, 2004b; Harris, 2004; Harris et al., 2003; Kinginger, 2004; Panayiotou, 2001; Pavlenko, 2004b). This may be due to the complex relationship between the L1 and emotional expressions among late bilinguals. That is, since most L1 words and phrases with affective connotations, whether negative or positive, are acquired during the process of socialization in childhood and become integrated with emotionally charged memories (Dewaele, 2004a; Pavlenko, 2004; see also Marian & Kaushanskaya, 2004), the L1 often remains the language of closeness and intimacy (Wierzbicka, 2004). This might have led some of the late bilinguals to feel L1 emotional expressions too real and personal and avoid using them, as revealed by some participants' comments reported above, while others resort to the emotional power of the same L1 expressions. Harris (2004, pp. 223-224) points out that late bilinguals seem to prefer their L1 if emotionality is desired, but choose their L2 if the emotionality of the words to choose is uncomfortable. That the relationship of L1 accuracy with 'heavy' is weaker than that with 'medium', as revealed in Table 4.31, suggests that, although L1 accuracy is identified as the most relevant to language choices involving emotional stress and to attrition among the participants, the degree of attrition is less relevant in making language choices when emotionality is great. Although an increasing tendency to use the L2 for swearing among young Korean immigrants is also reported in S.-H. Park (2000), there is no research providing quantitative data comparable to the findings reported above to date. Nevertheless, the present findings are in line with other studies quoting some of their late bilingual participants who expressed their reluctance in using intense L1 expressions in spite of their proficiency in their L1s (Bond & Lai, 1986; Dewaele, 2004a, 2004b; Panayiotou, 2004; Pavlenko, 2004b).

While the above result only points to the association between variables, not cause-and-effect relationships, the association seems to be linked to an underlying trend in the

relationships—attrition in L1 accuracy and acquisition of L2 fluency—which have been identified as being in progress among the late bilinguals. Although the correlational analyses in 4.1.3 suggested no statistically significant relationship between these two measures, it seems to be worth noting that they emerge together again in the correlational relationships reported in this section. If L1 attrition already had its onset among the late bilinguals as suggested by the findings reported in 4.1, it seems possible that the results reported in this section are symptoms of L1 attrition influenced indirectly by increasing L2 fluency. Since increasing L2 fluency will almost certainly lead to increasing frequency of L2 use, the above result seems to show that the emotional realm of the bilinguals may not be the exception. Furthermore, the late bilinguals, who had to deal with their emotions moment by moment according to the L2 social norms while learning the L2, might have gone (or was still going) through the secondary socialization in the L2. Their childhood socialization, which had been highly dependent on the family, took place through their L1. As they acquire L2 proficiency, late bilingual adolescents may develop L2 linguistic devices and conceptual representations of emotional states outside the family domain in an L2 environment. Meanwhile, their L1 socialisation may remain “primitive” or delayed within intimate relationships—family or close friends/acquaintances. Thus, those who are more confident in using the L2—i.e., fluent in the L2—and have more investment in gaining L2 peer group membership are more likely to be in situations where they use the L2 while they perceive and express the emotions of themselves as well as others. On the other hand, due to the increased L2 use and the resultant decrease in L1 use, some of the late bilinguals, irrespective of their L1 accuracy or L2 fluency, might be going through changes in the verbal and conceptual representations of emotions in favour of the L2. This might have led them to perceive the L2 as more appropriate and the L1 as more hurting and uncomfortable for the expression of intense emotions leading to further infrequent use of the L1 and eventually to L1 attrition in linguistic and conceptual levels (Dewaele, 2004b; Pavlenko, 2002, 2003). Although this is only speculation since there are no linguistic data for this aspect of attrition in L1 emotional expressions except for some

participants' verbal reports, some of which are presented above, these bilinguals' comments are remarkably consistent with the self-reports by those who are reported as going through L1 attrition in emotional expressions in other studies (Dewaele, 2004b; Pavlenko, 2002, 2003). Other factors such as those related to individual differences and social factors, some of which are investigated above, certainly play a role in this process. These interactions at the individual level are investigated through individual cases in chapter 5.

This subsection has investigated the relationships between the bilinguals' patterns of language choice for spontaneous language use and measures for L1/L2 skills. While it has been confirmed that the late bilinguals' dominant language is the L1 in this aspect of language use, as is the case in general with family domains and other social domains, their dominant language in emotionally-laden situation, particularly involving anger, seems to have started shifting from the L1 to the L2. Although some bilinguals seemed to prefer using the L2 as a way to distance themselves from the emotions expressed verbally, analysis of the questionnaire and proficiency data revealed that decreasing L1 accuracy and increasing L2 fluency might play a role in this tendency. Dewaele (2004a, p. 220) notes that language users may not use linguistic "nuclear" devices if they are unsure about their power and the consequences brought about by using them. In this respect, some late bilinguals gain confidence in using the L2 in this area due to their increasing L2 fluency, others lose confidence in using the L1 due to their decreasing L1 accuracy. Perhaps, underneath this increasing or decreasing confidence, there may be their limited linguistic resources in either L1 or L2 that may be utilised to express different degrees of emotionality (see 5.4.2 for linguistic analysis relevant to this issue), yet others prefer to use one language or the other according to their perceived degree of emotionality irrespective of their proficiency. At the centre of this change are the increasing use of the L2 and the reverse of the L1.

### 4.3 *Summary*

In this chapter, the relationships among the L1/L2 vocabulary and proficiency measures and social variables have been investigated. While the late bilingual's general proficiency in their L1 seems to have increased but not to the level of normal adult monolinguals, comparison of their performance with that of 12-year-old monolingual Koreans revealed that attrition might be occurring in some specific aspects of their L1 proficiency—particularly accuracy and lexical diversity. The analysis of the late bilinguals' performance in L1 and L2 suggested a positive transfer from L1 proficiency to L2 proficiency. There was no direct negative relationship between the attrition in L1 accuracy and lexical diversity and the increase of L2 proficiency among the late bilinguals, perhaps because most were not at an advanced stage of L1 attrition or L2 acquisition.

The study considered extralinguistic variables and language use variables related to interlocutor types, social domains, and spontaneous language use. Of the extralinguistic variables, age and frequency of return visits to the home country were found to have effects on L1 proficiency among the late bilinguals. As for language use variables, there were complex interactions among their relationships and L1/L2 proficiency, while the L1 was generally the primary language in the domains where these variables were operating.

The results reported in this chapter suggested that L1 accuracy seemed the most vulnerable to attrition and that this seemed indirectly influenced by the increasing use of the L2 and L2 fluency across the areas investigated. Of language use related to interlocutor types, interaction with family members—particularly with the father and siblings—were found to play an important role in L1 maintenance/attrition among the participants. The father's role was particularly highlighted since it was related to most of the variables related to the mother and siblings and it seemed to have a possible effect on the children's grammatical complexity in L1. Although friends were deemed to be another important type of interlocutor that the current participants interact with daily, interaction with them was found to have no significant

influence on change in proficiency in either L1 or L2. For these late bilinguals, factors other than L1/L2 proficiency seem more relevant to language use with friends during adolescent socialization in an L2 environment (cf. Hakuta & D'Andrea, 1992).

As for language use in social domains, there was no significant relationship between L1 measures and L1 use related to domain types, suggesting that L1 proficiency is not an important factor for these L1-dominant late bilinguals. L2 use did, however, seem constrained by specific skills relevant to certain domain types, revealing that an increase in L2 proficiency may have started to influence the bilinguals' language use. There were a few individual situations where the participants' L1/L2 use is related to particular aspects of proficiency in L1 or L2, suggesting that varying degrees of L1/L2 proficiency may have started to influence the bilinguals' language choice patterns in the individual domains.

Analysis of the relationships between the bilinguals' patterns of language choice for spontaneous language use and measures for L1/L2 skills revealed that the dominant language for emotional expressions, particularly involving anger, might have started shifting from the L1 to the L2 in some participants. Although using the L2 for emotional expressions might be interpreted as a strategy for emotional detachment unique to resourceful bilinguals, it was found that decreasing L1 accuracy and increasing L2 fluency might be underlying this strategy among some participants.

Since most of the correlations identified as statistically significant in the above analyses were moderate in general, the association between L1/L2 proficiency and the social variables investigated could be applied to a relatively small proportion of the sample. There might be numerous variables that may affect the bilinguals' proficiency, the variables investigated, and the relationships between them. Therefore, the details of the present findings should not be regarded as any more than tentative and exploratory. However, the consistent emergence of L1 accuracy and L2 fluency having correlations with the same and similar variables seems illuminating. These relationships are summarised in Table 4.32 overleaf. In addition to the saliency of L1 accuracy, points have been consistently made on grammatical

complexity and lexical diversity throughout the chapter. The next chapter analyses some individual cases to explore how these measures and other variables interact at the individual level in the context of L1 attrition.

**Table 4.32 Summary of the relationships among L1/L2 measures and social variables among the late bilingual group**

L1/L2 measures		Extralinguistic variables	Language choice patterns related to				
			Interlocutor	Social domains		Spontaneous language use	
				Individual situations	Types	Individual situations	Emotional load
L1	Vocabulary						
	Proficiency	ACC	Siblings (TO)	Reading; Receiving telephone calls		When: Angry; In a hurry; Stressed; Tired; Embarrassed; Arguing; In danger; Confused	Medium; Heavy
		FLU		Shopping			
		G-C	Age; Perceived L1 proficiency	Siblings (BY); Father (BY)	Reading (Neg)		
		L-D	Frequency of return visits				
		M-D		Siblings (TO)		Counting (Neg)	
L2	Vocabulary	Age	Father (TO)				
	Proficiency	ACC					
		FLU	Siblings (TO; BY)		Public; Verbal medium	When: Stressed; Tired; Embarrassed; Arguing	Medium; Heavy
		G-C		Sunday services / Masses		When angry	
		L-D	Frequency of return visits (Neg)	Mother (TO)	Newspaper/cartoon	Print medium	When shocked

*Note.* All the relationships except for those tagged with (Neg) are positive. The negative correlations between L2 measures and variables for the degree of L1 use in the statistical analysis are all appearing as positive relationships between L2 measures and the degree of L2 use in this table. The rows for L1 accuracy and L2 fluency are shaded in order to highlight their indirect interrelationship mediated by the same or similar language use variables.

## 5 Emergence of L1 attrition

The aim of this chapter is to investigate how L1 attrition might have occurred in an individual late bilingual as a result of the interaction among various variables identified in chapter 4.

While positive transfer from the L1 to L2 seems still to occur among the late bilinguals in terms of general proficiency, the findings also suggest that the onset of attrition seems to have taken place on particular aspects of L1 proficiency. This chapter examines individual cases in order to explore how the proficiency measures and extralinguistic/social variables identified as important in chapter 4 interact with each other at the individual level.

This chapter attempts a qualitative analysis on five selected participants' data. They were low performers on L1 accuracy and lexical diversity (L-D), selected according to the procedure detailed in 5.1. Sections 5.2-5.6 analyse linguistic data from these participants considering information on their background and language use. While the linguistic analysis attempts to consider instances occurring at most of the linguistic levels, analysis relating to phonology is restricted to prosody, suprasegmentals, and morphophonemics. This is because phonetic measurement was not attempted and most of the participants produced utterances maintaining phonological distinctions and conforming to basic phonological rules in Korean (e.g., vowel harmony). Section 5.7 provides a general picture of L1 attrition among these participants and the interaction between extralinguistic/social variables that underlies individual attrition.

### *5.1 General profile of the selected participants*

Five participants were on the basis of the results for L1 accuracy and L1 L-D selected for the investigation of (possible) attrition at the individual level. The two aspects of L1 proficiency were identified as being potentially affected by attrition (see 4.1.1). It was considered that examining the underlying mechanisms of the low L1 performance on these measures would

illuminate the process of L1 attrition. The SPSS program (Version 12.0) generated a box plot where Han (#14), Hyun (#28), and Jun (#19) were identified as the outliers for L1 accuracy, suggesting that their performance on this measure was exceptionally low. Their L1 accuracy measures were all lower than the lowest measure for the 12-year-old monolingual comparison group. No specific outliers were identified for L1 L-D at the lower end. Therefore, the study focused on two participants—Minho (#07) and Jinho (#10), who recorded the lowest and the second lowest scores for L1 L-D. The selected participants' general profile and their selection criteria are summarised in Table 5.1.

**Table 5.1 General profile of the selected participants**

	Gender	Age	LoR <sup>1</sup>	Occupation	Criteria for selection
Han (#14)	M	25	13	Fashion designer	L1 accuracy (3 <sup>rd</sup> to the lowest)
Hyun (#28)	M	25	11	Postgraduate student	L1 accuracy (2 <sup>nd</sup> to the lowest)
Jun (#19)	M	25	14	Financial analyst	L1 accuracy (the lowest)
Minho (#07)	M	20	8	Undergraduate student	L1 lexical diversity (2 <sup>nd</sup> to the lowest)
Jinho (#10)	M	16	4	Secondary school student	L1 lexical diversity (the lowest)

*Note.* <sup>1</sup> Length of residence: some LoRs do not exactly match the difference between the current age and the age of departure (i.e. 12-13 years) since all the numerals for the number of years are rounded to nearest whole year.

Table 5.1 shows an interesting contrast between the two groups of participants selected based on different criteria. The first three, the outliers for L1 accuracy, are all in the oldest age group of the late bilinguals with relatively long LoRs, while the next two, the low performers on L1 L-D, are younger with relatively short LoRs. It is noteworthy that Jinho recorded the lowest in L1 L-D in spite of his relatively recent departure from Korea. While all five participants are male, gender is not considered as a variable in this study and any generalisation is not warranted.

In order to allow comparison between each participant's performance on one measure and that on another, and between the participants' performance on a particular measure, the scores of the selected participants on L1/L2 measures were scrutinised. The general impression of their L1 performance was that the three outliers for L1 accuracy were very different from each other as well as from the two low performers in L1 L-D. Han's performance was very low and consistently below average on all L1 measures, while Hyun and Jun performed very well on some L1 measures in spite of their low accuracy. Minho and

Jinho did not perform particularly well on any L1 measure. Minho did not perform particularly low on any measure other than L-D, either. However, Jinho's performance on some L1 measures was also very low.

These participants show very interesting contrast to each other in their L2 performance. Of the three outliers on L1 accuracy, Han's generally low L2 performance is particularly noticeable. Consistent with his low L1 performance, his performance on all L2 measures was below the group average. Hyun and Jun performed generally better than the group average, with some measures receiving very high scores. While L2 performance of both Minho and Jinho was generally low, Jinho particularly seemed to struggle with his L2 proficiency being at an earlier stage of L2 acquisition.

The patterns of language use variables for Han, Jun, and Minho generally converged on the general pattern for the group reported in chapter 4, but those for Hyun and Jinho diverged from this trend. Nevertheless, for all five participants, family was clearly an L1-dominant domain, a general trend reported in chapter 4. For the domain of Korean friends, L1 was still dominant for four participants but Hyun deviated from this pattern. Jun and Han appeared to be particularly loyal to L1 use within the family and with Korean friends. All five tended to use the L1 to a generally lesser degree in social domains and for spontaneous language use. While there was great variability in L1 use within social domains, all but Hyun converged on group means for 'spontaneous language use'. In social domains, shift to L2 use seemed to occur in three participants—Hyun, Jinho, and Jun. While Hyun consistently showed almost exclusive L2 use in social domains, it was noteworthy that Jinho, in spite of his short LoR and low L2 fluency, showed a similar pattern. Jun's tendency to shift was also interesting given his loyalty to L1 use in the former two domains. Minho also used L1 to a lesser degree in the latter two domains, but the difference was slight and he still showed a relatively high degree of L1 use in both. His L1 use for these two domains was the highest of the five participants.

The following sections consider linguistic data from these participants. Interpretation of data is supplemented by the stimulus recall protocol where necessary. Each section begins with information on the given participant's personal background and language use elicited from the questionnaire and interview.

## 5.2 *Han: the “marginal man”<sup>85</sup>*

### 5.2.1 *L1 performance and personal voice*

Han is one of the oldest participants and has lived in New Zealand relatively longer than most of the late bilinguals. As suggested earlier, Han's pattern of L1 use in the four domains was not much different from the general trend among the entire bilingual group. His degree of L1 use was higher than the average in all domains. However, as noted in 5.1, his performance on L1 measures was generally very low and he was one of the lowest performers in L1 accuracy. Scrutiny of his data for extralinguistic variables revealed that his perception of his own L1 skills was low (i.e., “no improvement from the level of 12-year-olds”) and that he had visited Korea only once in 13 years of his immigration. Han comments on his own L1 as follows:

I know I can't speak in Korean in a more friendly way when I'm among Koreans. That is, you don't feel close to a person when he says “*Hello, how are you?*” do you? ... Instead, you say like “*Hello, mate*”, and feel much closer to each other. But I don't know such words in Korean, so sometimes it's hard to make friends with them ... I meet many Koreans but somehow they seem different from me in their behaviour, way of speaking ... So I try to be closer to them [to learn the Korean way].... I can make friends with them anyway because both understand English...

(Han: interview)<sup>86</sup>

While his low L1 L-D and low frequency of return visits seem evidence for the correlational relationship between the two variables (see 4.2.1.2), he also seems to have very little contact with the home language from other sources. He does not have any relatives living in Auckland, nor has he had visitors from Korea since the time of his immigration.

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<sup>85</sup> A term borrowed from *The Marginal Man: A Study in Personality and Culture Conflict* (Stonequist, 1937). In this book, the “marginal man” is defined as “[t]he individual who through migration, education, marriage, or some other influence leaves one social group or culture without making a satisfactory adjustment to another [and] finds himself on the margin of each but a member of neither” (pp. 2-3).

<sup>86</sup> Plain regular type-faces are used for the part originally expressed in Korean and translated into English by the researcher. Italic type-faces are used where English was originally used by the participant. Original expression in Korean will be used via romanisation (see Appendix E) only for crucial part for discussion hereafter.

Even during his visit to Korea, although it was his first visit after 10 years' lapse, he had little contact with his relatives and other acquaintances. These factors might have been conflated in the relationship between his low L1 L-D and low frequency of return visits. To the question why he had not visited Korea more than once, he answered:

When I visit Korea, I don't have anything special to do, or any friends to meet....  
Meeting relatives is somewhat [unclear] so... I don't feel like going to Korea...

(Han: interview)

Due to the loose relationship with relatives and acquaintances in the home country, Han seems to have little motivation for a return visit. A similar tendency is detected among some older participants who paid similarly few visits. Johri (1998) reports on a similar pattern in her K-E bilingual participant who has lived for 11 years in New Zealand. As these bilinguals become older and live longer in an L2 environment, their relationship with cousins and childhood friends often becomes loose due to little contact. As they go through L2 socialisation during their adolescence, some late bilinguals seem to feel unfit in their home culture. This seems the case with Han, who had never visited Korea during his adolescence<sup>87</sup>.

A long lapse of time away from the home country and L2 socialisation in the adopted country also seemed to lead Han to have little emotional attachment to his home country. Han expresses how he felt when he first landed in Korea as follows:

Just ... I thought, "I came to another country".... You know, in this country [i.e., New Zealand] you have much green colour around and clean air. But in Korea, it was rather messy and there were too many buildings, without much green ... I felt like that.

(Han: interview)

This contrasts to the remarks from some participants who seemed to have stronger L1 identity. An example from one of them on the same topic is provided below:

I felt I was home. Ah! My home country! It was good to be in my home country....  
All the stress I had had for the *Bursaries*<sup>88</sup> was gone and I got refreshed...

(Insu: interview)

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<sup>87</sup> Han's father died during his childhood before his family immigrated to New Zealand. This might have led to further loose contact with relatives on his father's side.

<sup>88</sup> The University Entrance Bursaries and Scholarships (commonly known as Bursaries). This was a nation-wide assessment system that qualified school leavers for university entrance in 2001 when the participant was in Year 13 (the final year in the secondary education). This qualification system has been replaced with a new one NCEA since 2004 (for details, refer to New Zealand Qualifications Authority, 1999-2006).

Although Han seems to have relatively weak emotional attachment to the home country, he seems to have become aware of his identity as Korean since his late teens. He reported that he had not spoken much at school for the first 1-2 years of his immigration because there were no Korean students around and he could hardly understand English. At high school, he found a group of Korean students who were late-comers and fluent in Korean. Han recalls that his Korean speaking skills were already deteriorating before he met these Korean students but that he tried to join them. This encounter seems to have provided Han with an opportunity to raise his awareness of his L1 proficiency and relate it to his identity as Korean. He reports as follows:

I was using only English at intermediate school [since I began to understand English]. At high school, I tried to socialise with Korean guys but it was a bit hard because I was stuttering frequently every time I began to speak to them [in Korean]. They were using [Korean] words that I didn't understand. However, I thought I had to try harder to learn Korean because I am a Korean. So I spent much time with them...

(Han: interview)

With all his attempts and yearning to be accepted by his Korean peers, he seems to have started to feel alienated because of his limited L1 fluency. This might have led him to abandon his effort for the acceptance and remain a bystander to his Korean community and home country. Even as a bystander, he still seems to seek a tie with Koreans in order to ascertain his identity as Korean. He reports on such effort he made to learn Korean and make friends during his return visit in the following exchange with the researcher (R):

R: (after learning that Han had worked part-time at a hotel during his return visit)  
Oh, did you work there?

Han: Yes. I wanted to know what Korea [i.e., working in Korea] was like. I thought I might meet other Koreans and learn to be able to feel comfortable among them if I worked in a hotel...

R: Did you make many friends and learn as much Korean as you had expected?

Han: I made friends with Koreans. I became quite close to the Koreans. I realised Koreans were friendly too while working there.

(Han: interview)

Although he was conscious of his declining L1 proficiency and made some efforts to “learn Korean” from his peers in the Korean community in New Zealand and in Korea during his return visit, his L1 proficiency seems the most susceptible of the late bilinguals to attrition.

Han's L1 performance was of great interest to the researcher, since her interview with him and transcription of his data were difficult due to frequent communication breakdowns where unclear pronunciations, non-target-like L1 forms, etc. occurred with frequent pauses in between. These are also the features that characterise Han's story-retelling data, which will be examined in 5.2.2. In contrast to most of the other participants, Han seemed to have difficulties in understanding the researcher's questions during the interview and answered with unrelated information sometimes using deviant L1 forms. It was interesting however that, with all these difficulties and the researcher's suggestion that he was allowed to use English, he kept to Korean throughout the interview. As will be shown shortly, this seemed to be partly due to his loyalty to L1 use with the Korean interlocutor and partly due to his low proficiency in English. As mentioned in 5.1, his performance on both L1 and L2 was very low on all measures<sup>89</sup>. This suggests that his L2 proficiency is still at a very low level and that L1 attrition may occur even before the bilingual reaches an advanced stage of L2 acquisition.

While Han was selected for this analysis for his low L1 accuracy measure, he also performed very low on L1 L-D, another measure identified as the locus of possible attrition among the participants. Han's performance on most of the other L1 measures was also very low. He recorded the lowest scores of all the participants in both late bilingual and 12-year-old monolingual comparison groups for L1 vocabulary and L1 G-C. This violates the general trend that the bilinguals generally performed better on L1 vocabulary than the 12-year-olds and that the age and L1 G-C correlated positively (see 4.1.1 and 4.2.1). His vocabulary score (i.e., 61.67 percent) in particular falls far below the lowest of the monolingual comparison group (i.e., 70.00 percent). His limited L1 proficiency is observed in his performance on other measures which often falls below the lowest of the monolingual comparison group. Although his scores for L1 accuracy and L-D were not the lowest of the late bilinguals, he seemed to have undergone the greatest degree of L1 attrition of the late bilinguals.

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<sup>89</sup> Particularly, his L2 G-C measure was the lowest of the group.

### 5.2.2 *Signs of attrition*

Han's L1 data can be characterised by disfluency and deviant L1 forms across linguistic levels, which resulted in his low records on all measures for L1 skills. Some features were unique to him, but others were similar to those found in other participants' data. While his difficulties in producing fluent L1 speech was already detected at the meeting and by his low L1 fluency score<sup>90</sup>, Han's raw data were fraught with most of the disfluency features considered in attrition studies (e.g., Pavlenko, 2003; Polinsky, 1996; Silva-Corvalán, 1996) and many others on L1/L2 speech production (e.g., Clark & Clark, 1977; Crookes, 1990; Foster et al., 2000; Levelt, 1989) as well as L2 acquisition (e.g., Foster & Skehan, 1996; Kormos & Dénes, 2004; Lennon, 1990; Skehan & Foster, 2005). Various types of non-target-like L1 forms were also found in his narrative and interview data. These two types of features often seemed to be inter-related but not isolated phenomena, as will be discussed below.

As noted earlier, it was very difficult for the researcher to understand Han's utterances during the interview and to transcribe his story-retelling data. The main reason for the incomprehensibility was deemed to be the unpredictability of the pauses in various lengths that frequently occurred within a constituent. While these mid-constituent pauses may occur as a result of disruption in lexical retrieval or grammatical processing on the speaker's part, they considerably hinder the comprehension of the speech on the part of the listener (Clark & Clark, 1977). Korean is no exception (cf. J. J. Song, 2005). Consider (1) below:

- (1) *ku* (.5) *koki-lul* *thamnay-ss-supnita*  
that (.5) meat-AC covet- PST- DEF:DC  
'(he) coveted the meat'

(Han: Line 4, Story 1)<sup>91</sup>

In (1), a pause of .5 seconds occurs within an NP *ku koki* 'that meat' that serves as the direct object of a verb *thamnay-* 'covet'. According to Levelt (1989), this kind of pause is not likely

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<sup>90</sup> *Speech rate*, the measure employed for fluency, incorporated most disfluent phenomena (e.g., pause, repetition, false starts, etc.) as well as the speed of articulation. See Appendix E for guidelines to measure fluency.

<sup>91</sup> Each line in the transcripts consists of an AS-unit consisting of one or more clauses. The definitions of AS-unit, clause, and other related information are provided in 3.6.1 and Appendix E.

to occur in “ideal delivery” (Clark & Clark, 1977)<sup>92</sup>. Pauses occurring between a determiner and a noun are also found in data from a few late bilinguals as well as monolingual participants, though not frequently. This suggests that this type of pause is not unique to Han but could occur in normal L1 production when the speaker searches for an appropriate lexical item. Earlier studies on L1 speech planning found speakers tended to hesitate before the first content word within a constituent (Clark & Clark, 1977). However, Han’s pauses often seemed to occur due to a great degree of L2 interference. He seemed to be at pains to suppress English words leading to a very long pause or the selection of a less appropriate alternative item. Han comments on his frequent pauses as follows:

sometimes English words come to mind more often and quickly....some words, ... for example, koki is koki, but, in my mind, it comes as *meat* automatically.... other times it is yewu [that I intended to say], but it has been fixed as *fox* in my mind....so I get confused<sup>93</sup> ....

(Han: stimulated recall)

While his Korean story-retelling process seemed to have been interfered with by English as expressed above, he reported that Korean never interfered with his English story-retelling.

Although such disruption of spontaneity seemed to be related to the requirement of the story-retelling task that did not allow code-switching, this turned out not to be restricted to this situation. At interview, where code-switching was allowed, his speech was also interrupted by frequent pauses of various lengths. This seemed due to his usual speaking practice of trying to keep the two languages apart. He gives the rationale for such practice:

- Han: I always make it a rule to speak only Korean [when I’m meant to speak Korean], no matter how slow it may be...
- R: Do you mean, whenever an English word comes to your mind, you change it to a Korean one before you speak it out?
- Han: Yes.
- R: Tell me why you do so when many others easily speak in two languages.
- Han: It is a bit weird (unnatural/abnormal)<sup>94</sup> to speak that way, isn’t it? [If I use both languages to speak] I’m afraid I may think in a bit of a weird

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<sup>92</sup> According to Clark and Clark (1977, p. 261), ideal delivery is “a ‘correct’ way of executing” a sentence by fluent speakers who know what to say and say it fluently (emphasis original).

<sup>93</sup> Underlined part is the romanisation of the original expression in Korean. The same convention is applied to the excerpts quoted hereafter.

<sup>94</sup> The original word that Han used for this is *i.sangha-* ‘to be abnormal, unnatural, weird, or strange ...’

(unnatural/abnormal) way.... So I hardly do so [i.e., code-switch]. [Use] Korean when you speak Korean, and English when you speak English. And you may understand English well and speak Korean well. Then you can speak both English and Korean well.... I have been like that since I first came [to New Zealand].

(Han: stimulated recall)

Han's difficulties in lexical retrieval seem due not only to interference from English but also to difficulties in accessing the appropriate lexical item, given his low performance on vocabulary. The verbatim record for his responses during the test shows that sometimes he accessed inappropriate items, while at other times he could access only parts of lemmas of the required item. For example, for *yumocha* 'pram', a compound of *yumo* 'nanny' and *cha* 'vehicle', Han responded as *sungyongcha* 'passenger car—car for riding'. He appeared to be able to only access the second lemma for *cha* 'wheeled vehicle'. While many participants could give a correct response to a phonemic cue for an item that they could not name at the initial and stimulus cues (see 3.5.1), it was not the case with Han for all such items.

Han's story-retelling data reveal that he tended to use more general terms and make wrong choices for other lexical items, even though the fables were read prior to his own production and picture stimuli were provided as he retold the story. For example, a compound *kokis-teng.i* 'meat-lump—i.e., piece of meat' was used several times in the original script, but he consistently used a more general word *koki* 'meat'. Table 5.2 lists the original items and those Han used to refer to the same objects or actions in the story.

**Table 5.2 Comparison of lexical items used in the narratives in the original version and Han's version**

Category	L2 equivalent of the original	Original	Han
Noun	piece of meat	<i>kokisteng.i</i> : <i>koki</i> (meat) + (s) + <i>teng.i</i> (lump)	<i>koki</i> 'meat'
	rope	<i>pascwul</i> : <i>pa</i> (hawser/tether) + (s) + <i>cwul</i> (line/string)	<i>cwul</i> 'line/string'
Verb	hold (something) in the mouth	<i>mwul-</i>	<i>kaci-</i> 'have'
	beg	<i>aywenha-</i>	<i>iyakiha-</i> 'say'
	gnaw/chew away	<i>kalk-</i>	<i>kkaymwul-</i> 'bite'
	take possession of (something)	<i>chaciha-</i>	* <i>chac-</i> 'find'
Idiom	tie (with rope/chain)	<i>mwukk-</i>	* <i>maytal-</i> 'hang'
	soon after that	<i>ku-lopwuthe</i> <i>olay-ci</i> <i>anh-a</i> it-from long-NML be.not-CONJ 'Not long after that'—i.e., 'soon after that'	<i>enu nal</i> 'one day'

Note. \* means an inappropriate lexical choice.

Table 5.2 shows a clear tendency for lexical reduction. Of the lexical items listed, both of the original nouns are compounds consisting of two nouns each, which is the most productive type in Korean. In this type of compounding, the semantic relationship between the two nouns may be modifier-head or head-head (i.e., appositive), the first type being more common. In the modifier-head type, an epenthetic *s* is often inserted between the two nouns (H.-M. Sohn, 1994)<sup>95</sup>. Instead of using the full compounds, Han uses only one of the nouns from each. This tendency of preferring simpler forms and less specific semantic features is also observed in his production of a two-word adverbial *enu nal* instead of a longer phrase requiring several lexical items and morphosyntactic encoding using various bound morphemes as presented in the last row of Table 5.2. Han's preference for a simpler form seems to be his strategy to reduce difficulties in processing lexical and/or grammatical items.

Comparison of the verbs used in the original and Han's data reveals a more complex pattern in his lexical choices. The first two sets of verbs in Table 5.2 clearly show Han's preference for more general items over those with more semantic specificity. That is, the verb *kaci-* 'have' lacks the specific feature of the action holding an object using teeth or lips, which is represented by *mwul-*. The second set of verbs was used as the reporting verb in Aesop's fable for the mouse's speech where he pleaded to the lion to spare his life. In quotative constructions in Korean, various reporting verbs are used according to the contexts where the actual speech is both made and reported (see H.-M. Sohn, 1999, p. 323). As shown in the English gloss, Han's version *iyakiha-* 'say' is one of the common reporting verbs and lacks the nuance that the mouse was desperate to escape being devoured by the lion. While Han's use of the first two verbal items in Table 5.2 seems to suggest his preference for hypernyms which have more general semantic features and require less processing load, his selection of

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<sup>95</sup> In noun-noun compounding, insertion of the epenthetic *s* is not obligatory, but depends on the morpho-phonological environment where the two nouns are combined and the semantic relationship between them. While there are a number of proposals on the morpho-phonological function of the epenthetic *s*, there seems to be little agreement among Korean linguists (for further discussion, see H.-M. Sohn, 1994).

the next three verbal items seems to involve somewhat different and complex mechanisms that suggest possible influence from English<sup>96</sup>. This issue is discussed in the next paragraphs.

The third set of verbal items in Table 5.2 was used to describe the scene where the mouse rescued the lion by gnawing the rope away. The original verb used for the mouse's action was *kalk-*. This verb describes the action of an animal such as a rat, mouse or rabbit that continuously scratches something relatively hard usually using the teeth in order to eat it or to make a hole or dent in it. The lexical item *kkaymwul-* that Han selected does not have the feature for continuousness and denotes an action which needs relatively stronger power to have the teeth penetrate the object. It seems that Han associated the features attributed to mouse's action with those represented by the English word 'bite'.

The next pair of verbs *chaciha-* and *chac-* was used to describe how the fox was trying to play a trick on the crow to take the meat from him. The phrase Han produced using this lexical item and its possible reconstruction are provided in (2) and (3) below:

- (2) (3.4) *koki(.)-lul \*chac-ki- $\emptyset$  wihay*  
 (3.4) meat(.)-AC \*find-NML(-AC) serve.CONJ  
 'in order to \*find the meat'

(Han: Line 5. Story 1)

- (3) *koki-lul chaciha-ki- $\emptyset$  wihay*  
 meat-AC obtain-NML(-AC) serve.CONJ  
 'in order to take the meat (from the crow)'

(the author's reconstruction of (2))

By comparing (2) and (3), Han's use of *chac-* may be interpreted in two ways: 1) Han might have accessed the required lexical item *chaciha-* but been triggered to shorten it to *chac-*, which was not acceptable and led to another verb *chac-*'find'; 2) he might not have been able to access *chaciha-* but actually accessed *chac-* due to its phonetic similarity to *chaciha-*, extending its semantic features on the analogy of English 'take', the translation equivalent to the required item *chaciha-*. In Korean, besides 'to find/look for', *chac-* is also used to mean 'take' in a restricted sense in such situations as a) 'taking money out of the bank'—i.e.,

<sup>96</sup> The inflection of *kaci-* may be viewed as the result of the influence of English since it is non-target-like but seems to follow the L2 norm related to tense and aspect. This issue will be discussed later in this section.

‘withdrawing money from the bank’—or b) ‘taking back something lost’—i.e., ‘reclaiming’. The difference between the situations a) and b) and that in the fable is that the ownership of the objects of the verb *chac-* in the former belongs naturally to the subject, whereas the object of ‘taking’ in (2) does not currently belong to the subject (the fox).

In addition to the two interpretations, an alternative interpretation may be possible by considering another version reconstructed as (4) below:

- (4) *koki-lul kac-ki-ø wihay*  
 meat-AC have-NML(-AC) serve.CONJ  
 ‘in order to have the meat’

(the author’s reconstruction of (2))

Being unable to access the target item, Han might have accessed a more general term *kaci-* ‘have’, whose shortened form is *kac-*, prior to phonological encoding (cf. Levelt, 1989), where a wrong selection of the first phoneme *ch* was made. It could be possible that this wrong selection was due to the identical occurrence of the three phonemes following the first ones in both *chaci-* and *kaci-*, and this might have led to the production of *chac-*, which might have been *kac-* the contraction of *kaci-*, if the first phoneme had been correctly selected. Although this resembles a *slip-of-the-tongue* phenomenon, a long pause of 3.4 seconds preceding the phrase (see (2) above) leads one to speculate that there was a serious disruption in planning<sup>97</sup>. In addition, there was no perceivable pause or self-correction before or after *chac-*, which would have occurred if it was a momentary inaccessibility. While it is unclear which of the three hypothetical mechanisms of disruption took place, it is clear that Han’s mental lexicon is undergoing restructuring due to inaccessibility to some items or partial accessibility to semantic/pragmatic/morphological/phonological features to others, leading to substitution of one with another or merger of two items that share some of those features.

The last set of verbal items to investigate in Table 5.2 is those used to describe the scene where the lion was tied onto a tree. The two verbs have different semantic features and

<sup>97</sup> Although Han mentioned interference from the English word ‘meat’ when asked about the pause before ‘*koki*’ occurring in the earlier part of this story, the pause here does not seem to be due to such interference, since ‘*koki*’ had been used several times before uttering the phrase in (2).

morphological structures as shown in the gloss provided in Table 5.2. That is, *mwukk-* is a simple verb while *maytal-* is a compound of *may-* ‘tie’ and *tal-* ‘attach/suspend’. Although both *mwukk-* and *may-* are translated as ‘tie’ in English, their semantic representations are different: *mwukk-* only refers to the action of tying the object in its entirety in order not to be released whereas the scope of *may-* is broader—it represents the action of tying itself, as well as tying the object to be connected to something (e.g., tying a dog to a post using a leash). Han might initially have selected *may-*, which he might have evaluated as being safer and easier to process<sup>98</sup>. However, he might have perceived the semantic feature of *may-* that was not in accordance with the description of the scene in the cartoon strip where the whole body of the lion was tied onto the tree. This might have led him to access another lemma attributed to *tal-* to add the meaning ‘to attach’ and produce a compound verb *maytal-*. However, this compound does not retain the original meanings of the two verbs before compounding but only denotes an action of hanging (suspending) an object (in the air). This is not in accordance with the event that took place in the story. As was the case with *chac-* discussed above, there was no pause or self-correction immediately before or after this word<sup>99</sup>, suggesting that Han was confident about using the verb to describe the given scene. Together with the case with *chac-*, this seems to suggest that Han’s self-monitoring mechanism during his language production procedure did not recognise the wrong selection or otherwise could not remedy it (cf. Levelt, 1989; Olshtain & Barzilay, 1991).

Comparison between the lexical items examined above and those which other late bilinguals and 12-year-old monolinguals used revealed that the majority of the participants either selected lexical items which were identical or equivalent (in its specificity) to the original or described the given scene in a more elaborate way without using the given word (see Appendix M). However, it should be noted that there were always a minor number of participants in both groups who also showed a preference for semantically general terms and

<sup>98</sup> In K. Kim (2003), which includes a frequency-based classification of a corpus of Korean vocabulary, *may-* is classified into the basic level of vocabulary, while *mwukk-* is classified as a level 2 item.

<sup>99</sup> There was however a relatively long pause of 1.7 seconds between the preceding AS-unit and the unit where this verb occurred.

simpler forms. As such, this tendency of preferring more general terms over specific ones may be a necessary condition for bilingual's declining L1 ability for lexical access and retrieval, but it may not constitute a sufficient condition, since some monolinguals also show a similar tendency. However, the analysis of Han's non-target-like use of some lexical items suggests that the abstract-lexical structure of his L1 lexicon might be undergoing attrition, since such use was not found in the data from the 12-year-old monolinguals.

Han seems to have difficulties in retrieving not only lexical items but also bound morphemes across categories. Consider (5) below:

- (5) *kkamakwi*-(.6)-*lang* *yewu-ka* *iss-ess-supnita*  
 crow-(.6)-COM fox-NOM exist-PST- DEF:DC  
 'There was a crow and a fox'

(Han: Line 1, Story 1)

In (5), a pause of .6 seconds occurs between a noun *kkamakwi* 'crow' and its accompanying commitative case marker *-lang*. In Korean, a pause between a noun and its case marker is not acceptable (J. J. Song, 2005). Furthermore, its occurrence within a relatively short subject NP *kkamakwi-lang yewu* 'a crow and a fox' seems to suggest that Han was experiencing difficulties in selecting a case marker. While there are a few occurrences of perceptible pauses in a similar structure in other bilingual participants' data but none in the 12-year-olds', Han's data show a number of pauses and other types of hesitation in the same structure as in: *yewu*-(.)-*nun* (fox-TOP: line 2, Story 1); *koki*-(.)-*lul* (meat-AC: lines 2 and 5, Story1); *yewu*-(.)-*ka* (fox-NOM: line 7, Story 1); *kkamakwi*-(.)-*ka* (crow-NOM: line 8, Story 1); *saca*-(*lul*)-(1.5)-*lul* (lion-AC: line 7, Story 2); *yakhan ca*-(.8)-*lul* (weak person-AC: line 10, Story 2).

Han also seems to have difficulties in using verb inflection as shown in (6) and (12):

- (6) *kuntey yewu-ka* (.6) *\*encey cinaka*-(.6)-*\*ass-taka* (.) *kkamakwi-ka*  
 but fox-NOM (.6) \*when pass.by-(.6)-\*PST-CONJ (.) crow-NOM  
*koki-lul* (.) *X-e.se ku* (.5) *koki-lul thamnay-ss-supnita*  
 meat-AC (.) X-CONJ that (.5) meat-AC covet-PST- DEF:DC  
 'but \*when while the fox was passing by, the crow X(ed) the meat, so (he)  
 coveted (desired to have) the meat'

(Han: Line 4, Story 1)



-(*e/a*)*ss*, it denotes transference after completion of the embedded event. Consider the following examples:

(10) John-*i*      *kyohoy-ey*      *ka-taka*      *wuli*      *cip-ey*      *w-ass-ta*  
 John-NOM    church-LOC    go-CONJ    our    house-LOC    come-PST-DC  
 ‘John came to my place on his way to church’

(11) John-*i*      *vkyohoy-ey*      *ka-ss-taka*      *wuli*      *cip-ey*      *w-ass-ta*  
 John-NOM    church-LOC    go-PST-CONJ    our house-LOC    come-PST-DC  
 ‘John went to church and then came to my place’

In (10), the event ‘going to church’ has not been completed before ‘coming to my place’, whereas ‘going to church’ in (11) is an event completed prior to ‘coming to my place’. In (6), the events in the embedded clause (that the fox was passing by) and the main clause (desiring to have the meat)<sup>101</sup> have the same temporal relationship between those in (10). That is, the fox’s first action was interrupted and shifted to the next action. While Han’s selection of the temporal suffix *-taka* was appropriate, tense-marking with past suffix *-ass* for the embedded verb *cinaka-* was not since the time reference for both embedded and main events is the same.

While the long pause before *-ass* in (6) seems to suggest Han’s lack of confidence in this grammatical constraint as illustrated above, a similar error related to the use of tense marker occurs spontaneously in a more complex structure with *-teni* in (12) below.

(12) *saca-ka*      *kapcaki*      *kkayena-\***ss-teni* (.)      *sayngcwi-lul*  
 lion-NOM    suddenly    wake.up-*\*PST-CONJ* (.)    mouse-AC  
*pw-ass-supnita*  
 see-PST- DEF:DC  
 ‘The lion suddenly woke up and saw the mouse’.

(Han: Line 3, Story 2)

While the embedded clause ending with *-teni* follows the second type of tense marking, this is also constrained by the person of both the embedded and main clauses. When there is no tense marking in the embedded clause, its implied/overt subject is usually the second or the third person and this denotes that the speaker has observed the embedded event which constitutes a pre-condition or background to the main event as in (13), or that the occurrence of the main

<sup>101</sup> While it is impossible to interpret the second clause in (4) ‘*kkamakwi-ka koki-lul X-ese*’ due to the unintelligibility of *X-ese*, its function as an adverbial clause denoting the cause of the main event is clearly marked by the clause ender (i.e., conjunctive suffix) *-ese*.

event is contrasted to the observed event in the embedded clause<sup>102</sup> as in (14). In these situations, the person of the main clause is usually the same as that of the embedded clause.

- (13) *camtul-teni kho-lul kol-ki sicakhay-ss-ta*  
 fall.asleep-CONJ nose-AC snore-NML begin-PST-DC  
 (\*I/you/he/she/they) fell asleep and then (\*I/you/he/she/they) started snoring.

- (14) *achim-ey-nun nalssi-ka huli-teni ohwu-ey-nun*  
 morning-LOC-TOP weather-NOM cloudy-CONJ afternoon-LOC-TOP  
*kay-ess-ta*  
 get.fine-PST-DC  
 ‘In the morning, it was cloudy, but, in the afternoon, (it) got fine.’

When *-teni* is preceded by *-(e/a)ss*, the subject of the embedded clause should usually be the first person (i.e., the speaker) and this denotes a situation where the main event occurs/occurred as a result of the completion of the embedded event as in (15).

- (15) *kongpwu-ul manhi hay-ss-teni phikonha-ta*  
 study-AC much do-PAST-CONJ tired-DC  
 ‘(I) studied a lot, so (as a result) (I) am tired’.

In the case of (12), the lion saw the mouse as it woke up. Since the subject of the embedded clause is the lion (the third person), no tense marking is allowed to precede *-teni*. Thus, (12) could be reconstructed without *-ass* in the embedded clause as (16) below:

- (16) *saca-ka kapcaki kkayena-teni sayngcwi-lul pw-ass-supnita*  
 lion-NOM suddenly wake.up-CONJ mouse-AC see-PST-DEF:DC  
 ‘The lion suddenly woke up and saw the mouse’  
 (the author’s reconstruction of (12))

While Han used only limited kinds of conjunctive suffixes (i.e., *-taka*, *-(e/a)se*, *-ko*, *-teni*, and *-(u)nikka*), he also seems to have experienced different degrees of difficulties in selecting the correct form of the given verb. Of the five conjunctive suffixes, *-ko*, a most frequently used conjunctive (Haeyeon Kim, 1992) and an equivalent to ‘and’<sup>103</sup>, seems to be

<sup>102</sup> The conjunctive suffix *-teni* may be further analysed as a combination of a retrospective mood suffix *-te* and a conjunctive suffix *-ni*, which has a similar function to *-(u)nikka* (Ko, 1989). Since *-te* denotes the retrospective mood, it inherently carries the past feature semantically. Thus, it is considered that the reference time of the event in a clause ending with *-teni* is always the one preceding the actual speech time. For detailed discussion on the use of *-te*, see Lee (1991) and S.-O. S. Sohn (1995).

<sup>103</sup> While there is on-going debate on the status of this suffix as a subordinative or a coordinative conjunctive related to the sequentiality or simultaneity of the events in the embedded and main clauses, discussion on this issue is beyond the scope of this study. For discussion on this issue, see Haeyeon Kim (1992) and S.-O. S. Sohn (1995).

the only suffix that Han is comfortable with in tense-marking. No perceivable pause is found between a verb stem and *-ko* in his narrative data with correct tense marking (i.e., zero marking in this case). With other conjunctives, he tended to hesitate at a slot for tense suffix and/or actually put a past suffix *-(e/a)ss* for an embedded verb in accordance with the tense of the main clause. Data from the 12-year-old monolinguals showed no errors in tense-marking in embedded clauses. This suggests that the morphosyntactic system of Han's L1 may be undergoing L1 attrition in its tense-marking in conjunctive constructions in favour of L2 syntactic rules, where agreement of tense in the main and subordinate clauses should be observed in the realisation of the tense marker. There were some short pauses with *-(u)nikka* while there were relatively long pauses and even stuttering with *-(e/a)se*. However, Han managed to produce the correct forms in both cases. On the other hand, as discussed above, Han seemed to have a great degree of confusion in (non-) tense marking with *-taka*, while he seemed to have no hesitation in violating semantic and morphosyntactic constraints on *-teni*. It appears that the violation of L1 syntactic rules occurs to a greater degree with suffixes whose semantic/syntactic function is complex and opaque.

Han also seemed to experience confusion between L1 and L2 syntax in constructing a time adverbial clause. In example (6) above, a pause of .6 seconds occurs before *encey*. Its lexical equivalent is 'when' in English. However, the functions of the two words are very different. While *encey* is used as an interrogative equivalent to 'when', it does not have a function of a conjunction or a relative adverb. Unlike 'when', it is used as an indefinite pronoun equivalent to 'sometime'. In Korean, as already shown, the temporal aspect of an embedded event in an adverbial clause is either realised by verb inflection with an appropriate conjunctive suffix that connects the embedded and main clauses, or by construction of a relative clause for time using appropriate grammatical rules and elements (see H.-M. Sohn, 1994). *Encey* is not used for either. During the long pause preceding *encey*, Han might be having difficulties in deciding whether to construct a conjunctive clause on analogy with an English conjunction 'when'. The final product is a very much non-target-like L1 clause. In the

clause *\*encey cinaka- \*ass-taka*, we find the lexical calquing of the English conjunction ‘when’ resulted from re-analysis of the function of the calqued L1 word *encey* and the entailing tense-marking in the embedded clause in favour of the English morphosyntactic rule.

An alternative reading of *\*encey cinaka- \*ass-taka* may be ‘(the fox) was passing by sometime, and...’ taking the second meaning ‘sometime’ for *encey*. While this may be grammatically correct, it sounds non-native-like since *encey* needs an additional time-word/phrase (i.e., indicating past) to be used to mean ‘sometime in the past’ but not ‘in the future’. For example, ‘John-*i encey* London-*ey ka-ss-ta*’ (John sometime London-to went) ‘John went to London sometime’ sounds non-target-like, while ‘John-*i caknyen encey* London-*ey ka-ss-ta*’ (John last year sometime London-to went) ‘John went to London **sometime last year**’ is acceptable since *encey* is specified by *caknyen* ‘last year’ to mean ‘sometime last year’. It is possible that Han was associating *encey* with an English word ‘once’, a lexical item that often appears at the beginning of a fable or a fairytale where the background of an event is introduced.

*Encey* occurs in another AS-unit which precedes the one introduced as (6) above. Although it occurs in a seemingly simpler structure, a closer look calls for a more complicated interpretation. Consider (17) below:

- (17) (yewu) (.) (-nun) *kkamakwi-ka* (.6) *\*encey* (1.3) *koki(.)-lul* (.)  
 (fox) (.) (-TOP) crow-NOM (.6) *\*when/?sometime* (1.3) meat(.)-AC (.)  
 (a) *kaci-ess-supnita* (1.2)  
 (er) have-PST-DEF:DC (1.2)  
 ‘when the crow had meat’ / ‘the crow had meat sometime’  
 (Han: Line 2, Story 1)

Since the utterance in (17) consists of a simple clause, *encey* might have been used as an adverbial to mean ‘sometime (in the past)’, lacking an additional phrase to denote that the adverbial referred to the past. Alternatively, this might be shown as a more advanced level of convergence of the grammatical function of *encey* to that of an English conjunction ‘when’. That is, it may be assumed that Han was trying to construct an utterance with (17) as a subordinate clause introduced by *encey*. By placing *encey* as the head of the embedded clause

and dropping the conjunctive suffix at its end and ascribing the function of *encey* to that of ‘when’, the structure of the combination of (17) and the next AS-unit conforms to the English one to a greater degree than that shown in (6). Furthermore, scrutiny of Han’s data showed a deviant intonation pattern in (17) as a declarative sentence. In Korean, the most typical intonation contour for the utterance-final phrase of a declarative sentence is that with neutral tone lasting to the point before its last syllable where rise and fall occurs (see H.-M. Sohn, 1999)<sup>104</sup>. While Han generally conformed to this pattern throughout his narratives where all the utterances were in the form of statements, the intonation contour of the clause illustrated in (17) did not follow this pattern, but was closer to that of non-final phrases in Korean.

The above interpretation regarding the use of *encey* is tentative since such use was not found in data from either the bilingual or monolingual group. However, all the interpretations provided from different views seem to suggest that such specific parts of Han’s L1 syntax might be undergoing change through the mapping of conceptual and morphosyntactic features onto those of their L2 equivalents.

In addition to the ambiguity of Han’s use of *encey*, example (17) shows another possibility of attrition in the temporal expression of the verb *kaci-* ‘have’. While the English equivalent of *kaci-* is ‘have’, the state of maintaining possession is only expressed in a complement clause construction *kaci-ko iss-*. In Korean, the durative aspect is expressed through a structure *-ko iss-* (-CMPLR exist), an equivalent to ‘be -ing’ in English. In this structure, the verb stem suffixed by *-ko* carries the meaning while *iss-* functions as an auxiliary for the durative aspect and receives all required inflections. Consider (18) and (19).

- (18) John-*i*      *chayk-ul*    *kaci-ko*      *iss-ess-ta*  
       John-NOM book-AC    have-CMPLR    exist-PST-DC  
       ‘\*John was having a book/John had a book’

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<sup>104</sup> H.-M. Sohn (1994, pp. 461-462), refers this pattern as the 2—2.31# contour where neutral tone (i.e., level 2) is continued until the point (i.e., the last syllable boundary marked as .) before the final syllable where rise (level 3) and fall (level 1) occurs before a pause (#). This indicates the end of an utterance for statements and other types of utterance similar to those that require a final rise-fall pattern in English. While the 2—2.4# pattern, where 4 refers to the extra high level, is typical of yes-no question, all non-final phrases receive a 2-2.3# contour.

- (19) John-*i*      *chayk-ul*    *kaci-ess-ta*  
 John-NOM book-AC have- PST-DC  
 ‘John \*had/ took/got a/the book’

While (18) denotes that John was maintaining the ownership of a book which he had obtained, (19) only states the event where John obtained a book at a certain point in the past.<sup>105</sup> Likewise, in order to describe the scene where the crow was holding the meat obtained somewhere before the reference time—past—and in order to use *kaci-* appropriately, the sentence should have been *kkamakwi-ka koki-lul kaci-ko iss-ess-supnita* (crow-NOM meat-AC have-CMPLR exist-PST-DEF.DC) ‘The crow had meat’ (for further discussion of *-ko iss-* construction, see S.-s. Oh, 1998; H.-M. Sohn, 1994; S.-O. S. Sohn, 1995). Han’s use of the simple past form of *kaci-* suggests that he might have mapped the semantic properties of its English equivalent ‘have’ onto *kaci-* and extended them to its morphosyntactic realisation.

Scrutiny of data from other participants revealed that there were no errors related to the use of past suffix in the embedded clauses ending with conjunctive suffixes. In late bilingual participants’ data, pauses or other hesitation phenomena are also found, but mostly conforming to the rule that pauses should occur at constituent boundaries. Han was the only participant to pause between a verb stem and its past suffix *-(e/a)ss*<sup>106</sup> and to use the *-ko iss-* construction for the durative aspect of *kaci-* and *encey* in a non-target-like way.

Han was aware of his own lack of confidence with constructing complex structures applying various and sometimes opaque rules. He seems to construct his utterances in a simpler structure using more one-clause sentences and coordinative constructions with fewer constraints than subordinative constructions. When asked about the lengthy pauses in *sayngcwi-lul ttak cap-a kaci-ko* (2.2) (*mek-key*) (.) *mek-keyss-ta-ko hay-ss-nuntey* (2.5) (mouse-AC decisively catch-CMPLR have-CONJ eat-INT-DC-QUOT say-PST-CONJ) ‘(The lion) caught the mouse decisively and said (he) would eat (him), but...’ (Han: Line 4\_Story

<sup>105</sup> Permanent ownership is expressed in various ways without using *kaci-*. For example, ‘I have brown hair’ is translated into Korean as *na-nun meri-ka kalsayk-ita* (I-TOP hair-NOM brown.clour-is); ‘I have a daughter’ as *na-nun ttal-i hana issa* (I-TOP daughter-NOM one exist).

<sup>106</sup> In Korean, suffixes for verb inflection that precede the clause/sentence ender are optional but must be in a strict order when presented. As for the past suffix, only the subject honorific suffix *-si* is allowed to occur between the verb stem and past suffix *-e/a.ss*. For further discussion, see H.-M. Sohn (1999, pp. 232-235)

2), he described the strategies he was using to facilitate the on-line process and compensate for his lack of confidence under the pressure he felt during this process:

- Han: I was trying to make the sentences longer but I ended up making them shorter, so... (After this comment, Han expressed at length it would have been better if he connected the first four sentences, which have been segmented into five AS-units in the transcript, and attempted to reconstruct them)<sup>107</sup>
- R: Do you mean that you did not like making each sentence short and that you were at pains to connect them somehow?
- Han: Yes, yes. I wanted to tell the story like that [with longer—i.e., complex or sophisticated—sentences], but had to make each sentence short, so... If I could think of the sentences quickly, it [i.e., making longer sentences] would have been better. But it turned out not to be...
- R: Why did you think you had to make the sentences shorter?
- Han: Just to carry on with shorter sentences... So I felt it easy to continue...  
(Han: stimulate recall)

The above remark provides a clue to Han's having the lowest score in L1 G-C. Due to this strategy of making utterances in a simple and short structure, Han seems to have been able to avoid errors that would have occurred otherwise. This also provides a clue to his performance in L1 accuracy, which was not the lowest in spite of subjective evaluations of his low proficiency.

The above analysis suggests that morphosyntactic semantic properties in Han's L1 system might have gone through restructuring to a considerable degree. Furthermore, this procedure seems to have been conflated by difficulties in accessing the mental lexicon and retrieving a wrong lexical item with morphosyntactic features that are not congruent with what was meant to be retrieved. Although the above examination of Han's non-target-like use of L1 forms above is not exhaustive<sup>108</sup>, it has been demonstrated that, for this speaker, influence from L2 takes effect in a subtle way on the vulnerable aspect of the L1 elements which are semantically ambiguous and morphosyntactically optional.

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<sup>107</sup> Due to many fragmental non-target-like phrases in the original comments, a summary is provided instead.

<sup>108</sup> The aspects that are not covered include the lack of variety in conjunctive adverbials, inappropriate use of ellipsis and *pro*-replacement etc.

### **5.2.3 Summary**

This section examined L1 properties that might be undergoing attrition in Han's L1 system. Analysis of non-target-like L1 forms suggested that Han's L1 system at all levels might be undergoing attrition as a result of influence from L2, in spite of his low L2 proficiency. Although the L1 is self-reported to be his dominant language for most of his social interactions, this does not seem to be beneficial to maintaining his L1 proficiency and/or recovering what might have been lost from his L1 properties during the extensive exposure to an L2 environment in his first years in a new country. In spite of his desire to 'learn' the L1 to identify himself with his L1-speaking fellows, and to 'learn' the L2 "because he lives in an L2-speaking country", Han seems to be in the margin of the two, a world of semilingualism.

## **5.3 Hyun: the acculturated L2 user**

### **5.3.1 L1 performance and personal voice**

While Hyun is around the same age as Han, he has a very different social background. Hyun's L2 learning started in a *desert island* environment at the age of 13. He attended a private boarding school in the UK, which prohibited non-English-speaking students from using their mother tongues. After 6 months, he returned to Korea for a few weeks before leaving for Samoa with his family. He then came to New Zealand alone and lived with an English-speaking host family until he entered university in a city with a very small Korean population. In this city, he stayed with his English-speaking friends while finishing his degrees. Although he occasionally telephoned his parents in Samoa and visited them during school breaks, the desert island context continued until his recent return visit to Korea. At the time of data collection, he was staying temporarily with one of his parents' Korean friends in Auckland.

The researcher's first impression of Hyun was that he was very fluent in English and very much acculturated to the L2 culture. He spoke in Korean relatively quickly, and with very much anglicised intonation and pronunciation. His gestures and attitude towards the researcher also appeared anglicised. In contrast to most of the bilingual participants, he

showed little reluctance to code-switch during the interview and stimulated recall sessions, although he sometimes asked for permission to switch to English. When the researcher initiated the switching to L2, he readily responded in L2. Hyun was the only participant who engaged in intersentential code-switching during the interview and stimulated recall sessions.

Although Hyun seemed to have gone through an extreme degree of L1 deprivation throughout his adolescence and early adulthood, he estimated his L1 proficiency as improved to some degree since the time of his immigration. He comments on this issue as follows:

Of course vocabulary might have reduced. But ... I learned how to show respect to the person I speak to, that is, how to speak without causing offence to him ... Language is the kind of thing you learn as you get older, isn't it? So I think it has *improved* naturally.

(Hyun: interview)<sup>109</sup>

Hyun goes on to add justification for the limited degree of improvements:

I didn't avoid Koreans on purpose. But I was in such an environment. What I liked was already different from what Korean kids liked. Because I tried hard, from the beginning, to play rugby, cricket .... And I came to like them. Then I looked around and found no Korean kids in the group that I mixed with. And I didn't live with my family ... So I spoke less and less Korean...

(Hyun: interview)

The more he acculturated to the L2 during his second socialisation as an adolescent, the more deeply he seemed to have perceived his decreasing L1 proficiency. While he emphasised that he did not avoid Koreans on purpose, he also expressed in other parts of the interview that he was not willing to speak Korean because he did not want to be looked down upon. Hyun was aware that not being able to speak good Korean was not acceptable as a Korean, a sentiment felt by some other bilinguals in the present study and by participants in other studies on K-E bilinguals (see for example, Cho, 1998; Jo, 2000; Johri, 1998). He reports on his perception on his L1 proficiency and the Korean community:

... I thought Koreans would look down on me if I didn't speak good Korean, so I tried to avoid speaking Korean.... As for speaking English [when I first started learning English], I did not have to worry because I knew that they would not criticise me

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<sup>109</sup> Hereafter in this section, the extracts from the interview and stimulated recall protocols are presented as a summarised version in English, since his data are mixed, with code-switching and ungrammatical L1 structures. His original versions in English or Korean are put in italics or underlined respectively only when necessary.

because it was natural I could not speak English well. But being unable to speak Korean well as a Korean born in Korea ... Shall I call it a *shame*? And this made me very uncomfortable to speak Korean...

(Hyun: interview)

Hyun seemed to have maintained a negative attitude towards the L1 community throughout his adolescence and early adulthood as his L2 proficiency increased and he became increasingly acculturated to the L2. This attitude seems to have been conflated with the feeling of being alienated that he had experienced in his first 2-week visit to Korea and during the first 2 weeks of his last visit. Hyun describes this feeling as follows:

Each time I arrived in Korea, I felt very uncomfortable...I always thought that Korea was my home but everything was so different [from what I remembered about Korea as my home country] ... *Because you think that was your home country your home then ... when you go there, it's not...You just feel so lost you don't fit in here [i.e. in Korea] and you don't fit in New Zealand either...*

(Hyun: interview)

Hyun's attitudes changed completely, however, during the next two and a half months. He took a computer programming course and had an opportunity to change his negative view and his own L1 proficiency. He reports on this experience:

When I was among the people of my age or older, ah! I realised my Korean was so poor.... I thought at first they would criticise me for not using honorific expressions properly to those older than me and not showing respect to them in the Korean way. To my surprise, they did not, but were nice to me.... So I thought they were okay with my Korean, but one day one of them advised me in a friendly way that I should not talk that way and showed me how to.... After that, I changed my view of how they might think about my poor Korean. I found that people wouldn't find fault with my Korean and just tried to speak more. Since then, I made more efforts to speak Korean whenever I met a Korean....

(Hyun: interview)

As alluded to in his comments above, Hyun seemed to have cultivated his emotional attachment to his home country—i.e., the memory of the home country—during the long absence from the home country, in spite of his high degree of acculturation to the L2 culture. Since the attachment was so strong, the cultural shock on arrival might have been also powerful, leading to a feeling of being alienated that could not be overcome within a few weeks. After recovering from the initial culture shock and the feeling of embarrassment for his “poor Korean”, he seemed to have experienced a reverse acculturation to the L1 culture,

perhaps, similar to the way adult L2 learners feel about L2 when they are exposed to L2 culture (Schumann, 1978). Through the immersion with his L1-speaking peers in his home country, Hyun might have acquired some new L1 knowledge and/or recovered some of his L1 proficiency perceived to have been lost. While he was grateful to be able to ascertain that Koreans might accept him in spite of his low L1 proficiency, he was worried about the cost of his L2 proficiency:

(To the question if he felt his Korean had improved during the return visit) Yes. But it's also interesting whenever I come back [from Korea] my friends say "*you talk funny [in English]*".... *They always comment on it.... "your grammar is odd like all the and stuff like are missed"*.... *They say ... every time I talked to my Korean friends my accent changed....* So I'm worried because I'm staying with a Korean family using Korean. I feel at home with this family but I'm always concerned: "ah... I might be changing so much that my friends may not understand what I say [in English]"  
(Hyun: interview)

As already reflected in his comments, his pattern of language choice shows a clear preference of L2 use. The only domain where L1 use is reported as dominant is the family (which he had limited contact with) but his degree of L1 use in the family was the lowest of the entire late bilingual group. His degree of L1 use is reported as particularly low when addressing his mother—using equal amounts of L1 and L2 use (see 4.2.2.1.1). His score for the degree of L1 use with Korean friends was also the lowest of the late bilingual participants. The only social domain where Korean was reported as being used was church-related domains (i.e., Sunday services/mass; reading the Bible/prayer), due to his attendance at a Korean service with the Korean family he was currently staying with. Most of his other language choices were exclusively L2, except for memorising phone numbers. His preference for exclusively using the L1 for this function has been discussed previously (see 4.2.2.3).

Hyun's comments on his perceived L1 proficiency seem to be in accordance with his proficiency data. Although he recorded the second to lowest score for accuracy and fourth to lowest for vocabulary, his scores for other measures were generally equal to or better than the average of the entire group. It was particularly noteworthy that his scores for L1 G-C and L1 L-D were in the top four, which may be a result of his recent intensive immersion in an L1

speaking environment. It was also interesting that his L2 proficiency data were also in accordance with the researcher's first impressions, the comments from his English-speaking friends and the worries expressed in the excerpts quoted above. That is, while he recorded the top score for L2 fluency and third from the top for L2 L-D, his performance on L2 accuracy was not as good. Rather, it was slightly below the average. In the next section, Hyun's story-retelling data are examined in order to illuminate how attrition and relearning interact in his linguistic system.

### ***5.3.2 Signs of attrition or relearning?***

Hyun's story-retelling data may be characterised by short lengths (in both words and time spent), the small number of AS-units in each narrative, and the multiple embedded clauses in each AS-unit—i.e., longer and complex sentences. Hyun seemed to have achieved what Han was striving for but never achieved—to make his speech sound more sophisticated. Although Hyun's speech sounded more fluent, it also contained deviant L1 forms and was more non-native-like than Han's due to his somewhat anglicised pronunciation. While other participants' L1 phonological system seems generally intact, Hyun's data reveals some features related to phonology that are not noticed in other participants' data. All stop consonants in Korean are voiceless and each utilises a three-way contrast: plain (lax), aspirated, and tense consonants, e.g., /k/, /k<sup>h</sup>/, and /kʰ/. There are no voiced stops in the Korean phonemic system, but the plain /p, t, k/ become voiced between voiced sounds (H.-M. Sohn, 1999). Although Hyun seemed to be able to maintain the basic three-way distinction in stop consonants, he optionally replaced the plain (lax) with a voiced in word initial position. Since neither the VOTs nor spectrograms of the Korean phonemes were measured for this study, at the present time, it is difficult to discuss any further the degree of convergence or make comparisons with other participants who generally did not show perceivable variations.

In contrast to Han, Hyun never paused within a minimal constituent—i.e., between a determiner and a noun, a noun and its case marker, or a verb stem and its inflectional suffixes.

There were long pauses at times that decreased his score for L1 fluency to a similar level to the group average although he seemed to speak relatively fast between those pauses. When he perceived difficulties in processing, he reformulated the whole constituent. Hyun describes his mental process during the task when asked to explain the long pauses:

*Just if I were to speak English [to tell the story], I would say how the fox was gonna try to be tricky... say it in English... I was holding it [i.e., saying it in English] trying to not to ... of course I have to put more efforts when you ask in Korean. So by doing that [i.e., pausing to think] I can tell the story more in detail rather than just say it out loud and think about it .... Momentarily I was less alert [to speak Korean], then English was creeping out. Then I try again to stop it consciously...*

(Hyun: stimulated recall)

Due to this laborious constituent by constituent planning, his data reveals relatively little disruption in retrieving lexical items.

There is only one instance throughout the two narratives that clearly shows some disruption in processing of a content word. In story 2, for the scene where the mouse was begging the lion for mercy, after several hesitations, he came up with *kwuwenha-* ‘rescue’ instead of *aywenha-* ‘beg’ as the reporting verb of what the *sayngcwi* ‘mouse’ said. Hyun did not seem to have realised that this was a wrong selection, believing that he accessed the right word by way of English, as revealed in his explanation as follows:

*Just I couldn’t think of the word kwuwenhay-talako<sup>110</sup> ... It’s easier in English, isn’t it? *Begging for life*... So at that point I thought, “Ah, what should this be [in Korean]?”*

(Hyun: stimulated recall)

The above remark suggests that Hyun might be accessing some L1 lexical items via their L2 translation equivalents. This tendency was also noticed in his verbatim records for the vocabulary test. The result in the case of *kwuwenha-* was not successful. It may be speculated that he actually accessed the correct item *aywenha-* first but was unable to process the first syllable and that he placed in the initial slot *kwu*, a form borrowed from another lexical item *kwuha-* ‘save/get’, which shares some semantic features with *aywenha-* and others with

<sup>110</sup> He did not actually use this form in his narrative, but used it in the form of a reporting verb. However, he comments as if he used it as an embedded verb in the reported speech with an auxiliary *-tala* and a quotative particle *-ko*. This also suggests he still could neither discriminate between *kwuha-* and *kwuwenha-* nor access the target item.

*kwuwenha-*. The final product was *kwuwenha-*, which was similar in phonetic form to the target item but different from it in meaning and function. This instance seems reminiscent of one of Han's examples where he seemed to have difficulties in phonological processing of the target item.

The next example illustrated as (20) below shows a violation in morpho-phonemic rules for affixation for the embedded verb *pephwul-* 'grant (a favour)':

- (20) *ike-nun* (.8) *yakha-n ca-hanthey chincel-ul* \**peyphwu-la-nun*  
 this-TOP (.8) weak-RL person-DAT kindness-AC grant-IMP-RL  
*iyaki-pnita*  
 story-be:IND:DEF.DC  
 "this is a story that tells you to show kindness to weak ones"  
 (Hyun: Line 7, Story 2)

The verb *pephwul-*, which was realised as *pephwu-* by Hyun in (20) is one of a few Korean irregular verbs that drop or change the last phoneme of their stems in a certain phonological environment but keep it in another. The phenomenon where the stem-final *l* drops is called *l* deletion. This occurs when the verb stem is followed by /n/, /s/, or /i/ (as in (21b) below), while the *l* is maintained otherwise (as in (21a) below). If the deletion of the *l* is conditioned by the immediately following /i/, the /i/ is subsequently deleted since the /i/ loses its sound value due to the preceding vowel (see (21c) below). This process is illustrated as follows:

- (21) a. *pephwul-* + *-ko* → *pephwul-ko*  
 b. *pephwul-* + *-nuntey* → *pephwu-* + *-nuntey* → *pephwu-nuntey*  
 c. *pephwul-* + *-usi* → *pephwu-* + *-usi* → *pephwu-* + *-\_si* → *pephwu-si*

However, there are exceptions to this rule with some suffixes beginning with an /i/ followed by an *l* or *m* such as *-ulyeko*, *-umyense*, etc. In this case, the original *l* at the end of the verb stem must be maintained and only the /i/ is dropped as in (22) below (cf. H.-M. Sohn, 1994).

- (22) *pephwul-* + *-ulyeko* → *pephwul-* + *-\_lyeko* → *pephwul-lyeko*

In producing (20), Hyun selected *peyphwul-* and tried to suffix it with the neutral-level imperative suffix *-ula* in order to add the subsequent suffix *-nun*. This process should have followed the rule illustrated in (22) due to the initial phoneme /i/ followed by an *l*. Hyun

seems to have applied the more general rule as illustrated by (21c), resulting in a non-target-like form *peyphwu-la-nun*, which should be *peyphwul-la-nun* if produced correctly.

There is another incidence that involves the phenomenon of *l* deletion. However, this case is more complicated since it also involves an inappropriate selection of a content word. In this case, the word is a part of an idiom equivalent to ‘not long after that’—i.e., ‘soon after that’. Hyun used this phrase to describe the scene where the lion was caught soon after he released the mouse. Although the error seems a lexical one and its grammatical form does not seem to violate the *l* deletion rule at first glance, analysis reveals that the error was made in a very complex way. Consider (23) below:

- (23) \**mel-ci anh-a.se...*  
 \*far-NML not.be-CONJ  
 ‘not far (after that)’

(Hyun: Line 4, Story 2)

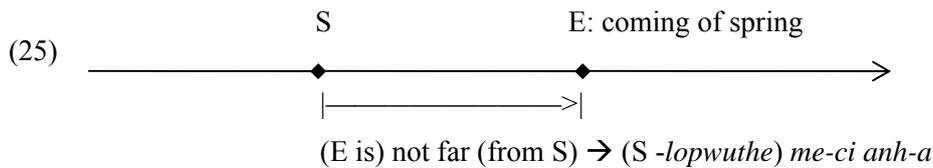
In Korean, the verb *mel-* may be used to mean ‘far’ referring to spatial, mental, or temporal distance. Since its stem ends in an *l*, its inflection generally follows the *l* deletion rule as illustrated above. However, when followed by *-ci anh-a(se)*<sup>111</sup>, the final *l* of *mel-* drops and the whole phrase is used as an idiom meaning ‘soon’. In this case, ‘*me-*’ refers only to temporal distance. When *mel-* keeps the final *l* following the general rule for *l* deletion in this structure, it refers to physical distance as in *hakkyo-ka mel-ci anh-a.se...* (school-NOM far-NML not.be-CONJ) ‘the school was/is not far, so<sup>112</sup>...’ There is an additional constraint in using this idiom as an adverbial. Due to the original deictic element in *mel-* ‘far’ that denotes the time referred to (i.e. the event time in the main clause) is away from (i.e., not yet reached by) the speaker, the tense in the main clause should be marked with a prospective or presumptive suffix to denote that the event time is further advanced relative to the speech time as in (24) below:

<sup>111</sup> *-a* is a shortened form of a conjunctive *-a.se*.

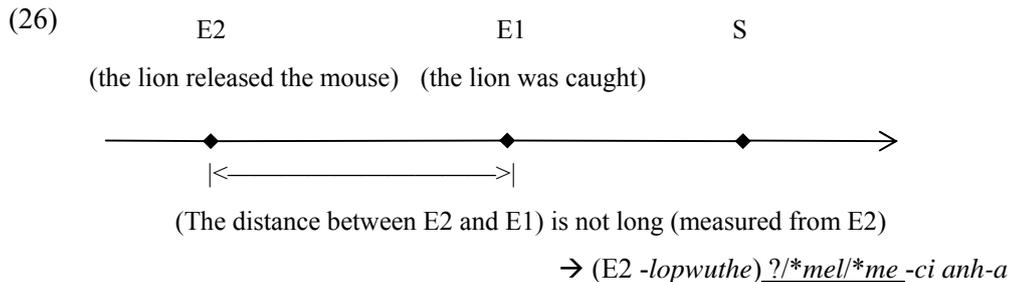
<sup>112</sup> The tense in translation is determined by that of the main clause.

- (24) *me-ci*                      *anh-a(se)*                      *pom-i*                      *o-l*  
 far.in.time-NML    not.be-CONJ    spring-NOM    come-PRS  
*kes-ita/\*w-ass-ta*  
 thing-be.DC/\*come-PST-DC  
 ‘Not long (from now), spring will come/\*came’—‘Spring will come/\*came soon (in the future).’

The relationship between the speech time (S) and the event time (E) in (24) may be illustrated as (25) below.<sup>113</sup>



In the same manner, the time frame surrounding the events occurring in the story where the above phrase (23) was used to describe them may be illustrated as (26):



The suitable word for the frame given in (26) is *olay-* ‘long’ which does not have the deictic element. Thus, the phrase (26) may be reconstructed as (27) below:

- (27) *(ku-lopwuthe) olay-ci*                      *anh-a*  
 (that-from)    long-NML    not.be-CONJ  
 ‘Not long after that’—‘soon (after that)’

One could speculate that Hyun had partial access to the lexicalised idiom and could retrieve the frame *-ci anh-a* but not all the semantic information for *olay-*, resulting in the selection of *mel-*, which shares some semantic features with *olay-*. The next step might be that he put *mel-* in the structure of *-ci anh-a*, reanalysing it as a negative construction (verb stem + *-ci anh-*) suffixed with *-a* instead of recognising the whole phrase as an idiom where *me-* should be inserted without the *l*. There is another equally possible analysis of the data. Hyun might have

<sup>113</sup> For a discussion on the relative tense, see Lee (1991), H.-M. Sohn (1994; 1999), and S.-O. S. Sohn (1995).

initially accessed *me-ci anh-a* as an unanalysed form due to semantic confusion between the two as illustrated as (25) and (26). However, during the process of grammatical/phonological encoding, he might have reanalysed the idiom and perceived the morphophonological ‘irregularity’ of the *me-* as a violation of the *l* drop rule in Korean, without consideration for the semantic change of the idiomatised phrase. As a result, he pronounced the *l*, which would otherwise be correct. Although it is not clear which path Hyun took, this example seems to suggest that semantic distinctions between some lexical items might be becoming unavailable to Hyun and some re-aligning of morphophonemic rules might be occurring in his L1 system.

In other instances, examples were difficult to analyse because it was not clear either which item in the constituents between pauses Hyun was having difficulties in processing or whether he was processing a wrong item without realising its inappropriateness. Scrutiny of his data revealed that there were some categories that might be going through attrition. They are related to rules for case marking, quotative construction, temporal aspects for conjunctive suffixes, and time adverbial clauses, and morpho-phonemic rules for affixation already examined above. As already revealed, Hyun’s errors were very complicated since many of them involved two or more of these rules often conflated by semantic pragmatic factors.

Example (28) shows an error related to case morphology. Korean is rich with a number of postpositional case markers, which express various syntactic semantic functions of noun phrases<sup>114</sup>. These case markers’ function is similar to inflectional suffixes, but they behave in a more word-like way, in that they are frequently omissible (particularly in the case of nominative, accusative, dative, and genitive cases), loosely associated with nominals as opposed to suffixes, and can occur at the end of a clause (H.-M. Sohn, 1994, 1999). It is generally agreed among Korean linguists that nominative, accusative, and genitive cases, which are realised by the respective case markers *-i/ka*, *-ul/lul*<sup>115</sup>, and *-uy*, are syntactic (or

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<sup>114</sup> In Korean case morphology, nominal agreement is not required.

<sup>115</sup> In Korean, some nominal particles and verbal suffixes have two allomorphic forms—one beginning with a consonant and the other without that consonant. The selection between the two is conditioned by the immediately preceding sound. For the particular case markers given here, *-ka* and *-lul* occur after a vowel; *-i* and *-ul* after a consonant. For details of this morphophonemic rule, see H.-M. Sohn (1994, p. 481).

structural) cases, while others such as dative, goal, locative, source, allative, ablative, etc. are considered mainly related to the semantic function of the nominals (H.-M. Sohn, 1999). There is an incidence of inappropriate use of case marker in Hyun’s data. Consider (28) below:

- (28) *yewu-ka kkamakwi \*-lul (.5) (yayki) yayki-lul kel-kilul*  
fox-NOM crow-\*AC (.5) (talk) talk-AC address-as.follows  
‘the fox started to talk to the crow as follows’

(Hyun: Line 2, Story 1)

In Korean, the verb *kel-*, which is used in the above (28), literally means ‘to hook/hang’. It frequently collocates with such nouns as *iyaki* (contracted to *yayki*) ‘talk’, *ssawum* ‘fight’, *nong* ‘joke’, etc. as its direct object to mean ‘to do something to trigger the recipient to respond’ (translated and adapted from Dong-a Say Kwuk.e Sa.cen [Dong-a's New Korean Dictionary] (3rd ed), 1998, p. 112). Thus, in such contexts, this verb always requires two arguments to assign thematic roles—the patient and the goal, which are realised grammatically as direct and indirect objects, marked by an accusative case marker *-ul/lul* and a dative case marker *-eykey/hanthey*<sup>116</sup> as in (29)-(31) below:

- (29) John-*i* Mary-*eykey/hanthey* *iyaki-lul kel-ess-ta*  
John-NOM Mary-DAT talk-AC KEL-PST-DC  
‘John spoke to Mary (expecting she would respond)’
- (30) John-*i* Mary-*eykey/hanthey* *ssawum-ul kel-ess-ta*  
John-NOM Mary -DAT fight-AC KEL-PST-DC  
‘John provoked Mary to fight (with him)’
- (31) John-*i* Mary-*eykey/hanthey* *nong-ul kel-ess-ta*  
John-NOM Mary -DAT joke-AC KEL-PST-DC  
‘John made a joke to Mary (expecting she would respond)’

In (28), Hyun made an error by putting an accusative marker *-lul* for the lexical item *kkamakwi* ‘crow’ (i.e., the goal of *kel-*), where a dative marker *-eykey/hanthey* is appropriate. Since there is no other error in case-marking in Hyun’s story-retelling data, it is unclear whether this is the sign of an onset of disintegration in his morphological system or a singly occurring slip-of-the-tongue phenomenon. Data from other participants were therefore examined. There were some errors related to case marking among the late bilingual

<sup>116</sup> Of the two particles, *-eykey* may be used in both formal and informal situations, while *-hanthey* is used in casual informal situations (H.-M. Sohn, 1999, p. 332).

participants. While the small number of errors among the entire group suggest the case system of the bilinguals are relatively stable, it is interesting most of these errors are related to the accusative and dative case markers as shown in Table 5.3 below.

**Table 5.3 Errors in case-marking among the late bilingual group**

Error type (Standard use → error)	Reconstruction	Data (Pseudonym: ID)
DAT (-ey) → AC (-lul)	<i>yewu-ka kkamakwi-eykey/hanthey yayki-lul kel-kilul...</i> <i>fox-NOM crow-DAT talk-AC address-as.follows</i> 'the fox started to talk to the crow as follows'	<i>yewu-ka kkamakwi-lul yayki-lul kel-kilul...</i> (Hyun: #28)
DAT (-ey) → AC (-lul)	<i>unhyey-ey potap.ha- keyss.ta-ko</i> <i>favour-DAT do.recompensation-will-QUOT...</i> 'that (he) would repay (the lion) for (his) favour'	<i>unhyey-lul potapha-keyss.ta-ko</i> (Kiho:#24)
INSTR (-lo) → AC (-ul)	<i>saca-lul nam.wu-ey pascwul-lo mwukk-e</i> <i>lion-AC tree-on rope-INSTR tie-CONJ</i> '(the hunters) tied the lion onto the tree with rope'	<i>saca-lul namwu-ey pascwul-ul mwukk-e</i> (Jinsu : #01)
AC (-lul) → DAT (-hanthey)	<i>son-ulo kkachi-lul kaliki-myense</i> <i>hand-with magpie-AC point.at-CONJ</i> 'pointing at the magpie with (his) hand'	<i>son-ulo kkachi-hanthey kaliki-myense</i> (Jinho: #10)
∅ → NOM (-ka)	<i>... iyaki-ipnita</i> <i>story-be.DEF.DC</i> '(It) is a story...'	<i>... iyaki-ka ipnita</i> (Bora: #02)

*Note.* DAT = dative case marker; INSTR = instrumental case marker; NOM = nominal case marker.

Table 5.3 shows three incidences where an accusative case marker is used instead of a dative or instrumental case marker, a reverse case of the first three—i.e., the use of a dative case marker for an accusative case—and a case of a nominative added where no case marker is required—i.e., between a noun and a copula. While generalisation is not warranted based on such a small number of incidences, it is interesting that none of the 12-year-old monolinguals made an error in case marking. This seems to suggest that case morphology is well established by the age of 12 years among Korean monolingual children<sup>117</sup>. It is also interesting that three incidences out of five show a preference for an accusative marker for dative and instrument cases. These incidences seem to suggest attrition of the dative case in favour of the accusative case. It is possible that the reducing L1 system of the late bilinguals might start to lose the accusative-dative distinction on analogy of some exceptional cases in standard Korean, where the accusative marker alternates with the dative or directional marker

<sup>117</sup> It has been suggested that nominative and accusative cases in Korean are acquired by the age of 4 years while dative case may be acquired later than this age (Chung, 1994; Han, 1997; Y.-J. Kim, 1997).

before certain verbs such as *cwu-* ‘give’, *ka-* ‘go’, and *sam-*<sup>118</sup> (but not those appearing in Table 5.3) according to the context. The above trend might also indicate the incipient stage of attrition in the L1 morphological system and may be the beginning of a long-term directionality in case merger in line with those found in Russian-English bilinguals in Polinsky’s study (1996), the second generation Croatian-English bilinguals in Hlavac’s study (2000), and in the literature of language contact (Heine & Kuteva, 2005; Huffines, 1989, 1991). However, an example that may appear to go against this trend is also presented in the fourth row of Table 5.3<sup>119</sup>. The last row in Table 5.3 shows an example of overuse of the nominative case marker. This might suggest that L1 case morphology in late bilinguals could also be affected by attrition (cf. Bolonyai, 1999; 2000; Polinsky, 1996, 1997). However, given the few incidences of such errors and considering that these participants are not a random sample, it might be too early to make strong claims and this analysis needs to be interpreted with caution.

The next grammatical category where Hyun made errors is related to quotative constructions. As in English, there are two ways to report speech in Korean—a direct quotation and an indirect quotation. In a written direct quotation, everything is included in its original form within the quotation marks. Writing conventions such as spacing and punctuations are observed in the quoted part as in stand-alone text. In spoken discourse, the quoted part follows the intonation contour of a normal declarative or interrogative structure. In an indirect quotation, the quoted part is integrated as an embedded clause (or embedded clauses) in the main clause. In Hyun’s story-retelling data, there are five instances of indirect quotation, where most of the obligatory rules are observed. There was one exception—the rule relating to honorific expressions. Consider (32) below:

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<sup>118</sup> There is no translation equivalent for this verb in one word in English. The meaning of the verb is ‘to receive (a person) into a family as ~’ as in *wuli-nun Mary-lul myenuli-lo(lul) sam-ass-ta* ( we-TOP -ACC daughter.in.law-as make-PST-DC) ‘We made Mary our daughter-in-law.’

<sup>119</sup> This example seems to be the result of direct translation from an English word ‘to/at’ to a Korean equivalent. Analysis of the example is not attempted in this section since the case of this participant will be discussed in a later section.

- (32) *kkamakwi-\*nim-un wang-chelem mesiss-ta-ko yayki-lul hay-to*  
 crow-\*HON-TOP king-like elegant-DC-QUOT talk-AC do-CONJ  
 ‘although (the lion) said that the \*honourable crow was elegant like a king,...’  
 (Hyun: Line 2, Story 1)

Hyun produced this utterance for the scene where the fox flattered the crow into dropping the meat from its beak. While the original sentence read to Hyun was constructed as a direct quotation where the fox used *kkamakwi-nim* as an address term for the crow with an honorific suffix *-nim*, Hyun’s construction in (32) is an indirect quotation. In this case, *-nim* must be dropped since there is no established social relationship between the crow and the speaker (i.e., Hyun), or the hearer (i.e., the researcher).

Examination of data from other participants revealed that the above type of error was not unique to Hyun. Twenty-eight late bilinguals and nine 12-year-old monolinguals used indirect quotations in their data. Of these participants, nine late bilinguals and three 12-year-olds made similar types of errors related to honorific expressions in quotative constructions. Some of them failed to convert the second person pronoun to *kkamakwi*, while others did not change the verb inflection to an appropriate one for indirect quotation. This seems to suggest that L1 knowledge related to this structure might not have been fully acquired yet at the age of 12 years. Nevertheless, most of the participants in both groups could successfully construct this structure for at least one incidence out of two or three throughout the two narratives they produced, while Hyun consistently made the same type of inappropriate forms. During the stimulated recall session, a few of the bilinguals expressed the difficulties in describing what the fox said. These bilinguals seemed to have realised vaguely that there were constraints in converting a direct quotation to an indirect quotation and that they might have made some errors. Hyun seemed unaware of these constraints; however, he felt using the honorific suffix in the utterance was unnatural as expressed below:

...when the story kind get [sic] carry on, you know, how [do] you call crow as kkamakwi-NIM? when you say kkamakwi-NIM, how was there under crow -nim? you know, there is -nim there. *Because of that [I] have to like think it boss of myself...*  
 (Hyun: interview)

Although Hyun realised vaguely that keeping *-nim* in the indirect quotation in his narrative might indicate a certain hierarchical relationship between the crow and himself in the real world, he was not able to mend the error but regarded it as a feature of Korean that he could not understand.

The next aspect to consider is a morphosyntactic and semantic feature of a conjunctive suffix *-taka*. While this is the same suffix that Han seemed to have difficulties with (see example (6)), Hyun's error is different from Han's. Consider (33) below:

- (33) *kkamakwi-ka* [...] *nolay-lul ha-taka \*koki-\*ka \*ttelecy-ess-eyo*  
 crow-NOM [...] song-AC do-CONJ \*meat-\*NOM \*fall-PST-POL  
 'while the crow was singing, the meat dropped (on the ground)'  
 (Hyun: Line 3, Story 1)

While Hyun used the correct form (i.e. zero tense marking) for the embedded verb, which Han could not do in (6), example (33) shows another violation of the syntactic semantic rule related to the use of *-taka*. In addition to the rule related to the relative tense between the embedded and main clauses which are connected by *-taka* (see examples (10) and (11)), there is another rule that requires agreement between the subjects in both clauses, which is sometimes referred to as Identical Subject Constraint (S. J. Song, 1988, see also Haeyeon Kim, 1992). Consider (34) below which is modified from (10) for the illustration of this constraint.

- (34) *John-i kyohoy-ey ka-taka \*Mary-ka wuli cip-ey w-ass-ta*  
 John-NOM church-LOC go-CONJ \*Mary-NOM our house-LOC come-PST-DC  
 '\*Mary came to my place on John's way to church' ('?While John was going to church, Mary came to my place')

In (34), the use of *-taka* is not appropriate since the event 'Mary's coming to my place' did not interrupt the event 'John's going to church' and there is no way to shift John's action to the main event where Mary is the agent. However, its morpheme-by-morpheme translation into English, as provided in the parentheses, is a perfectly acceptable sentence. This could be further extended to 'Mary came to my place while John went to church'. The word-by-word retranslation of both English sentences into Korean leads to the ungrammatical sentence of

(34) when the constraint concerning the subjects in the main and embedded clauses is not considered. In spite of the correct selection of a conjunctive suffix and zero tense-marking for the temporal aspects of the given events, Hyun produced a non-target-like L1 sentence that violates a constraint in L1 structure but not in L2 structure. A possible reconstruction of (33) is provided in (35) below:

- (35) *kkamakwi-ka* [...] *nolay-lul* *ha-taka* (*pro*) *koki-lul* *ttelettly-ess-eyo*  
 crow-NOM [...] song-AC do-CONJ (*pro*) meat-AC drop-PST-POL  
 ‘while the crow was singing, (he) dropped the meat’  
 (author’s reconstruction of (33))

Comparison between (33) and (35) reveals that the main clause of (33) *koki-ka ttelecy-ess-eyo* ‘the meat dropped’ has a word order (SV) identical to its translation equivalent while that of (35)—OV does not. Thus, example (33) seems to exemplify Hyun’s changing L1 system where L2 syntactic semantic properties are projected into L1.

The next example is related to time adjunct clause constructions. Hyun produced this type of clause for the last scene of story 1 where the fox eventually succeeded in taking the meat when the crow got angry about being tricked. Consider (36) below:

- (36) *kkamakwi-ka* *pwunha-ko* *soksangha-\*n* *ttay* *yewu-ka* *koki-lul*  
 crow-NOM vexed-CONJ embittered-\*RL time fox-NOM meat-AC  
*nakkachay-ss-e.yo*  
 snatch-PST- POL  
 ‘...the fox snatched the meat when the crow was vexed and embittered’  
 (Hyun: Line 4, Story 1)

While temporality is expressed by various conjunctive suffixes in Korean, time may be specified through constructing an adjunct clause using a defective noun *ttay* ‘time’.<sup>120</sup> This construction is a type of relative clause construction in Korean since *ttay* is the head noun modified by a preceding clause that ends with a modifier suffix. A set of rules is specifically required for this construction. When the reference time in the modifying clause and the main clause is identical, the modifier suffix for the embedded predicate (i.e., verb or adjective)<sup>121</sup>

<sup>120</sup> This noun may be followed optionally by a locative particle *-ey* ‘at’.

<sup>121</sup> There are many differences between English and Korean in the function of adjectives. Unlike in English, adjectives function as predicates alone without copular verbs. When it comes to the function of premodification

is usually *-(u)l* (prospective) with *ttay* as the head noun as in (37) below<sup>122</sup>. In normal relative clause constructions with a common noun as the head noun, the corresponding suffix should be *-(u)n* when the predicate is a adjective as in (38) below.

- (37) John-*i*      *khamkhamha-l/\*n*      *ttay(-ey)*      *ttena-ss-ta*  
 John-NOM   pitch-dark-PRS/\*RL   time (-at)   leave-PST-DC  
 ‘John left when it was pitch-dark’
- (38) John-*i*      *khamkhamha-n/\*l*      *pam-ey*      *ttena-ss-ta*  
 John-NOM   pitch-dark-RL/\*PRS   night-LOC   leave-PST-DC  
 ‘John left at night when it was pitch-dark.’

According to this rule, the appropriate ending for the adjective *soksangha-* in (36) should be the *-l* to form *soksangha-l*. In constructing (36), Hyun seems to have applied the general rule for relative clause constructions.

While Hyun’s errors examined above were identified due to their ungrammatical or non-target-like lexical/morphological/syntactic forms, the next example is unique in that it does not include any such forms at the surface level. Consider (39) below:

- (39) *sayngcwi-ka*   *tasi*   *w-ase*      *kuke-l*   *phwul-e*      *cw-ess-ul*  
 mouse-NOM   again   come-CONJ   it-AC   untie-CMPLR   give-PST-PRS  
*ke*      *yeyo*  
 thing   be.POL  
 ‘Probably (I presume) the mouse came again and untied it’  
 (Hyun: Line 6, Story 2)

Hyun produced (39) to describe the last scenes of story 2, where 1) the mouse gnawed away the rope that had been tied onto the lion and 2) the mouse and lion were going away hand in hand after the lion was freed. Up until this point, Hyun described each scene as a series of facts occurring in the past, the norm for temporal anchoring in narrative constructions (Berman & Slobin, 1994). When isolated, (39) seems perfectly grammatical. However, it is notable that its main verb phrase expresses modality through *-ul ke y-* between the past suffix *-ess* and polite ending *-e.yo*. This contrasts to other units in both narratives which generally ended in *-e/a.ss-e.yo* (except for the last unit in story 2 where the moral of the story is stated).

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of a noun, they also behave like verbs—i.e., they cannot freely occur in attributive functions but need appropriate inflections. (for more discussion, see Lee, 1991; H.-M. Sohn, 1994; J. J. Song, 2005).

<sup>122</sup> The discussion is restricted to these particular constraints which are relevant to Hyun’s error exemplified in (33). For details on rules for relative clause constructions and tense-related information on the *-ttay* clause in Korean, see H.-M. Sohn (1994; 1999) and Lee (1991).

The construction *-(u)l ke(s) i-*, which is used in the last part of (39)<sup>123</sup>, is an example of what H.-M. Sohn (1999, p. 378) calls complex predicate constructions. According to H.-M. Sohn (1999) and many others, in complex sentences that contain relative clause constructions with a defective noun, the suffix attached to the embedded predicate, the defective pronoun, and the main predicate which is usually a copula verb are often grammaticalised to function like an auxiliary for various aspectual and/or modality meanings. The structure *-(u)l ke(s) i-* is one of these. Compare (40) and (41):

- (40) John-*i*      *pelsse*    *tochakhay-ss-ta*  
 John-NOM    already    arrive-PST-DC  
 ‘John has already arrived’
- (41) John-*i*      *pelsse*    *tochakhay-ss-ul*    *kes*    *i-ta*  
 John-NOM    already    arrive-PST-PRS    thing    be-DC  
 ‘Probably John has already arrived’

While (40) only conveys factual knowledge of a past event, (41) expresses the speaker’s evaluative judgment on John’s arrival based on the time reference indicated by *-ul kes i-*. Although the structure of *-ul kes i-* may be analysed as a prospective suffix connecting a relative clause to a defective noun followed by the copula and its inflection, its interpretation based on the individual meanings of the subparts is almost meaningless since they are all semi-/bound morphemes whose semantic functions are more or less structurally defined. As the translation indicates, the structure behaves like a single morpheme<sup>124</sup> denoting the speaker’s presumption or speculation about situations inaccessible to him or her<sup>125</sup> (Lee, 1991; S.-s. Oh, 1998). According to Lee (1991, p. 376), this structure allows the speaker “to make a statement about information over which he or she cannot claim authority otherwise” and indicates that information is based on the speaker’s judgment rather than his or her knowledge.

<sup>123</sup> The *ke yeyo* at the end of the unit in (39) is a contraction of *ke* (a colloquial form of *kes*) *i-e.yo* (thing-be-POL).

<sup>124</sup> Due to the productivity of the copula *-i-*, this structure may be followed by various inflectional suffixes (e.g., *-ul + kes + i + nikka* (because) → *-ul ke-nikka*; *-ul + kes + i + ciman* (but) → *-ul ke-ciman*, etc.

<sup>125</sup> When it is not preceded by a past tense marker *-(e/a)ss*, it is frequently used to denote a simple future event (see Lee, 1991, for detailed discussion).

This may provide a clue to Hyun's seemingly abrupt use of this construction in (39). Hyun perhaps attempted to distance himself by using this grammatical device from the ambiguity and inappropriately simplistic description of the given events. That is, although there were at least two events to be described—that the mouse gnawed the rope away and that the lion was freed—the proposition conveyed by *kuke-l pwul-e cwu-ess* '(to) have untied it' in (39) is very simple. Furthermore, it is not clear what *kuke* 'it' refers to. Hyun might have referred it to *saca* 'lion', which was the subject and the patient of a verb *mwukk-* 'tie' in a passive construction in the prior AS-unit. If so, *kuke* 'it' is an inappropriate anaphor for a referent which has been treated as human, since this demonstrative pronoun is only for a non-human third person in Korean and the use of a third person pronoun for a human referent itself is extremely restricted. In Korean discourse, ellipsis (i.e., zero anaphor) or repeating the full NP (i.e., *saca* 'lion') is a more natural expression of a human (-like) referent than using a single demonstrative as an anaphor (cf. Haeyeon Kim, 1992; H.-M. Sohn, 1999). An alternative interpretation of Hyun's use of *kuke* may be that he might have intended to conceptually refer to "what the lion was tied by" drawing on earlier information that "the lion was tied". However, introducing new information and retrieving a new lexical item as an object of the verb *pwul-e cwu-* 'untie' at the point where the story was near to its end would involve a complex process of several utterances. Aware of this and having exhausted his attentional resources in L1, which was not his dominant language, Hyun might have opted for ambiguity instead of going through the whole process. Choosing a demonstrative pronoun *kuke* and its governing verb *pwul-e cwu-* seems very economic for Hyun in this respect. One could speculate that Hyun perceived using a general term *pwul-e cwu-* on analogy of its English equivalent 'untie' which could mean both 'to untie/remove string/rope/cord' and 'to untie/release a person/an animal who/which has been tied'. He might have further perceived that *kuke* as the object for this verb could refer to either the lion or 'the material used for tying' whose information he might have regarded as implicitly provided. Whatever his intention, this process also seems to involve influence from English in that English does not

allow object topic drop and requires pronominalisation of the NP in order to refer to old information, the least preferred anaphoric device in L1 (Haeyeon Kim, 1992). The ambiguity in anaphora related to *kuke* as discussed above and perhaps Hyun's uncertainty about the appropriateness of using this word might have led him to add presumptive or speculative modality instead of following the general conventions of fables— describing the events as facts in the past.

The examples illustrated above, perhaps, reveal some part of the complex interaction between lexical grammatical L1 structures that seemed to undergo attrition and the L1 pragmatics that were recently acquired (or recovered) but not yet fully internalised in Hyun's L1 system. Hyun's errors and non-target-likeness in his use of L1 lexical items and grammatical structures seem to stem largely from the mismatch between his imperfect knowledge of the linguistic features of the given L1 item. This seems to bring about a very complex process. Irregularities in his knowledge on newly acquired/recovered L1 structures appear to interact with L2 interferences and his existing L1 knowledge which may be already affected by attrition. To the question of whether he perceived any interference from one language to the other during the tasks, Hyun responds as follows alluding to the relationships between L1 and L2 in his linguistic system:

It seems to me that you think [conceptualise] before thinking about the language barrier.... (after Hyun tried to reformulate several fragmentary utterances in the L1, the researcher suggested expressing his thought in the L2) *Like you don't have to think about like what language you're gonna think. It just comes naturally to you.... Just whatever is easier... whatever's come to you...*

(Hyun: interview)

L1 seems not to interfere with the L2 since the L2 is automatically selected for the verbalisation of concepts. Perhaps, his L1 production depends on the successful conversion of the concepts that he interprets from the L2 point of view to the surface structure of the L1, as manifested in many of the examples analysed above.

### 5.3.3 *Summary*

Hyun's case may reveal how attrition and relearning are intertwined, perhaps in part due to the change in attitude to his L1 community and his own L1 proficiency. The change in attitude from a negative to a favourable one might have led Hyun to risk errors and produce longer and more complex utterances with diverse lexical items. This might be in a way the reflection of his desire to be regarded as a knowledgeable mature speaker when speaking Korean (cf., Clark & Clark, 1977; Levelt, 1989). This may explain some of his long pauses. By taking this strategy, he might have attempted to compensate for his limited proficiency and apply newly-acquired/recovered skills in L1 pragmatics. Perhaps he might also have been trying to access the L1 items via L2 and convert them into L1 forms during these pauses. Although he might have been able to produce L1 narratives which were relatively rich in vocabulary and complex in grammatical structure, the examples analysed above suggest that many of the L1 elements were realigned according to L2 rules. Furthermore, due to the high degree of acculturation, which was also revealed in the incipient phonological convergence in his pronunciation (see also Major, 1992, 1993), conceptual representations in Hyun's mental lexicon also seem to be undergoing restructuring in favour of the L2, leading to acceptance of deviant L1 forms (Ecke, 2004; Pavlenko, 2000, 2003; Seliger, 1989, 1996). This subjective assessment of acceptability, applied to both the old and newly-learned L1 items, may have led to a more deviant L1 system due to lack of positive evidence in the L2 environment. In spite of the powerful experience during his recent return visit, given his pattern of predominant L2 use for almost all domains of language use, Hyun may remain an acculturated L2 user who is likely to feel uncomfortable with an L1 that does not match the L2 in abstract, semantic, grammatical, and pragmatic features.

## 5.4 *Jun: the awkward loyalist*

### 5.4.1 *L1 performance and personal voice*

Jun's first impression to the researcher was that he looked like a typical young Korean professional. He spoke in a very polite business-like manner during the interview as if he were doing business in Korea. He seemed relatively fluent in the L1 and confident in his ability. He performed the best of the late bilingual group on L1 fluency and L1 M-D and was ranked fourth from the top on L1 G-C. His performance on L1 vocabulary knowledge was just over the average of the late bilingual group. His L2 performance was also good, scoring the highest for L2 L-D and L2 G-C, and in the top six for L2 fluency. The only anomaly was in his L1 accuracy.

In spite of his proficiency in the L2 and the exclusive use of the L2 for his daily work, Jun seems very loyal to L1 use when interacting with L1 speakers. He made it very clear that his language choice depends on his assessment of the interlocutor's L1 proficiency and that he usually tries to keep to the L1 for any interaction. He gave the reason for not mixing the L1 and L2 in speech by simply saying that Koreans should speak Korean among themselves, suggesting his awareness of the link between Korean language and identity. His awareness was also revealed in his language choice in the questionnaire where, although he started with English, he quickly switched to Korean. His explanation for this practice is as follows:

Using English seemed easier, but I wanted to use Korean because I'm a Korean and could understand Korean. I used English for the first page because I didn't know what to put as my occupation in Korean.... In the next page, because I could understand Korean, I started to use Korean and never thought of switching back to English.

(Jun: interview)

The principle of 'using Korean among Koreans' seems consistent in his language choice practice within the family domain where the L1 is used exclusively. This is a characteristic of his family discourse. His family members use the L1 among themselves even though all except his mother can speak English. Jun reports that both he and his younger sister keep to the L1 even when quarrelling. Jun recalls that, when he was still a student, he read

whatever was available in the L1—from fairytales to great classics—and that whenever he found difficulties in understanding vocabulary or phrases in Korean, he learned their meanings from his parents.

Although Jun is very loyal to L1 use for interactions within the family domain and with Korean interlocutors, it is not the case elsewhere. Jun reported that it was not until he entered university that he started to speak Korean outside the family since he did not have Korean friends until after starting university. He is the only one who reported exclusive use of English for counting, claiming that “Korean seems more difficult and takes more time to use for numbers”. He follows the general tendency of L2 use for heavier emotions—particularly anger.

Jun seems to have regained his L1 proficiency to a great extent during his second (and the last) return visit to his homeland. During this visit, he had an opportunity to be enrolled for a year in a top-level university to take a 4<sup>th</sup> year course of the bachelor’s degree in his specialisation. Jun reports on how he felt and how his L1 progressed in this academic environment where intensive L1 use was required:

At first I felt I myself was in a foreign country... even though I felt little difficulty in using Korean. People said my Korean was a little glitchy when I was describing something in the study group in the university. Later, after a few months, they said they did not feel so when I asked again about my Korean.

(Jun: interview)

This experience of immersion in the peer group in his area of specialisation seems to have contributed to his motivations to extend his L1 use for domains other than everyday communication with family members or immigrant friends. Jun reported that he was keeping email correspondence with friends he had made during the visit and that he had become able to read Korean journals or newspapers in his specialisation through the internet after the visit.

Jun estimates his own L1 proficiency has improved due to the visit to the extent that he would have little problem in everyday communication if he lived in Korea. However, he does not regard his Korean to be as good as that of monolinguals at his age in Korea based on

his conscious comparison of his own language with his monolingual age-mates during the visit. He gives the rationale for such a perception as follows:

Using Korean for every day life is all right. But when it comes to the use of language requiring more sophistication or specific knowledge, I feel I'm not as good as them [i.e., monolingual age-mates]. My friends in Korea told me that somehow my Korean did not sound natural...

(Jun: interview)

Jun expressed that his Korean fell behind his monolingual age-mates when it came to use of the language that requires “more sophistication or specific knowledge” referring to his limited L1 skills for highly academic or technological use. However, his low performance on L1 accuracy in the story-retelling task revealed that he still had difficulties in using the L1 not only for an academic task but also a non-academic one. During the task, he may have been vaguely aware that some of his utterances were built on somewhat inaccurate or non-Korean-like structures or lexical items, which he described as “awkward”. The next section attempts to illuminate why his utterances might have sounded “unnatural” and why he had the lowest L1 accuracy score in spite of his high performance on many of the other L1 measures and his loyalty to L1 use within family—particularly with his sister, who was equally loyal to L1 use.

#### **5.4.2 *Signs of attrition***

The most salient features of Jun's L1 story-retelling data is the repetition of lexical items and grammatical structures and the omission of major constituents and case particles in some AS-units. There were also other lexical and grammatical errors similar to those for Han and Hyun. Although no silent pauses occurred between bound morphemes within a constituent, there were false starts and filled and silent pauses between constituents.

While there were a number of repetitions of lexical items and grammatical structures, the first incidence that caught the immediate attention of the researcher during his story-retelling task was his abrupt ending of the first story in the final AS-unit with a verb suffixed by *-ko*. This was contrary to her expectation that he would continue because the grammatical

function of this suffix is to connect two clauses which contain sequential or simultaneous events. Consider (42) below:

- (42) *incey (yewu-ka) (.6) yewu-nun ko.kisteng.eli-lul*  
 then (fox-NOM) (.6) fox-TOP lump,of,meat-AC  
*nakk-a-chay kac-ko coh.a.ha-ko*  
 snatch-CMPLR-jerk(-CMPLR) have-CONJ be.delighted-CONJ  
 ‘then the fox snatch(ed) the piece of meat, so he (was) delighted, and...’  
 (Jun: Line 6, Story 1)

During the stimulated recall session, he commented on this part that he could not think of the way to end this clause because “he felt awkward”. While he could not give the exact reason for this feeling, this may be explained that, although he intended to close the story with describing the second event ‘(the fox) being delighted’, he could not produce the VP with appropriate suffixes<sup>126</sup>. Contrary to his intention, the form *coh.a.ha-ko* signalled that another VP, embedded or main, would follow, making him feel “awkward”. Another possibility is that the repetition of *-ko* in adjacent VPs might have made him feel this use of the conjunctive was redundant and inappropriate.

Scrutiny of his data revealed that there were a number of repetitions of *-ko* in the narratives. The most repeated structure was *-(e/a) kac-ko* (-CMPLR have-CONJ), already exemplified in (42) above. As mentioned in 5.2.2, *kac-* is a shortened form of *kaci-*, meaning ‘to have’. When preceded by a verb stem suffixed by *-e/a*, it loses the meaning and function of a verb and must be followed by a conjunctive suffix *-ko*. In this collocation, the semantic features of the individual elements are lost and the whole structure *-(e/a) kac(i)-ko* behaves like a single morpheme that denotes temporal/logical sequentiality between the immediate clause and the following one (S.-s. Oh, 1998). While this structure is generally compatible with a conjunctive suffix *-(e/a)se*, the former is often used in colloquial expressions (cf. Ihm, Hong, & Chang, 1988; Mincok Mwonhwa Yonkwu.so [Research Institute of National Culture], 1996). Although one of the most frequently used conjunctives in Korean (Haeyeon Kim, 1992), it is interesting that there was no occurrence of *-(e/a)se* in Jun’s data.

<sup>126</sup> In Korean, the main VP comes at the end of a sentence and must be marked with all required inflections.

Since the frequent occurrences of *-(e/a) kac(i)-ko* were salient in Jun's data, his use of this structure was counted and compared with other participants'. Out of the 14 AS-units, Jun's data contained nine occurrences of this structure in the context where a conjunctive *-(e/a)se* or other conjunctives such as *-ca*, *-(u)nikka*, etc. in a similar function could denote a sequential/cause-effect relationship between the embedded and main events. In the data for other late bilinguals (including Han and Hyun) and the 12-year-olds, *-(e/a)se* and other single conjunctives were favoured in similar contexts<sup>127</sup>. While a minor number of participants used *-(e/a) kac(i)-ko*<sup>128</sup>, they also used other conjunctive suffixes in compatible places and none used this structure as frequently as Jun. In one of the AS-units in Jun's data, *-(e/a) kac(i)-ko* occurred three times as in (43) below:

- (43) *sayngcwi-ka w-a \_\_\_\_\_ kac-ko incey pascwul-ul kalk-a*  
 mouse-NOM come-CMPLR have-CONJ now rope-AC scratch- CMPLR  
*mek-e \_\_\_\_\_ kac-ko phwul-e cw-e \_\_\_\_\_ kac-ko-yo (.8)*  
 eat-CMPLR have-CONJ untie-CMPLR give-CMPLR have-CMPLR-POL (.8)  
 'the mouse came, so (he) gnawed the rope away, so (he) untied (the lion/rope), so...'  
 (Jun: Line 6. Story 2)

Of the three occurrences of *-(e/a) kac-ko* in (43), the first two connect the three clauses like a chain, while the last one signals that another clause might follow to denote a sequential relationship with the event immediately expressed. Probably, Jun might have realised the excessive use of *-ko* and ended it with *-yo*<sup>129</sup> in an attempt to maintain continuity in the next utterance in (44):

- (44) *kulayse saca-ka phwul-ly-e na-ss-e.yo*  
 so lion-NOM untie-PAS-CMPLR become-PST-POL  
 'so the lion became untied'  
 (Jun: Line 7, Story 2)

The information given in (44) is a mere repetition of what is given by the last phrase in the preceding AS-unit in (43). It seems that, as he continued the task in L1, Jun might have been

<sup>127</sup> In the case of Han, there is some tendency of L1 attrition related to some of these conjunctives.

<sup>128</sup> Five late bilinguals including Jun and 3 monolingual children used this structure. The next most frequent occurrences were 5 times out of a total of 18 AS-units in a late bilingual's data and 4 times out of a total of 13 units in a 12-year-old's.

<sup>129</sup> H.-M. Sohn (1994; 1999) regards the *-yo* as a discourse delimiter that may be put after major constituent to tone down or highlight the constituent concerned in a polite or deferential sentence. It may be put after a conjunctive suffix to end the utterance at a polite level as an incomplete sentence (Ko, 1989, p. 296).

able to retrieve the appropriate grammatical device to end a story and added the last AS-unit in order not to experience the same awkwardness that he felt with the ending of story 1.

Another repetitive element in Jun's data is a lexical item *kulay*, which is a shortened form of both an adjective *kuleha-* 'be so' and a combination of an adverb and verb—*kuli*<sup>130</sup> (as a shortened form of *kuleha-key*) + *ha-* (so + do) 'do so'. This lexical item is used very productively in Korean and has various functions. That is, many conjunctive adverbials are derived from *kulay-* and various conjunctive suffixes (see H.-M. Sohn, 1994, p. 408; 1999, p. 399, for example). It may also function as a pro-predicate in an anaphoric relationship between predicates.<sup>131</sup> Due to this anaphoric feature, it can be used alone in conversation as a positive response (i.e., yes) to a question and/or suggestion. In addition, it may be used as a reporting verb for indirect quotation instead of *ha-* 'say' (S.-O. S. Sohn & Park, 2003). Jun's use of this lexical item is highlighted in its combination with the above mentioned *-e kac-ko* in the form of *kulay kac-ko*. The meaning and function of *-e kac-ko* parallel that of *-(e/a)se*. In this context, the form *kulay kac-ko* seems to denote a situation where the preceding event becomes the source or cause of the event in the clause. Consider the case of (45) below of an AS-unit produced after the scene where the lion awoke and caught the mouse:

- (45) *kulay kac-ko cap-a mek-ulyeko kulay-ss-teni...*  
 be.so(-CMPLR) have-CONJ catch-CMPLR eat-CMPLR do.so-PST-CONJ  
 'so (the lion) was about to devour (the mouse), and then...'  
 (Jun: Line 2, Story 2)

Although there is an established conjunct *kulayse* 'so' for this function, in six AS-units where the latter could appear, Jun used *kulay kac-ko* in five and *kulayse* in one. No other conjunctive adverbials are used in Jun's data. There were only five occurrences of *kulay kac(i)-ko* for the given function in the data from the late bilinguals other than Jun and these appeared from only two of the speakers (Miri—#08 and Yumi—#18). There was no occurrence of this structure in the 12-year-old monolinguals. In the whole corpus from both the bilingual and monolingual groups, two conjunctive adverbials *kuleca* 'then' and *kulayse* 'so' occurred most often in this

<sup>130</sup> *Kuli* is also a shortened form of *kuleh-key*, an adverbialised form of *kuleha-* suffixed by an adverbialiser *-key*.

<sup>131</sup> In Korean, no auxiliary verbal occurs independently such as 'do' in English (H.-M. Sohn, 1994).

context, but the former was not used and the latter used only once in Jun's data. Jun's preference for *kulay kac-ko* over *kuleca* 'then' and *kulayse* 'so' may be due to its greater degree of explicitness. In (45), for example, Jun might have considered '*kulay kac-ko*' more explicit in meaning '(the lion) did as mentioned (in the preceding clause), so...' than the single adverbial *kuleca* 'then' or *kulayse* 'so', which are semantically and syntactically less transparent and relatively weak in their referential function (cf. K.-h. Kim & Suh, 1996).

There were few other incidences where *kulay* was combined with structures other than *-(e/a) kac-ko* for other functions in Jun's data. In these incidences, *kulay* was used to replace *ha-* 'do' either as an auxiliary verb in complement clause constructions<sup>132</sup> as shown in the last phrase in (45) above, or as a reporting verb (i.e., 'say. so') in quotative constructions (for reporting verbs in quotative constructions, see 5.2.2). These examples may reveal Jun's preference for making explicit coreferential relationships between predicates as noted earlier. Since *kulay* occurs in these constructions in some colloquial data for other studies on monolinguals (e.g., Haeyeon Kim, 1992; S.-O. S. Sohn & Park, 2003), it is also possible that Jun also preferred this form because the task was conducted orally.

The next aspect to examine is the non-target-like omissions of sentential elements. As briefly mentioned earlier, zero-anaphora is a salient discourse feature in Korean (Haeyeon Kim, 1992; Nakahama, 2003; H.-M. Sohn, 1999; J. J. Song, 2005). Any sentential elements may be omitted in Korean if the omitted part is recoverable from the discourse, situational, or sentential context and/or no ambiguity arises. As noted by Haeyeon Kim (1992) and Nakahama (2003), once a new referent is introduced in a narrative as a topic, zero anaphora (i.e., ellipsis) is the main device to refer to that referent while the NP remains as the topic in Korean. When a new NP is introduced as the topic, full NPs should be used to resolve the

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<sup>132</sup> In a complement clause construction, the verb in the complement clause is attached by a suffix (so-called complementiser) that relates it to the immediately following main predicate and makes the two verbs semantically cohesive. In this construction, the first verb maintains its semantic features including its argument structure but cannot receive inflections while the second verb loses its otherwise inherent meaning but functions as the syntactic head. Since the second verb is a semantic auxiliary and denotes aspect and/or modality of the given event together with the complementiser, it is frequently called an auxiliary verb. The structures *pwul-e cwu-* 'untie' discussed under (43) above and *-ko iss-* under (18)-(19) in 5.2.2 are examples of this structure. For detailed discussion on this structure, see H.-M. Sohn (1994; 1999) and Oh (1998).

ambiguity as demonstrative pronouns have a very limited role in Korean discourse. If the topic shifts back, it should be reintroduced as a full NP. Furthermore, in Korean, coreferential encoding as zero anaphora tends to occur within the same sentence boundary (Haeyeon Kim, 1992, p. 243). In Jun’s narratives, there are incidences that appear to violate these conventions. Consider (46) below:

- (46) *ku kkamakwi-ka* (.) *mwul-ko* *kunyang* *kamanhi*  
 that crow-NOM (.) hold.in.the.mouth-CONJ just still  
*iss-ess-ketun-yo*  
 stay-PST-ASSR-POL  
 ‘the crow held  $\emptyset$  and just kept still, you see’

(Jun: Line 3, Story 1)

In Jun’s narrative for story 1, there are two AS-units consisting of nine clauses prior to (46). These units describe the scenes where the fox was passing by, found a crow sitting on the tree with meat in his mouth, thought of a trick to take the meat from the crow and told him that he was elegant like a king. Throughout these nine clauses, the fox, the crow, and the meat are introduced while the fox is maintained as the topic. In the unit provided as (46) above, the topic shifts to the crow and it is reintroduced as a full NP while the meat, which has not been the topic, is referred to with zero anaphora. This leads to ambiguity in referent tracking because the use of the zero anaphor implies that its referent (i.e., the meat) ‘continues’ to be the topic, which is not the case. In order to avoid this ambiguity, a full NP with an appropriate case marker—i.e., *koki-lul* ‘meat-AC’—should have been spelled out. The above example shows that an inappropriate occurrence of zero anaphora at the object NP position reduced cohesiveness within the discourse. Zero anaphora also occurred where a referent should be reintroduced as a new topic in Jun’s narratives. That is, in story 2, after describing that the lion spared the life of the mouse and let it go, Jun produced a clause where the subject is ellipsed—*kulay-kac-ko* (.6) *ka-ss-nuntey* (be.so-have-CONJ go-PST-CONJ) ‘so  $\emptyset$  went, but...’. It may be inferred from the context that the null-subject for *ka-* ‘go’ refers to ‘the mouse’. However, in order to shift the topic from ‘the lion’ to ‘the mouse’, a full NP *sangcwi-ka* ‘mouse-NOM’ should be re-introduced since zero anaphora itself does not convey any

information that may facilitate the identification of the referent. It is noteworthy that there are at least perceivable pauses where a zero anaphor occurs. This seems to suggest that Jun might not have been confident about the ellipsis of an NP. He might have been evaluating the appropriateness of the options for anaphoric devices—1) ellipsis, which he might have evaluated as more target-like, 2) using a demonstrative pronoun, which might be a default option if it had been in English but very non-target-like in Korean, and 3) using a full NP, which he might have evaluated as the least appropriate based on its seeming redundancy.

While the ellipsis of constituents occurred with some hesitations, in a few occasions, case particles are omitted without a pause or hesitation. Consider (47) below:

- (47) ...*yewu-ka hannac-ø swuph-ul cinaka-taka...*  
 ...fox-NOM broad.daylight-ø forest-AC pass.by-CONJ...  
 ‘While (the fox) was passing through the forest in broad daylight’  
 (Jun: Line 1, Story 1)

The utterance given in (47) is produced as the beginning of the story. In Korean, every NP is assigned a case and optionally marked by a case particle that represents its syntactic and semantic function in a clause. Of the numerous case particles in Korean, the so-called ‘basic case particles’—the nominative, accusative, and genitive case particles—are frequently omitted in casual speech according to their predictability in the syntactic, discursal, and situational contexts described earlier (see 5.3.2) (H.-M. Sohn, 1999). While the dative and locative particles may be omitted in colloquial speech, this occurs less frequently and only when no ambiguity arises. In (47) above, it is not difficult to predict that the case particle for the nominal *hannac* ‘mid-day/broad daylight’ must be a locative temporal particle (LOC) *-ey* since both arguments agent and patient for the verb *cinaka* ‘pass by’ are assigned to *yewu* ‘fox’ and *swuph* ‘forest’ as the subject and the object, as indicated by their respective case markers. However, it is somewhat unusual to omit a locative particle in an utterance during story-retelling which requires a relatively formal style and a clear description of events. Scrutiny of data from other late bilinguals and 12-year-monolinguals revealed that all other participants put locative case particles or delimiters for the nominals where appropriate.

None of the participants used *hannac* as an adjunct to establish the time setting of the story in the introduction, while a few used sentence adjuncts such as *enu nal* (certain day) ‘one day’, *yesnal-ey* (old.day-LOC) ‘once upon a time’, or *yecen-ey* (past.time-LOC) ‘long time ago’. These are typically used at the beginning of a fairy tale or fable to refer to the unspecified past. Since Jun’s case for *hannac* was idiosyncratic, more analysis was attempted to explore the possible underlying mechanism of the omission of (or unrealised) *-ey*. *Hannac* is a noun derived from another noun *nac* by addition of a prefix *han-*. This prefix adds to the source noun the meaning 1) ‘big’, 2) ‘very/prime’, or 3) ‘full’ as in *hankil* ‘main road’ derived from *kil* ‘road’; *hankawuntey* ‘the very middle/heart’ from *kawuntey* ‘the middle’; *hannac* ‘(time around) mid-day’ from *nac* ‘daytime’. Independently, *han* is an adjectival form of a numeral *hana* ‘one’ but can be used in the meaning of ‘a certain’ with a similar function to English ‘a’ when it precedes a nominal as in *han namca-ka iss-ess-ta* (one man-NOM exist-PST-DC) ‘there was a man’.<sup>133</sup> As for *nac*, it only means a certain part of the day—i.e., roughly from late morning till late afternoon but not the ‘entire day’ as in English. Although the closest translated version of *hannac* into English in a normal context is ‘broad daylight’ or ‘mid-day’, another version is possible if the syntactic and semantic features of *han* and *nac* combine in another way. It is possible that Jun intended to produce *enu nal* the L1 equivalent to ‘one day’ in English in its meaning and function. Note that *enu nal* is used as an adjunct without a particle in spite of its surface structure as a noun phrase. Although it is possible that Jun might have attempted to produce a calque as *han nal*, since such collocation never happens in Korean, it is more likely that the semantic properties of the English word ‘day’ might have extended to *nac*, leading to *hannac* which, although syntagmatically acceptable, is awkward in the discourse context. Since the final product *hannac* was perceived as the

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<sup>133</sup> However, if *han* is used as a numeral, it must strictly follow the nominal it is attributed to and be followed by an appropriate classifier (counter) as in *namca han myeng-kwa yeca twu myeng-i iss-ess-ta* (man one person-COMM woman two person-NOM exist-PST-DC) ‘There were a man and two women.’ For details of numeral constructions, see H.-M. Sohn (1994; 1999).

equivalent of ‘one day’, which would have been *enu nal* if appropriately processed, Jun might have regarded it as a self-contained adjunct that did not require a particle<sup>134</sup>.

In addition to the L1 forms examined above, which were idiosyncratic to Jun’s narratives, Jun also produced other deviant forms in line with some of those examined for Han and Hyun. One of these is a lexical error which seemed to have been triggered by shared phonemic and semantic properties. Consider (48) below:

- (48) *kulay kac-ko* (.) (*yewu-ka*) (*incey*) *kkamakwi-ka* (*incey*) *mak* (.)  
 be.so have-CONJ (.) (fox-NOM) (well) crow-NOM (well) just (.)  
*ttelettuly-e kac-ko \*pwunkayhay ha-ko iss-nuntay*  
 drop-CMPLR have-CONJ \*resent:CMPLR do-CMPLR be-CONJ  
 ‘So the crow got angry because he/she dropped (it), but...’  
 (Jun: Line 5, Story 1)

This utterance is produced for the scene where the crow was angry that it was tricked into dropping the meat. In order to describe the emotion that the crow was experiencing, Jun selected a lexical item *pwunkayha-* and put it into a complement predicate construction<sup>135</sup> by adding an auxiliary verb *ha-* with *-ko iss-* to express the durative aspect. Since the original script used *pwunhayha-* (be.angry), Jun’s use of *pwunkayhay ha-* may be first regarded as stemming from the phonological similarity of two words that share similar meanings.

However, a closer analysis reveals that this phenomenon does not seem as simple as it looks.

While both *pwunkayha-* (before being put into a complement predicate construction) and *pwunhayha-* may be translated into ‘be angry’, their syntactic and semantic properties and the morphological structures are different. One explanation for the wrong lexical choice may be their phonological similarity, which led to further grammatical errors as in Han and Hyun’s examples (i.e., (2) and (23)). That is, the structure that may be only applied to *adjectives*<sup>136</sup> is used for a *verb*. In Korean, a *sensory adjective* changes to a verb by the addition of *ha-* ‘do’ to mean ‘show signs of being/feeling...’ In this construction, *-e/a* is added to or merged into the stem of the given adjective as appropriate. For example, an adjective *choh-* ‘be good’ changes

<sup>134</sup> Later in story 2, Jun used the correct adjunct *enu nal* to start the story, suggesting that access to this item had been facilitated while he was performing the task.

<sup>135</sup> Note that *-ha-* at the end of the stem of a verb/adjective and the suffix *-e* are merged into *-hay-*.

<sup>136</sup> In Korean, adjectives function as predicates and are inflected mostly in the same way as verbs.

to *choh.a.ha-* ‘show signs of feeling good’; *sulpu-* ‘be sad’ to *sulpe.ha* ‘show signs of being sad’. *Pwunhayha-* is a form changed from *pwunha-* ‘be angry’ by adding *-e* and *ha-*. In this process, the last vowel of the original adjective, *a* and the suffix *-e* are merged and become a diphthong *ay*. It is possible that Jun first selected a verb *pwunkayha-* due to its similarity to *pwunhayha-* and then applied a process which is applicable only to adjectives.

The second point to consider with respect to Jun’s use of *pwunkayha* is related to its semantic meaning. Although the phrase may become grammatically correct<sup>137</sup> if it is constructed as *pwunkayha-ko iss-nuntey* (resent-CMPLR stay-CONJ), the lexical selection still seems non-target-like since the situation to be described and the semantic representation of the word do not accord with each other. That is, the feeling represented by *pwunhayha-* a verbal form of *pwunha-* is a personal feeling of anger in a situation which does not allow any action to reverse it, while *pwunkayha-* is used for a situation where extreme anger caused by social/ethical injustice may lead to an action to remedy the injustice. Examples (49) and (50) illustrate this contrast between the two lexical items:

- (49) John-un papo-lo chwikuppat-nun kes-ul pwunhayha-ko  
 John-TOP fool-as be.treated-RL thing-AC be.angry:(-CMPLR):do-CMPLR  
 iss-ta  
 stay-DC  
 ‘John is angry at being treated as a fool.’ (John is showing signs of being angry at being treated as a fool but cannot do anything about the situation)
- (50) kunloca-tul-un John-uy pwutangha-n hayko-ey pwunkayha-ko iss-ta  
 worker-PL-TOP John-GEN unfair-RL dismissal-LOC resent-CMPLR stay-DC  
 ‘The workers are resenting the unfair dismissal of John’ (and they may do something about it.)

The above analysis also provides a clue to Jun’s preference for L2 use “when angry” in spite of his loyalty to L1 use. At interview, he explained that such a situation occurred more often when he was with English speakers as the rationale for this response. He added that he used more English to express anger or to swear even when he was with his Korean friends. Perhaps this was due to his limited ability to use L1 linguistic resources in such situations as revealed

<sup>137</sup> However, the whole utterance will still remain grammatically non-target-like since it includes a deviant use of ellipsis of the direct object of *ttelettuly-* ‘drop’.

in the above analysis, and/or his awareness of the consequences of using L1 devices without knowing their fine calibrations in meaning and use (see 4.2.2.3 for a related discussion).

Another anomaly is found in an indirect quotation. As noted earlier, some late bilinguals such as Hyun, as well as a few 12-year-monolinguals, seemed to have difficulties in constructing indirect quotations. In addition to the same error Hyun made by failing to remove the honorific suffix *-nim* from the address term for the crow (see example (32) and its related discussion), Jun also failed to remove the honorific suffix *-si* in the verb inflection in the embedded clause as shown in (51) below (note that the quotative clause is enclosed by [ ]):

- (51) *yewu-ka ... [kkamakwi\*-nim-i nolay-∅ (.) (tulu) tul-ly-e*  
fox-NOM ... [crow-HON-NOM song-∅ (.) (hear) hear-CAUS-CMPLR  
*cwu\*-si-myen wang-kathi toy-l ke-lako] (.6) kulay-ss-teni*  
give-\*HON-CONJ king-EQU become-PRS thing-be.QUOT] (.6) do.so-PST-CONJ  
‘the fox said that the crow would become a king if he let him hear his song’  
(Jun: Line 4, Story 1)

Example (51) shows another instance of omission of a case particle that should follow *nolay* ‘song’. Given that the omission of case particles frequently occurs in casual speech, it is possible that Jun considered this embedded clause as direct speech and regarded it as ‘casual’. In this case, he might neither neutralise nor accommodate the elements that could be freely realised in natural speech to conform to the sentence/discourse where the indirect quotation is embedded. However, his rendering of the embedded clause as casual speech is not consistent with the honorific element in the clause, which requires relative formality. This seems to suggest that the distinctions between formal and informal speech as well as between direct and indirect speech construction are becoming obscure in Jun’s L1 system.

The analysis provided above reveals how the L1 of an individual might undergo linguistic reductions and how an individual copes with the gap created by this reduction (cf. Andersen, 1982). Jun’s preference for *-(e/a) kac-ko* over *-(e/a)se*, for *kulay kac-ko* over *kulayse*, *kuleca*, and other conjuncts with similar meanings and functions, and for *-lako kulay-* over *-lako ha-* (as the reporting verb for indirect quotations) seems to illustrate the tendency to

converge on a small number of items that are more analytic and transparent. On the other hand, the excessive use of the items that include anaphoric *kulay-* seems to reflect Jun's lack of confidence that the message would be transmitted correctly if other devices were used such as zero anaphora or other conjuncts which are less analytic but more appropriate from a native speaker's point of view. Jun might have not been confident about his use of ellipsis for subject and object NPs for anaphoric reference, and felt a need to signal the unambiguous coreferential relationship between events. It may be also that he was not very confident in the hearer's ability to decode the message on analogy of his own diminishing confidence. As a result, his speech became overly redundant like the bilinguals' in Polinsky's study (1996).

Other deviant forms that seem at a glance to be simple errors due to a momentary inappropriate selection of lexical items or grammatical structures were in fact the result of complex processes of compensating for reduced accessibility to these structures at the pragmatic level. This is compounded by the interaction between linguistic elements which are at the interface between levels of the L1 system, where one wrong selection leads to another. Many of these were due to L2 interference.

### **5.4.3 Summary**

The analysis of Jun's case has illustrated that attrition may occur in a very subtle and complex way in an individual's L1 system. It reveals why Jun's L1 accuracy measure was so low in spite of his relatively high L1 fluency. His preference for analytic forms and his tendency to make a long chain of phrases using the structure *-(e/a) kac-ko* with its multiple semantic and syntactic functions inflated his measures for L1 M-D and L1 G-C but not L1 L-D. Perhaps his L1 experience during his return visit, where he needed to convey complex concepts in an academic context, might have led to his habit of using "instructional" elements (Polinsky, 1996, p. 64) such as *kulay* 'do/be so' and the structure *-e kac-ko*. This bears similarities to structures produced by the participants in Polinsky's study (1996) who were not confident in their ability to transmit the message or the hearer's ability to process it.

Jun highlighted his experience during the return visit as having provided him with an opportunity to refresh his L1 knowledge and confidence in his L1 proficiency, as was the case with Hyun. With his newly gained strategies and confidence in his L1 proficiency, Jun might have been applying his habit of producing L2 discourse with high lexical diversity and grammatical complexity (note that Jun recorded the top for these L2 measures) to his L1 performance so that his L1 discourse might be as sophisticated and mature as his L2 discourse. However, such attempts were sometimes unsuccessful when they occurred at interfaces between linguistic levels—between syntax and semantics/pragmatics as shown in his non-target-like anaphora, omissions, and indirect/direct quotations; between lexico-semantics and morphosyntax as shown in the examples of wrong selection and derivation of lexical items (cf. Montrul, 2004b). It seems that the increased L1 input during his year-long visit could not fill all gaps in one area or the other in his L1 system that had been created during his adolescence, where the supply of L1 input was very limited and exposure to L2 was intensive. This seems to have led to mismatch between features when a linguistic element was processed at linguistic interfaces. Due to this mismatch, Jun seems to have frequently “felt awkward” during the task which required more conscious efforts in producing L1 utterances than casual speech. Given that he has returned to the L2-dominant environment and the situation does not seem likely to change, it is possible that such mismatches may continue to occur, in spite of his loyalty to the L1, strong L1 identity, and relatively high perception on his L1 proficiency.

## ***5.5 Minho: the dweller in the L1 community***

### ***5.5.1 L1 performance and personal voice***

Minho made relatively frequent false starts and often looked as if he lacked confidence during the task, but did not capture the immediate attention of the researcher. He was not much different from most of other participants in attitude, delivery, life history, etc. At interview, he revealed that, although he lived relatively close to his high school, he had been put in the

school hostel to improve his L2 proficiency. This boarding arrangement continued for two years. In his third year, he was shifted to another school “known as teaching better”. There were a relatively large number of Korean students in this school and Minhø started socialising with Koreans at school and in Korean youth groups at church. He reflects on the changes in his L1 and L2 proficiency while commenting on his perceived changes in L1 skills:

When I visit Korea ... if I listen to what they [Korean friends in Korea] say, I find I only use easy words or expressions for everyday life. but they sometimes use such difficult expressions as *ko.sa.seng.e*<sup>138</sup>. So I sometimes don't understand them.... You know, for the first two or three years since I came here [to New Zealand], my Korean remained at the level of Year 6 at primary school. But from about Form 6, I started to mix with Korean guys who came to New Zealand more recently and were older than me at church, I feel my Korean has improved since then but not my English ...

(Minho: interview)

As suggested by his comments, Minhø's current social interaction was much oriented to his L1-speaking peers in spite of a few years' lapse in his early teens. His orientation to his L1-speaking peers in the immigrant community is also revealed in his pattern of activities during his return visits to the home country. Minhø has visited Korea three times in 8 years of immigration, which is slightly more frequent than the average of the entire late bilingual participants. He spent a relatively long period of eight weeks for each visit. To the question of what he usually did when he visited Korea, he answered as follows:

Minho: Those [I meet in Korea] are my friends and relatives... Most of them are my friends.

R: You probably had a lot of friends in Korea before immigrating to New Zealand, didn't you?

Minho: Well... more than half of them are those who I came to know in New Zealand.

(Minho: interview)

The above comment reveals that his strong ties to his L1 peers in the immigrant community continued even during his return visit to the home country. Perhaps due to this, he might not have experienced a culture shock on arrival in Korea to the degree that Han, Hyun, and Jun did. In contrast to the above three and other late bilinguals who expressed emotional or

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<sup>138</sup> Idiomatic phrases based on events in ancient Chinese history or literature. Such an expression usually consists of four Chinese characters with Korean pronunciation. Many of these expressions are used commonly in everyday life among adults as well as in media.

negative feelings that they felt on arrival in Korea, he did not mention any such feelings. Also in contrast to the above three participants, Minho seems to have no particular experience that might have led to a greater increase in L1 proficiency or awareness of L1 identity. He just seemed to feel comfortable within his L1-speaking peer community. This might have led to his results that suggest generally low performance across L1 proficiency measures in spite of his frequent interaction in the L1, dominance of the L1 in language choice in most social domains, and a comparatively large amount of time spent visiting the homeland.

Minho's responses to the questionnaire revealed that his pattern of language choice was more L1-oriented than the general trend of the late bilingual group. There was a small variation for a few items such as 'reading newspapers/cartoons', 'shopping' and 'reading books', which was due to the lack of availability of L1 measures and the need to study in L2. Minho commented that he used the L1 and L2 in almost equal amounts for reading because he "had to read some academic stuff for his course requirements", suggesting that L2 reading was motivated by instrumental reasons. He is one of the few late bilinguals that reported exclusive use of the L1 for listening to music. In spite of this heavy orientation to L1 use, and his generally low proficiency in L2<sup>139</sup>, Minho was no exception to the general tendency of L2 use in situations of heavy emotional contexts.

Although he visited Korea more often and stayed longer each time than the group averages, his score for L1 L-D was particularly low—second to the lowest. While this is against the general trend of the entire group, this seems to support the suggestion made in chapter 4 and other studies that the quality of L1 input is as important as its quantity in maintaining L1 proficiency (e.g., Halmari, 2005; Hulsen et al., 2002; Yăgmur, 2004). Since Minho continued to use the L1 with his fellow returnees during the visits, he had fewer opportunities to recover his L1 proficiency and to reactivate lexical items through exposure to 'authentic' L1 spoken in his homeland. After completing the tasks, Minho commented that he

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<sup>139</sup> Minho received the lowest score for L2 accuracy.

“realised that speaking both Korean and English was more difficult than [he] thought”. The next section investigates what might have caused these difficulties in Minhø’s L1 system.

### 5.5.2 *Signs of attrition?*

The first impression of Minhø’s transcripts for the Korean narratives was that there were a number of false starts and repetitions in spite of relatively fewer occurrences of ‘deviant’ or non-target-like L1 forms. While the frequent hesitations seem to reveal that Minhø was experiencing a certain degree of difficulties in on-line processing, these difficulties did not seem to lead to further disruption. Unlike the above three participants, he was able to produce grammatically acceptable structures after several repairs in most cases.

Most of Minhø’s errors were single occurrences, and not complex or repetitive. For example, in (54) below, he used *pepwul-* ‘grant’ in the place where *kaph-* ‘repay/compensate’ was more appropriate for the scene where the mouse promised to repay (i.e., *kaph-*) the favour given by the lion. Probably Minhø mistakenly selected *pephwul-* since the word had already been used in a similar collocation *chincel-ul peyphwul-* (kindness-AC grant) ‘do a favour’ in the last sentence of the original script read to him prior (see (58) below) and may have been still activated in his working memory. Furthermore, the collocation of the two lexical items *unhyey* and *peyphwul-* in this pattern is very common in Korean<sup>140</sup>.

- (54) *ku sayngcwi-nun saca-eykey unhyey-lul peyphwul-keyss-ta-nun*  
 that mouse-TOP lion-DAT favour-AC \*grant-INT-DC-RL  
*yaksok-ul ha-ko*  
 promise- AC do-CONJ  
 ‘the mouse promised the lion that he would do a favour, and ...’  
 (Minhø: Line 3, Story 2)

Although the selection of *peyphwul-* in the above example was not appropriate, morpho-syntactic/-phonemic rules related to this lexical choice were well observed. Furthermore, the same lexical item was used again in the last AS-unit of his narratives where its use was appropriate in the same collocation as in (55).

<sup>140</sup> Many Korean-Korean and Korean-English dictionaries use this collocation in the exemplar sentences under *unhyey* (e.g., Dong-a Say Kwuk.e Sa.cen [Dong-a’s New Korean Dictionary] (3rd ed), 1998; Minjungseorim’s Essence Korean-English Dictionary (3rd ed), 1998)

- (55) *yakha-n ca-eykey unhyey-lul peyphwul-myen* (1.3)...  
 weak-RL person-DAT favour-AC grant-CONJ (1.3)...  
 ‘if you do a favour for a weak person/creature...’

(Minho: Line 9, Story 2)

Although there were not many lexical errors, Minho’s performance on lexical diversity was low. This contrasts with his relatively good performance on the vocabulary test that recorded a score (86.67 percent) higher than the group mean (81.78 percent) and median (84.17 percent). Given this, his low performance on L1 L-D seems to reveal that he was experiencing a high degree of momentary inaccessibility to a variety of lexical items. These difficulties are also manifested by the excessively frequent false starts throughout his narratives. For example, in order to produce a relatively short utterance, he made a number of false starts as in (56) below:

- (56) *(saca-nun)* (1.9) *(saca-nun kunyang wus-umyense)* (.5) (e) *(sayngcwi-eykey)* (1.4)  
 (lion-TOP) (1.9) (lion-TOP just laugh-CONJ) (.5) (uh) (mouse-DAT) (1.4)  
 (a) *(saca-nun) saca-nun kunyang (sayngcwi-eykey) (.) sayngcwi-lul*  
 (ah) (lion-TOP) lion-TOP just (mouse-DAT) (.) mouse-AC  
*(noh-a cwu-ess-supnita) wus-umyense noh-a cwu-ess-supnita*  
 (release-CMPLR give-PST-DEF:DC) laugh-CONJ release-CMPLR give-PST DEF:DC  
 ‘the lion just released the mouse laughing’

(Minho: Line 5\_Story 2)

The above example reveals Minho’s lack of confidence in the constituents’ order in the clause. At the beginning of the utterance, Minho appeared at pains to situate *wus-umyense* ‘laughing’ and *sayngcwi* ‘mouse’. After deciding on the case for the *sayngcwi* as the accusative, he produced the main predicate phrase with a sentence ender and might have been about to place *wus-umyense* in a position equivalent to an *-ing* participle in English. However, perhaps, after realising the embedded clause *wus-umyense* could not occur after the main predicate, he immediately repaired his utterance by repeating the main predicate phrase to meet the verb-final constraint in Korean. Minho comments on his hesitations while producing this utterance as follows:

- Minho: As I continued telling the story, I needed to move forward to what happened next. But I could not think of it quickly and the words did not come out easily. So I had to prepare the next one... the words ... that is, which word should come first and next... I think I was stammering to think about it...

R: Did you have to think about it?

Minho: Yes. It did not come out naturally so I had to think about it.

(Minho: stimulated recall)

Such lack of confidence in L1 word order seems to suggest that Minho's syntactic processing in L1 may have started to be affected by L2 parsing rules. Since L1 syntactic processing violates the L2 parsing rule, Minho might have needed to "think about it". His low performance on L1 L-D might have also been due to the increased cognitive demand for spontaneous syntactic processing in the L1. The required attentional resources would otherwise have been used for the retrieval of more diverse lexical items and for the enhancement of other aspects of performance such as fluency and grammatical complexity.

Further scrutiny of Minho's transcripts revealed some tendency to use anaphoric devices in line with English discourse. There was frequent use of demonstratives for anaphoric reference using *ku sayngcwi* 'that mouse' to refer to the 'mouse' which has already been introduced at the beginning of the story. As noted earlier, this is the least common reference tracking device in Korean discourse (see 5.3.2 and 5.4.2). On the other hand, there was an ambiguous zero anaphora. Consider (57), part of which is introduced in (55):

- (57) *yakha-n ca-eykey unhyey-lul peyphwul-myen (1.3) tasi tolao-nun*  
weak-RL person-DAT favour-AC grant-CONJ (1.3)  $\emptyset$  again come.back-RL  
*ke-p(.nita)*  
thing-be:DEF:DC  
'(what the story tells you) is that if (you) do a favour for a weak person, (?)  
(will) come back again'

(Minho: Line 9, Story 2)

The above AS-unit was produced at the closing of story 2 to express the moral of the story. Since Korean is a discourse-oriented language and this part was to convey a general truth of life, it is possible to infer that the subjects of embedded and main clauses refer to general people, the general knowledge, etc. As the morpheme-by-morpheme gloss shows, there are three predicates—*peyphwul*- 'grant', *tolao*- 'return', and *i*- 'be'<sup>141</sup>—for the respective null subjects. Since the main predicate comes at the end of the sentence, it may be assumed that the ellipted subject for the copula *i*- could be 'the general truth', 'what the story

<sup>141</sup> The copula *i*- is merged in the phrase *ke-pnita*, which may be reanalysed as *kes-i-pnita*.

tells you’, etc. Then the first clause *yakha-n ...-myen* would be embedded in the second clause *tasi tolao-nun*. This is again connected to a defective noun *ke*, a relativised complement of the following copula—the main predicate *-(i-)pnita*. Although ellipsis of the subject NPs for the two verbs *peyphwul-* ‘grant’ and *tolao-* ‘return’ is possible, a coreferential relationship between the ellipsed NPs is still assumed for the sake of coherence. Thus, if the null subject for *peyphwul-* ‘grant’ is the general human as the gloss provided in English indicates, the subject for *tolao-* is also assumed to be the same ‘general human’. However, this cannot be established due to the semantic meaning of *tolao-* ‘return’. It is not the general human that ‘returns’. Perhaps Minhø might have intended to refer the null subject for *tolao-* to *unhyey*<sup>142</sup> ‘favour’, the object of the preceding predicate *peyphwul-*. However, if this were the case, the topic shift should have involved a full NP.

Compare (57) above with the original sentence read to the participant as follows:

- (58) *yakha-n ca-eykey chincel-ul peyphwul-myen encenkanun ku*  
 weak-RL person-DAT kindness-AC grant-CONJ some day that  
*potap-ul pat-key toy-nun pep-i-pnita*  
 reward-AC receive-CMPLR become-RL rule-be:DEF:DC  
 ‘(it) is a rule/general wisdom that if (you) are kind to a weak person, (you  
 will) get rewarded (for the kindness) some day’  
 (romanisation of the original script)

Minhø might have intended to reproduce the clause as what was read to him. Perhaps being unable to produce the idiomatic phrase *potap-ul pat-* ‘get rewarded’, he produced his version. Note that if the second clause of (57) is translated into English with an ‘it’ as the subject of the main clause as ‘if you do a favour, it will come back to you’, ‘it’ would refer to the ‘favour’ in the preceding clause. It seems possible that Minhø calqued the English version to Korean, but deleted the L1 equivalent of ‘it’ after he recognised the semantic incongruence between the translation equivalent of ‘favour’ *unhye* and the target item *potap*.

In the last clause in example (57), Minhø might have been aware that he needed a defective noun that could serve as the head of the preceding clause with *tolao-nun*

<sup>142</sup> Another problem related to this is that *unhyey* does not collocate with the verb *tolao-*. However, further discussion on the semantics of these two words is beyond the scope of this analysis.

‘come.back-RL. However, he selected *ke-* ‘thing’ which is pragmatically less appropriate in this context and less specific in the literal meaning than *pep* ‘rule’. Both *ke* and *pep* are syntactically acceptable as the head of the relative clause and may function as a complement of the following copula *-i-*<sup>143</sup> in a subjectless sentence. The sentence with *ke* denotes the speaker’s belief in what is expressed in the preceding relative clause, while that with *pep* denotes that it is a general principle/wisdom of the world (cf. Dong-a Say Kwuk.e Sa.cen [Dong-a's New Korean Dictionary] (3rd ed), 1998). Perhaps due to the easier access, Minhø might have selected *ke-pnita* instead of *pep-i-pnita*.

The above analysis shows that the main area in Minhø’s L1 system that seems to have been affected by L2 influence may be lexicon and this seems to be largely due to the reduced accessibility to the appropriate item rather than the change in the conceptual/semantic properties of the target item. His low performance on L1 tasks may be largely due to his strategies to ease cognitive load and to cope with reduced processing resources in the L1. His L1 system seems to be unaffected by the L2 in spite of the great degree of disfluency manifested by the frequent hesitations and lexical errors.

### 5.5.3 Summary

Minhø’s case seems to have a bearing on the quality and the quantity of L1 input provided by the limited L1 environment in the immigrant community. While his language choice pattern is heavily oriented to L1 use, and the frequency of return visits to the home country was higher than the group average, this did not seem to contribute to enhancing or maintaining his L1 proficiency—particularly lexical diversity. While lexical diversity is a key aspect of L1 proficiency and is related to Minhø’s overall low performance on most of the proficiency measures, the analysis highlights the role of the quality of L1 input. The source of L1 input for Minhø is largely restricted to the L1 spoken by his peers who are likely to have similar patterns of language use and who might be going through similar changes in their L1. While

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<sup>143</sup> For a discussion of this type of subjectless sentence in Korean, see H.-M. Sohn (1994, p. 97)

the grammatical system in Minhø's L1 seems to remain intact and his low performance seems largely due to processing difficulties, the few incidences of suspected calques from the L2 and possible analogy with an L2 anaphoric device seems to suggest that his strategies to cope with the reduced L1 resources might lead to an increase in susceptibility of his L1 system.

## ***5.6 Jinho: the anxious L2 learner***

### ***5.6.1 L1 performance and personal voice***

Jinho was very hesitant and seemed to have very little confidence in his performance. He frequently paused and hesitated during both sessions of story-retelling and the interview. There were a number of intrasentential pauses longer than one second and the longest of these was 5.4 seconds long<sup>144</sup>. Many of his utterances during the interview were fragmentary and did not have clear endings. While his scores for L1 accuracy and L1 G-C were close to the group means and that for L1 M-D was slightly higher, his performance on L1 fluency and vocabulary was very low—recording the lowest and the second to the lowest respectively. Although the results reported in chapter 4 suggest no significant relationship between any proficiency measures and the length of residence, it is still striking that his L1 performance on these measures was so low in spite of his relatively short period of residence—less than 4 years—in New Zealand. Jinho recorded the lowest score for L1 L-D. A significant correlation between L1 L-D and frequency of visits was reported in chapter 4. His low performance on L1 L-D and the fact that he had never visited his home country during the 4 years may be important.

Jinho's L2 performance was also generally low. His transcripts for story-retelling in L2 were interspersed with pauses at various lengths and other various types of hesitation phenomena such as repetitions and reformulations. His scores for L2 vocabulary and fluency were the lowest of the late bilinguals and that for L2 accuracy was the fifth to the lowest. This seems to confirm the suggestion made in chapter 4 that L1 and L2 proficiency might be

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<sup>144</sup> There were generally fewer hesitations including intrasentential pauses in the 12-year-olds' data than in Jinho's. The longest intrasentential pause in the entire 12-year-olds' data was 2.5 seconds long.

related among those who are less proficient in L1. This seems particularly the case with vocabulary measures for Jinho. It was interesting that Jinho code-switched to L2 frequently during the interview in spite of his low proficiency in the L2.

Although Jinho has lived in New Zealand for a relatively short period and he still seemed to struggle with learning the L2, he seems to have acculturated to the L2 to a great degree. His questionnaire data revealed that his language choice pattern is very much skewed toward L2 use. He responded that he used the L2 exclusively for most of the social domains examined. There were no social domains outside the family where he reported more frequent use of the L1. He reported that he used the L1 and L2 in roughly equal amounts for most occasions for spontaneous language use. The only situation where he used more L1 was ‘receiving incoming calls’ and he reported at interview that the reason for this language choice was simply because many of the calls were for his parents who exclusively used the L1 in L1 contexts. He selected exclusive use of the L2 as the language for situations where he was angry, a tendency in accordance with the results regarding other late bilinguals. To the question why he always used English in such a situation, he answered that he did not know how to swear in the L1 because he had not learnt it in Korea.

Jinho’s L2-oriented tendency of language choice was revealed in several occasions during the interview when he commented on his exclusive use of the L1—i.e., interaction with family members and addressing Korean friends outside the classroom. He only ‘greeted’ exclusively using Korean to a group of Korean senior students outside the classroom for fear of being bullied. Except for this situation, he reported he always used English at school. He clarifies the reason for the exclusive use of L1 within the family domain as follows:

R: Don’t you ever use English when you talk to your older sister, either?

Jinho: She does not like using English.

(To the request to give the reason for his sister’s dislike for L2 use, Jinho answered he did not know why)

R: What about you?

Jinho: I would like to use [English]. But you know, my mother doesn’t understand [English]...

R: So do you use Korean at home because you can’t communicate in English?

Jinho: Yes. Because they [i.e., parents] don't understand...

R: Then, would it be more convenient to use English at home if all of your family members can speak English?

Jinho: Then my English will improve, won't it?

(Jinho: interview)

As revealed in the above extract, Jinho's interest was only in L2 proficiency. In contrast to most of the late bilingual participants, his response quoted above does not reveal any emotional/symbolic attachment to the L1. To the request to express what he had felt while participating in the research, he simply answered, "I should try harder to learn English."

Although Jinho's own major concern focused on improvement of his English proficiency and he seemed to be willing to replace Korean with English as his home language for the sake of his own English skills, he expressed some worries about other families where language shift was occurring. When the researcher initiated the issue of maintaining the L1 as the home language, he introduced an example of a family and added his opinion as follows:

I know a person. The husband [i.e., the person I know] speaks Korean but his [Korean] wife only a little. When they go to Korea, people think they are foreigners. The guy talks to his father a little in Korean and speaks only English to his wife and kids while his parents are beside them. I don't think it is good. The guy should consider his mother doesn't understand English. They have a lot of problems...

(Jinho: interview)

He added to this remark that he would have let the children use both English and Korean if he had been the husband and that he would let the children attend a Korean community school if they did not learn Korean sufficiently well at home. Ironically, Jinho himself did not attend (and never considered to attend) a Korean community school which offered a class for secondary school students. To the request to clarify this issue, he simply answered, "Because I've been speaking Korean well so far." He estimated his current L1 proficiency as "improved but not to the level of L1-speaking peers in Korea", and did not seem to worry about his L1 proficiency. While he was aware of possible problems of language shift that might lead to intergenerational communication breakdowns in other families, he seemed to consider that this would never occur in himself and his own family.

As examined above, Jinho seems to experience a great degree of confusion in learning the L2 and maintaining the L1. Due to the desire to improve his L2 proficiency and to be acculturated to the L2, and the vague awareness of L1 maintenance and the subjective assessment of his own L1 proficiency, his attitude toward the L1 seems to be inconsistent. The next section examines how his L1 system might have been affected under these circumstances.

### **5.6.2 Signs of attrition**

While Jinho's performance on L1 L-D was the lowest of the late bilinguals, his L1 narrative data may be characterised by disfluency—a number of pauses at various lengths and positions. The low performance on both L1 L-D and fluency seems to suggest that his disfluency in L1 might be largely due to difficulty in retrieving lexical items. This also seems in accordance with his low score for the vocabulary test. In many cases, he gave the name of a lexical item which vaguely shares semantic features with the target item. For example, he named *hyenmi.kyeng* 'microscope' as *totpo.ki* 'magnifier', *tal.payng.i* 'snail' as *ci.leng.i* 'earthworm', etc. In other cases, he gave a long definition of the item instead of its name. For example, for a *chengcinki* 'stethoscope', he said, "something used for medical examination". He seemed to 'know' many of the lexical items that he failed to name, but continued to fail to name most of the lexical items to a phonemic cue. This seems to suggest he was experiencing difficulty accessing lexical items, let alone activating lemmas required for their retrieval.

Jinho's data show many pauses lasting longer than two seconds occurring within unit boundaries, some of which are longer than 5 seconds. These pauses occurred at similar positions to those where the previous four participants revealed processing difficulties or produced deviant/non-target-like L1 forms. However, unlike the three underperformers for L1 accuracy, Jinho was able to retrieve the appropriate L1 forms in most cases in spite of the great degree of disfluency. While frequent and lengthy pauses seem to have contributed to his

low performance on L1 fluency, his pattern of pausing was different from that of Han's in that there were only two occurrences of within-constituent pauses. Consider (59) and (60) below:

(59) *kkachi-nun* (.8) *koki-lul* *mwul-ko* *iss*(2.2)-*nuntey-yo* (3.5)  
 magpie-TOP (.8) meat-AC hold.in.the.mouth-CMPLR stay(2.2)-CONJ-POL (3.5)  
 '(the) magpie was holding meat in his mouth, but...'  
 (Jinho: Line 2\_Story 1)

(60) *nolay-lul* (.8) [sniffs] *ha-myen* (2.0) *wang-i* *toy-l* (.) *ke*  
 song-AC (.8) [sniffs] do-CONJ (2.0) king-NOM become-PRS (.) thing  
*kath*(1.2)-*ta-ko* (.) *kulay-ss-eyo* (5.8)  
 same(1.2)-DC-QUOT say.so-PST-DC:POL (5.8)  
 '(he) said that, (he) thought (the crow) would become a king if (he) sang a song'  
 (Jinho: Line 5\_Story 1)

In (59) and (60) above, there is a pause between a verb stem *iss*<sup>145</sup> - 'stay' and a conjunctive suffix *-nuntey* 'but', and between another verb stem *kath-* 'same' and a declarative suffix *-ta*. Note that both *iss-* and *kath-* are embedded predicates<sup>146</sup> where overt tense-marking needs to be decided. Constraints to be considered in tense-marking in an embedded clause include the temporal relationship between the embedded and main events and the type of the conjunctive suffix (see 5.2.2 for such constraints related to conjunctives and 5.3.2 for those related to indirect quotations). Probably Jinho was experiencing difficulties in tense marking like Han, but to a lesser degree in that he was able to put the correct inflection (i.e., not to put the past tense suffix— *-ess*) after each pause. Jinho explains the long pauses as follows:

Words don't come out even though I have those in mind. I have never read a story aloud in Korean like this since I came here [i.e., to New Zealand]. So I'm quite nervous ...even about just talking [in Korean]... Using Korean for everyday life is no problem because I say what I always say, but this is kind of formal stuff. So...  
 (Jinho: stimulated recall)

<sup>145</sup> This verb is an auxiliary verb in the *-ko iss-* construction that adds the durative aspect to the main verb *mwul-*. For the *-ko iss-* construction, see discussion under (17) in 5.2.2.

<sup>146</sup> The main clause for (59) comes in line 3 in the transcript. Clauses connected with *-nuntey* are considered in coordination and both clauses were assigned a status as a separate unit in this study (For a rule applied in segmenting utterances into AS-units, see Appendices D, E, and K). Since the reference time of (59) was the same as that of the main predicate, zero tense marking in (59) was regarded as correct. On the other hand, past tense marking may also be regarded as correct since there is an alternative view that a clause ending with *-nuntey(-yo)* may occur without a main clause (which is unexpressed according to various discourse situations), independently performing various discourse functions. For further discussion, see Haeyeon Kim (1992) and Park (1999).

Due to long disuse of L1, he seems to have difficulties in selecting lexical items and grammatical structures, which resulted in long and frequent pauses.

While it is not clear whether the hesitations were due to differences between Korean and English agreement in the embedded and main predicates, Jinho acknowledged that he felt like using English at times. This comment resembles those made by Han who also showed very low performance on L1 fluency. Although Jinho could not identify the points where he felt such an impulse, there is an instance that suggests calquing from the L2 item. Consider (61) below:

- (61) *kulayse* (1.5) *yewu-nun son-ulo* (.9) *kkachi-\*hanthey kalikhi-myense* (4.2)  
 so (1.5) fox-TOP hand-INSTR (.9) magpie-\*to point-CONJ (4.2)  
 ‘So, as (the) fox point(ed) to the magpie with (his) hand,’ (‘So, pointing at the magpie with his hand, the fox...’)

(Jinho: Line 4\_Story 1)

In Korean, *kalikhi*- ‘point (to/at)’ is a verb that requires two arguments—agent and patient—which receive the nominative and accusative cases respectively. Thus, the NP *kkachi*<sup>147</sup> in Jinho’s utterance above has a role as a direct object of the verb and should be marked with an accusative case-marker *-lul*. Jinho’s use of a dative/goal marker *-hanthey* instead of *-lul* suggests that he might have calqued the English preposition ‘to’ which is obligatory as the head of the PP ‘to the magpie’ if the utterance was produced in English. It is possible that Jinho was experiencing a momentary lapse of L1 skills since it is the only instance where Jinho used incorrect case morphology in his data and there is no pause or hesitation between a nominal and a case particle throughout his data. However, it cannot be disregarded that an L2 element seemed to creep into the gap in his L1 system during this lapse.

There is another instance where Jinho produced an L1 form which was considered an error. In the place where the original script provided *ku-lopwuthe olay-ci anh-a* (it-from long-NML be.not-CONJ) ‘not long after that’—i.e., ‘soon after that’, Jinho only put *ku-lopwuthe* as in (62):

<sup>147</sup> It is not clear why he used *kkachi* ‘magpie’ instead of *kkamakwi* ‘crow’ in his narratives.

- (62) \*ku-lopwuthe (2.0) sanyang:kkwun-i w-ase-yo (1.8)  
 \*it-from (2.0) hunter-NOM come-CONJ-POL (1.9)  
 ‘\*From that, hunters came, and...’

(Jinho: Line 4\_Story 2)

While the literal translation of *ku-lopwuthe* to English is ‘from it/that’, the meaning of the phrase as a part of the idiom *ku-lopwuthe olay-ci anh-a* (it-FROM long-NML be.NEG-CONJ) is ‘after that’. Note that this idiom is relatively long and requires a relatively complex process to be produced if it is not stored as a lexical item in the speaker’s memory (see also 5.2.2. and 5.3.2.). Perhaps in an attempt to reduce this processing difficulty, Jinho may have reanalysed the L1 idiom on the basis of the semantics of its L2 version ‘not long (soon) after that’. Discarding ‘not long/soon’ the equivalent of *olay-ci anh-a* from the L2 version of this idiom would not incur violation of L2 grammar if the given sentence were produced in the L2 as ‘after that, the mouse came’. This may explain why Jinho produced only *ku-lopwuthe* instead of the whole idiom. In Korean, *ku-lopwuthe* ‘from that’ alone cannot be used to mean ‘after that’, since the case marker *-lopwuthe* only indicates *ku* is the starting point —i.e., source—of the action.

Although Jinho managed to produce correct L1 forms in most cases, given the above examples and the frequent pauses, his L1 system might be on the verge of the onset of attrition. While his low performance on L1 L-D seems to be largely due to his inability to access lexical items, this difficulty seemed to lead to difficulties in syntactic pragmatic processing. Jinho describes these difficulties as being *twi.cwukpak.cwuk* ‘messed up’ as he expresses his feelings of helplessness saying, “everything was messed up [in my mind] but I don’t know why”. The reason might be that many L1 items have been blocked up during L1 production due to decreased use of L1 and/or interference from the L2.

### 5.6.3 Summary

Jinho’s case exemplifies how L1 attrition might occur at the early stage of L2 acquisition in a teenager who is under great pressure to learn the L2 and has a strong desire for L2 acculturation. Although Jinho’s L2 proficiency is yet to reach an advanced level, his L2-

oriented attitude and frequent L2 use seem to have contributed to an increase of difficulties in his L1 production. His L1 system was relatively unaffected by attrition as yet and his low proficiency seemed largely due to performance difficulties. However, it seems that, if L1 production is frustrated repeatedly and L2 influence becomes increasingly powerful, extended continuation of such circumstances may result in attrition in his L1 system at various levels. Jinho's data suggests that symptoms of attrition at its early stage may be extreme disfluency accompanied by calquing and semantic/syntactic extension from L2 to L1.

During the interview, Jinho revealed that he was planning to visit Korea for the first time. As his attitude to the L1 was mixed, he seemed to have mixed feelings about this plan—excitement and worries. He was not sure that he would speak Korean without difficulties in Korea. He might have experiences which might adjust his L1 attitude. Since he seems to still maintain sound L1 grammar, he might have better opportunities than the three previous participants to recover what might have been lost in his L1 proficiency and L1 system. This trip might change his language attitudes and patterns of language choice and lead him to start to interact with other L1-speaking peers in the immigrant community like Minhø. Or, he might have negative experiences which might cause further detachment from the L1 and L1 culture and community leading to acceleration of attrition in his L1 system and a further decrease in his L1 proficiency. Since this could not be investigated during the course of the current research, this is a point to be followed up in future research.

### ***5.7 L1 attrition under way***

This chapter examined five cases of late bilinguals who were at different stages of L1 attrition and L2 acquisition. While the analysis reveals that every attriter seems to follow a path of attrition unique to his/herself, it also reveals some general patterns. It illuminates the importance of the role of their encounters with L1 speakers and culture in enhancing their awareness of their own L1 proficiency as they grow mature and start seeking their own identities as L1 speakers themselves.

Of the five participants, four reported that their Korean was much better than when they had still been (in the early years at least) in high school, where they had minimal contact with L1 speakers. During this period, due to an environment which lacked L1 input, their L1 could not have developed in a way that it would have if they had been in a normal L1 environment. Furthermore, some L1 items that they had already acquired might have become unavailable because they became inaccessible in their mental lexicon due to prolonged disuse and/or repeated difficulties in retrieval. This might have led to a decrease in their L1 proficiency, which in turn led them to increasingly avoid using the L1 outside the family. The circular process between the decrease in L1 proficiency and availability of L1 items, and avoidance of L1 use seems to have led to further reduction and L2 interference.

While the increase in L2 use and pressure of learning the L2 might be the most influential factor on this process, the role of L1-speaking peers that the late bilinguals encountered at the end of the period of L1 deprivation seem to have an important bearing on their later (non-)improvement in L1 proficiency and/or the change of their attitude toward the L1 and L1 community. While both Minho and Han started to socialise with L1-speaking peers in their senior years at high school, Minho could claim his membership in that peer group but Han could not. Minho arrived in New Zealand when a large influx of immigrants from Korea was in progress and could relatively easily find those who had a similar history of immigration (and L1 deprivation) and identify himself with them. Han's earlier arrival in New Zealand did not allow for these opportunities. Due to the gap between Han's immigration and that of these new comers, Han remained an outsider to his L1-speaking peers in spite of his desire to gain membership.

For Hyun and Jun, such an encounter occurred at a much later stage. It might have been easier for them to find fellow L1 speakers with more various backgrounds and levels of L1 proficiency at university than in high school. However, only Jun seems to have been able to make use of this new environment. Since his L1 proficiency and favourable attitude towards L1 could be maintained within the family and he was also relatively successful in

gaining L2 proficiency, he could socialise with both L1 and L2 speakers as a mature adult. This might have facilitated his later socialisation with monolinguals during his return visit to Korea. In contrast, Hyun, away from his family, seems to have cultivated feelings of being rejected from the L1 community. He became increasingly less confident in speaking L1 during his adolescence. This might have led him to continue to keep his distance from the L1 community and to think that L1 speakers had negative perceptions of his low L1 proficiency. It was his return visit to Korea after finishing his master's degree that made a turning point in such attitudes and provided an opportunity for immersion among L1 speakers.

Regaining or improving L1 proficiency is difficult in an immigrant context since fellow immigrant speakers share a similar linguistic environment and may have started to be subjected to attrition to a varying degree. In this respect, the encounter and subsequent socialisation with fellow immigrant L1 speakers have a minor role in regaining or improving L1 proficiency. This was shown in the example of Minho, whose socialisation seems restricted to regular contact with fellow immigrant L1 speakers—even during his return visits. What seems to be important in the cases of the four bilinguals is the availability of opportunity for full immersion in an L1 environment where extensive and intensive use of the L1 for an extended period is required<sup>148</sup>. This point is also raised by Halmari (2005) in discussing the cases for her Finnish-English bilingual participants. Due to the availability of such an opportunity, Hyun and Jun seem to have been able to partially regain their L1 proficiency, while Han and Minho could not. However, these intense experiences did not seem to help them regain the ability to speak “accurately”, which might be fundamentally related to their linguistic competence. Their L1 re-learning during this period was confounded with L1 attrition, which had already been in progress to some degree. The re-learning also involved their social and pragmatic motivations to produce more “sophisticated” and complex L1 speech. Perhaps this has brought about more complicated and subtle changes to their L1 system, resulting in low accuracy measures in spite of their high performance on some other

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<sup>148</sup> Jinho has not yet had this opportunity.

proficiency measures. Han, who did not utilise his opportunity for full immersion in an L1 environment, seems to go through generally increasing impoverishment in his L1 system. This was manifested through his very low performance on most of the measures. Minhø performed slightly better than Han but showed a similar pattern of low performance overall.

Linguistic analysis of these participants' data reveals that attrition starts from the lexical level, which is generally in accordance with findings from other studies (Hakuta & D'Andrea, 1992; Insurin, 1999; Jaspaert & Kroon, 1992; Köpke & Nespoulous, 2001; Olshtain & Barzilay, 1991, among others) and conforms with our general understanding of L1 attrition (cf. de Bot, 1996; Ecke, 2004; Köpke, 2004). Minhø and Jinho, the lowest performers on lexical diversity, seemed at a relatively earlier stage of attrition. Although they seemed to experience difficulties in retrieving lexical items, they appeared to be able to resolve the difficulties in most of the cases in spite of their disfluency. In the cases of the other three participants—Han, Hyun, and Jun, difficulties in accessing and retrieving target items further led to deviant forms at other linguistic levels. In this respect, it may be that attrition starts from lexical retrieval difficulties at the macro level as well as at the micro level. That is, while an individual or a group may first experience difficulties at lexical level, the unavailability of a particular lexical item may lead to further disruption at other levels due to the mismatch between the features attributed to the target item and its substitute selected by the attriter.

Strategies for resolving difficulties in retrieving a lexical item and processing the retrieved item were varied. Difficulties in lexical retrieval frequently led to the selection of an alternative item, calques, semantic extensions, or a combination of two or more of these. In the case of the participants at a more advanced stage of attrition, this led to further disruption, since these selections could not always be processed appropriately at morphophonemic, morphosyntactic, semantic, discourse, and pragmatic levels. At times, correctly selected items also led to such disruption, perhaps due to imperfect knowledge of abstract lexical structures of those items and inappropriate interpretation of the target structure required. Analysis revealed that these difficulties seemed to arise frequently where the target item and its

structural requirements were ambiguous in their lexical meaning as well as syntactic, semantic or pragmatic function(s). It seems that the late bilinguals find it most difficult to deal with items at the interfaces between these linguistic levels. Recent studies also suggest that such interfaces may be the areas which are most susceptible to attrition since bilinguals need extra resources from cognitive or extragrammatical areas in order to produce an appropriate form (Gürel, 2004a; Montrul, 2004b; Silva-Corvalán, 1996; Sorace, 2000). For example, regardless of whether errors or non-target-likeness arose from a wrong lexical selection, there were many examples which revealed difficulties related to tense and aspect which involved relative time references. In such cases, the target structure tended to be reanalysed into a more analytic form so that it might be syntactically more transparent, a process recognised as a general tendency in language attrition as well as language change (Andersen, 1982; Backus, 2005; Ecke, 2004; Schmid, 2004a; Seliger & Vago, 1991). This reanalysis sometimes appeared to be made by analogy with either the general rule in L1 grammar or the L2 equivalent rule.

In spite of the bilinguals' strategies to compensate for their reduced resources required for L1 production, their lack of confidence was revealed in their discourse features. As already noted, their frequent pauses at various lengths and various types of hesitations are manifestation of their lack of confidence in their own L1 skills as shown in the cases for Jinho and Minho who seem to be at an incipient stage of L1 attrition. In other cases, the lack of confidence seemed to manifest itself in a more subtle way through redundancy—repetition of the message or unnecessary pro-replacements in the cases for those at a more advanced stage of attrition. In addition to this, these speakers might have slowed down their speech by pausing at some points to ensure adequate processing of the message on the part of the hearer, perhaps assuming that the hearer might equally lack proficiency (1996). According to Polinsky (1996), redundancy phenomena also arise from the need to ensure adequate decoding of the message and the avoidance of potential ambiguity.

While these strategies seem to be primarily motivated internally —that is, motivated by universal principles such as preference for unmarked over marked forms or for

transparency over opacity, or by the internal grammar of the L1 such as paradigmatic regularity (cf. Seliger, 1991; Seliger & Vago, 1991; Vago, 1991), they also seem to provide a crack for L2 elements to creep into the L1 system. This seems to provide an explanation for why the deviant forms found in the data for more advanced L2 users such as Hyun and Jun are more complicated and difficult to interpret than those found in attriters who suffer from low proficiency in both the L1 and L2 such as Han. Motivations to produce a more sophisticated structure sometimes gave rise to complex target L1 forms. L1 targets forms that convey more complex meanings are often in synthetic structures. Some of these structures were reanalysed and their properties were reinterpreted in line with their L2 equivalents and/or L2 rules. This process sometimes resulted in more grammatically complex structures since L2 structures are often more analytic than the L1 target. While this seems the case with those who are relatively proficient in L2 and willing to risk producing such L1 forms, others who are less proficient in L2 and do not have sufficient L2 resources for such strategies seem to be subjected to less complicated L2 interference. However, such L2 interference seems to be paramount in those whose L1 system is fragile as shown in Han's example. Although studies frequently suggest that L1 attrition tends to occur in bilinguals at an advanced stage of L2 acquisition (Segalowitz, 1991; Seliger & Vago, 1991), the current findings suggest that bilinguals who are at lower stages of L2 acquisition are also subject to L1 attrition, as shown in the cases of Han, Minh, and Jinho.

While the late bilinguals' L1 processing strategies may be characterised by their preference for transparent and analytic forms, sometimes this seems to be overridden by the principle of minimum cost. Thus, if there is an optional rule that allows one not to resolve ambiguity, these bilinguals seem to tend to utilise it, rather than reanalyse the structure that brings about the ambiguity. However, their choice is not always appropriate as exemplified by the reference tracking devices that Hyun and Jun utilised for coreferential items. Hyun used an overt pronoun where a zero-anaphora was more appropriate, while Jun was overusing a null subject or object where a full NP should be used. This seems to illustrate that attrition

might affect the same linguistic property of the L1 in individuals in different ways—in favour of the L2 rule or by generalising the optional L1 rule.

The chapter illustrated that late bilinguals' L1 might be susceptible to attrition even though they were exposed to the L2 environment after puberty, which is in line with Köpcke and Nespoulous (2001), Pavlenko (2003), Schmid (2004a), and Yagmur (1997), among others. The examples of the current bilinguals showed that it is difficult to regain or improve L1 proficiency in an L2-dominant environment. While the ability to access and retrieve lexical items seems to be the first area affected by attrition, this difficulty seems to manifest itself as disfluency at an early stage of attrition. The analysis showed that some aspects of proficiency could be recovered as a result of full immersion in an L1 environment for an extended period in the home country, but the properties undergoing attrition at various levels in the L1 system were not easy to recover. These case studies suggest that accuracy may be the aspect of proficiency that becomes the most vulnerable to attrition once it has its onset. While it is clear that attrition starts at the lexical level, it should not be taken that lexicon proper is the most vulnerable to attrition in this particular group of late bilinguals. Findings reported in 4.1.1 suggest that these bilinguals still acquire L1 vocabulary even though they have some difficulties in accessing and retrieving particular items in their mental lexicon. Interface areas may be most vulnerable to attrition as suggested by Sorace (2000) and others (e.g., Gürel, 2004a; Montrul, 2004b; Silva-Corvalán, 1996).

There are many instances that suggest L2 interference. However, it seems futile to argue whether the attrition that these bilinguals go through is caused by direct influence of the L2—i.e., externally-induced (cf. Seliger, 1991), because in many examples there are internal causes that induce L2 elements to be incorporated in the “deviant” L1 forms. As Backus (2005, p. 314) puts it, “internal and external factors often conspire” and “there is no categorical difference between so-called internally induced and externally induced change” (see also Clyne, 2003; Thomason & Kaufman, 1988). It seems that the L2 exerts influence when there is limited L1 resources and when the bilingual perceives that L2 resources are

available to compensate for them. The L2 resources are utilised according to subjective assessment of their usefulness by the bilingual, which in turn varies depending on his/her degree of attrition and his/her need to resolve the immediate difficulties. In this respect, typological distance between languages in contact may contribute little to the resilience of the L1 to L2 interference. Although Korean is typologically distant to English and the two languages share little structural/phonological similarity, some examples from Han and Hyun (e.g., those for *encey*, *kac*, *hannac* etc.) showed that analogy on L2 properties at the semantic/pragmatic level could be made “covertly” (cf. Schmitt, 2000).

The findings from these case studies illuminate how attrition might affect actual production and how one’s proficiency in the L1 and his/her social context interact in an L2 dominant environment. The five participants examined in this chapter by no means represent the entire group investigated, nor the general population of late bilinguals, and the findings cannot be generalised to a broader context of language contact. Nevertheless, their personal voices heard throughout the chapter contribute to our understanding of the individual phenomenon of L1 attrition.

## **5.8 Summary**

This chapter investigated five cases of late bilinguals in order to provide a detailed account of L1 attrition. Participants who showed low performance on accuracy appeared to be at a relatively advanced stage of attrition while those whose performance on lexical diversity was low appeared to be at an incipient stage of attrition. Their L2 learning history including L1 deprivation period was investigated. Of their history, full immersion in an L1 environment appeared to have a positive role in improving the bilinguals’ confidence in their own L1 use and their attitude towards L1 culture and other L1 speakers, even when this had not always been favourable during their adolescence. The effect of immersion was more prominent for Hyun and Jun, who were exposed to an intense L1 environment for an extended period. Through such experience, bilinguals may regain some L1 proficiency and acquire additional

pragmatic and linguistic knowledge in L1. However, since this knowledge is often built on an attriting L1 system, late bilinguals may produce deviant L1 forms and develop unique and diverse strategies using particular L1 features. Linguistic analysis revealed that these participants were undergoing L1 attrition and that there were individual differences in its pattern and degree. However, there were also common elements in the differences. That is, attrition seems to occur first at the lexical level and permeate into other areas via the affected area. The findings suggest that the areas most susceptible to this permeation are interface areas between two or more linguistic levels where ambiguity/optionality in the meaning and function of the target item are paramount.

## 6 Conclusion

This study has attempted to account for the relationship between L1 attrition and socio-/psycholinguistic processes in the particular context of late bilingualism by investigating adolescent/young adult Korean immigrants to New Zealand. A general picture of L1 attrition among this group was produced by investigating their L1/L2 performance, the relationship between the L1/L2 performance measures, and a number of social variables. A case study of five participants in the later part of the study considered the interaction of linguistic, psycholinguistic, and sociolinguistic processes of L1 attrition in the speech samples of individual attriters. The following sections summarise the major findings of the present study and discuss its implications and limitations. The thesis ends with some suggestions for future directions for research on L1 attrition.

### *6.1 Summary of the findings*

The L1 attrition in adolescent immigrants investigated in this study is characterised by a simultaneous decline in specific aspects of L1 proficiency and increase in general L1 proficiency during the early stages of L1 attrition. Their performance on a standardised vocabulary test suggests that their general proficiency and vocabulary knowledge in L1 was increasing, though not to the level of monolinguals at their current age. However, the findings also suggest that particular aspects of L1 accuracy and lexical diversity might have been affected. The study has shown that increasing L2 proficiency did not have a direct negative impact on these aspects of L1 proficiency. Rather, it was found that their L2 skills benefited by positive transfer from L1, their dominant language in use and proficiency.

The analysis of the relationship between L1/L2 measures and social variables revealed that L1 attrition must be understood in the particular social context in which it occurs. Age at the onset of bilingualism was controlled in this study in order to highlight the role of other

extralinguistic variables in L1 attrition. The most salient social variables in this particular context were the participants' current age and contact with the homeland. Age was positively associated with L1 grammatical complexity, and contact with L1 lexical diversity. Further analysis suggested that the former relationship was socially conditioned while the latter is psycholinguistically conditioned. That is, older participants tended to produce longer and more structurally complex utterances due to their desire to be recognised as mature speakers. Frequent visits to the home country seemed to enable the participants to access and retrieve L1 lexical items that might not otherwise have been frequently used in the immigrant context. In line with other studies (de Bot & Clyne, 1994; de Bot et al., 1991; Jaspaert & Kroon, 1992; Schmid, 2002), time was not an important factor in L1 attrition among these bilinguals.

The investigation into the role of language use in L1 attrition revealed that increasing L2 proficiency had an indirect influence on L1 attrition via increased L2 use and decreased L1 use. The analysis of interlocutor types revealed that only language use with family members was relevant to L1 and L2 proficiency. Of the family members, the role of the father and siblings was highlighted as having an effect on the L1 proficiency of the participant. The bilingual's language use in addressing the father was found to have a more general influence on the participants' language use than that involving other family members, and the father's language use as the addresser was related particularly to L1 grammatical complexity. This might indicate that, perhaps, fathers use the L1 differently from other family members. The mother's role was rather limited perhaps because the mothers in these first-generation families were largely monolingual. The participants' language use in addressing siblings was related to measures of L1 proficiency more relevant to L1 competence—i.e., accuracy and morphological density. While the findings suggest that language use by parents had a very limited role in the participants' L2 proficiency, it was found that L2 fluency was important in language shift in interaction with siblings (see also J. Kim & Starks, 2005; Pauwels, 2005; Polinsky, 1996). There were limited effects of L1 use with friends on the participants' L1/L2 proficiency. The late bilinguals' language use in the friend domain was found to be more

relevant to their attitudes towards both L1 use in the presence of non-Koreans and L2 use between Koreans. The bilinguals' language use with other types of interlocutors did not show any particular relationship with any specific proficiency measures.

The analysis of language use in social domains revealed that L2 fluency was the most important factor in public domains and in domains where the verbal medium was the main medium of interaction. The participants tended to maintain the L1-dominant pattern within most social domains. There were some correlations, however, between language shift from L1 to L2 and proficiency measures in either L1 or L2 but not both, suggesting decreasing L1 proficiency and increasing L2 proficiency manifested themselves in various social domains through different aspects of proficiency in either language.

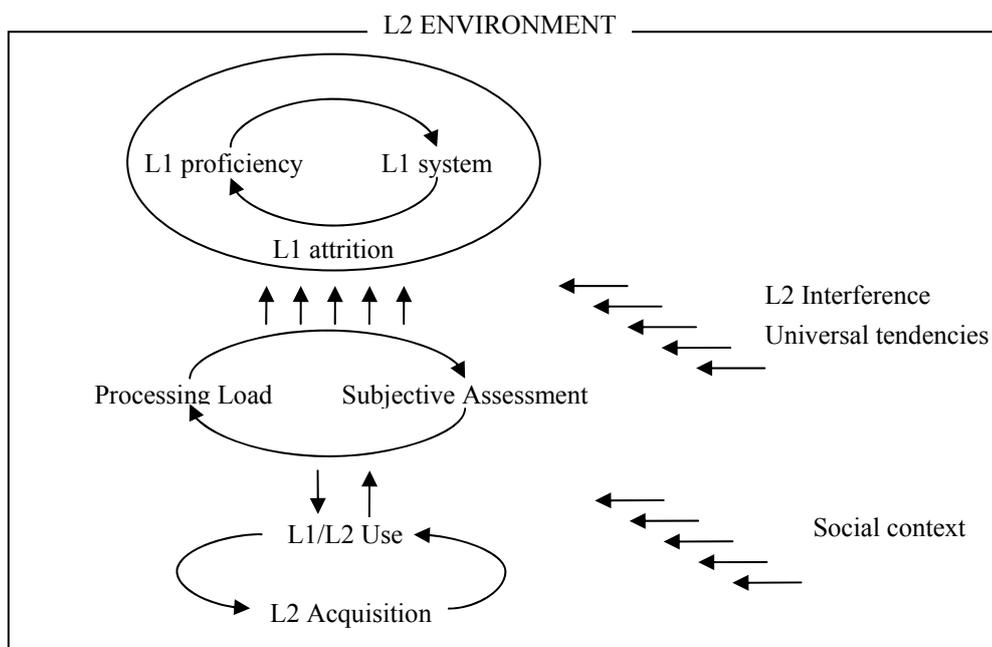
Findings relating to spontaneous language use suggest an indirect but important relationship between L1 accuracy and L2 fluency depending on the emotional load associated with the given situation. The bilinguals were found to be utilising their bilingual ability when emotional load was light (e.g., counting). In situations involving more emotional load, their language use seemed to be governed by a more or less automatised process, and they tended to use more L2. It appeared, however, that there was a more complex relationship between L1 attrition and language choice involving heavy emotional load—particularly when they were angry. The findings suggest that the participants' L2 socialisation during adolescence led to the habitual use of L2 and/or feelings that it was inappropriate to use L1 to express intense feelings. These findings were more evident in those whose L1 accuracy was low.

The final part of the study focused on the low performance of five participants and the complex mechanisms of L1 attrition and linguistic, psycholinguistic, and sociolinguistic processes involved. Findings suggest that, while no linguistic level is immune to L1 attrition, attrition affects L1 properties of individuals differently. The analysis also demonstrated that the process of attrition was not random but selective and systematic as suggested in many existing studies (Andersen, 1982; Bolonyai, 1999; Gürel, 2004b; Seliger, 1996; Sorace, 2005; Tsimpli et al., 2004, among others). The areas identified as most susceptible in this analysis

are those characterised as synthetic in structure and ambiguous in meaning. These findings support Ammerlaan (1996), Gürel (2002; 2004b), Pelc (2001), and Tsimpli et al. (2004), who highlight the role of interface structures where syntactic expressions are controlled by semantics, discourse, or pragmatics of the participating lexical items (cf. Sorace, 2005). In accordance with Polinsky (1996; 1997), Schmid (2004a), and Tsimpli et al. (2004), preference for analytic structures and an increase in occurrences of optional items and in omissions of obligatory ones were also revealed in this analysis.

An analysis of the morphosyntactic, semantic, and pragmatic features of these structures and the stimulated recall data revealed that this process is often constrained by the bilinguals' perceived load of processing and their subjective assessment of the acceptability of the linguistic item. Case studies of individuals suggest that the initial difficulties in accessing a lexical item can be resolved at an early stage of attrition by a delayed retrieval after hesitations or a retrieval of an alternative item without violating morphological, syntactic, discourse, and pragmatic constraints. However, at a later stage, as indicated by individuals with greater L1 attrition, wrong lexical choice seems to result in non-target-like forms. This might be due to infrequent use which brought about an increase in the subjectiveness in the bilingual's judgment and processing load. These difficulties and the bilingual's lack of resources to resolve them are important because this may be an indication of how L2 interference may find a way to exert power on the attriting L1 system.

From the findings summarised above, a model of linguistic, psycholinguistic, and sociolinguistic processes of L1 attrition emerges. Figure 6.1 illustrates the processes that underlie the attriter's L1 performance and L1 system. The three dimensions depicted in the model are not necessarily linear or isolated from each other, and the interactions are far more complex than suggested in this simplified model. The interactions between and within dimensions may occur simultaneously and/or in multiple layers since an occurrence of these processes in one area leads to another occurrence in another area where variables interact differently.



**Figure 6.1 Linguistic, psycholinguistic, and sociolinguistic processes of L1 attrition**

The three dimensions in Figure 6.1 are enclosed in an L2 environment of the wider society. The lowest part represents interactions among L1/L2 use, L2 acquisition and the social context. The interaction between L1/L2 use and L2 acquisition is reciprocal and mutually reinforcing. In this process, L2 acquisition contributes to an increase in L2 use, influenced by the social context which increasingly encourages L2 use. The social context includes both the here-and-now situations and the speaker's history of language socialization. While the extent of increase in L2 use is influenced by increasing L2 proficiency and the social context, it also depends on how the bilingual perceives and responds to the social forces. Therefore, the pattern of the reciprocal interaction and the degree of mutual reinforcement may vary from one individual to the next. This interaction induces an increase in L2 use and a resultant decrease in L1 use. As a result, perhaps due to a heavy processing load, the late bilingual may make inaccurate judgments in using L1 items. The degree to which the increased L2 use influences the bilingual's perception also depends on individual differences. These processes lead to L1 attrition which starts from inappropriate lexical choice, diffuses to other linguistic properties, and manifests itself in a decrease in L1 proficiency at the performance level. In this process, new forms emerge as a result of L2 interference and/or universal tendencies

innate to language through the most susceptible areas, some of which have been identified in this study.

## ***6.2 Implications of the study***

Fase et al. (1992) argue that research into language attrition must include not only a linguistic description of the attriting language but also a psycholinguistic and sociolinguistic account of the emergence and process of attrition. They underline the equal importance of investigating “what is being lost” and “why” and “how” it takes place (p. 9). This study attempted an answer to this call by providing precise accounts of all three dimensions and the relationship between them. In addressing these issues, the present study considered performance measures in order to understand the complex interactions between linguistic, psycholinguistic, and sociolinguistic variables operating in L1 attrition at both the individual and group levels. Many L1 attrition studies are devoted to analysing linguistic structures to determine the degree to which they are affected by attrition but most pay relatively little attention to language use. In contrast, language maintenance/shift studies investigate language use but seldom consider the actual linguistic performance. In this respect, this study contributes to both fields by broadening the scope of research.

The employment of Skehan’s (1996a; 1998; 2001) framework in the present study attested the usefulness of sharing theoretical models and research methods between L1 attrition research and SLA research. These two disciplines study the same population but from different perspectives. An analysis of the speaker’s total linguistic repertoire helps understand the dynamic relationship between the languages of the participant as an L1 attriter and an L2 learner and other intersecting variables. Of the three dimensions of L1 proficiency considered in Skehan’s framework (1996a; 1998; 2001), accuracy and lexical diversity (a subcategory of complexity) were relevant to L1 attrition, while fluency and other aspects of complexity were not. With respect to language use and other social variables, fluency was found to be the least relevant aspect of L1 proficiency in both constraining L1 use and being constrained by social

variables. The aspect of L2 proficiency identified as most influential on L1 attrition, though indirect, is L2 fluency. Both L2 grammatical complexity and lexical diversity also contributed to the shift to L2 use to a lesser degree. Accuracy in L2 was found to be the least relevant to these processes. While the findings relating to this framework suggest that components in L1 and L2 proficiency have differential roles in L1 attrition and language shift/maintenance, it is acknowledged that these differential roles may change in different contexts of L1 attrition, for example, in more advanced L1 attriters or L2 learners. It should be noted, however, that some of the differences may also have been due to the operationalisation of the three aspects of proficiency considered in this study. It is therefore possible that, if operationalised with different measures, the framework may have yielded different results. For example, while speech rate, the measure for fluency employed in this study, was useful to differentiate the L2 fluency of the current participants, it could not differentiate the L1 fluency of the L1-dominant bilinguals. Other measures such as hesitation phenomena may have more power in differentiating L1 fluency of speakers who are going through a higher degree of L1 attrition.

This study has important implications for methodological issues in L1 attrition research. By employing a rigorous methodology, the present study could resolve some of the issues relating to *point of reference* (Jaspaert et al., 1986) and how to establish “attrition” and deal with various sociolinguistic variables. The most crucial components of the present methodology were the establishment of selection criteria that could control a number of interacting variables, and the employment of a monolingual comparison group. Using a monolingual comparison group whose age is similar to that of the bilingual group at the time of their departure from their home country, the study was able to draw a relatively accurate picture of L1 attrition in this particular context of late bilingualism.

The findings concerning language use have important implications on the need for parent education on their role in the maintenance of L1 proficiency of their adolescent children. Children acquire L2 proficiency mainly outside the family. Therefore, rather than encouraging L2 use in the home or leaving their adolescent children’s language use to take its

own course, parents should be committed to provide their children with quality L1 input so their L1 proficiency may continue to develop and be maintained. This may be achieved by creating a home environment rich with such input and, when feasible, sending their children regularly back to the home country, where they can participate in certain activities that require them to use various L1 registers. This is particularly important since this study shows that adolescent immigrants often use a more or less reduced version of L1 within the friend domain in an immigrant context (Halmari, 2005; Pauwels, 2005). The five cases of low performers exemplify the consequences of not being provided with an opportunity for quality L1 input from the early years of exposure to L2 environment throughout adolescence. The example of these participants highlights the importance of early years of immigration in one's language maintenance or attrition in the later stages of immigration, suggesting that L1 maintenance efforts must start as soon as the immigrant family arrives in their adopted country.

Findings from this study point to an urgent need for an L1 programme for adolescent immigrants at a level that meets their cognitive and social developmental needs. While providing an environment rich with quality L1 input may depend on the willingness of the adults in the family and the L1 community to commit themselves to L1 maintenance (Pauwels, 2005), it is the emotional and/or socio-economical value of using or maintaining the language interpreted by the individual adolescent child that induces him/her to this environment (de Bot, 2001). In order for the adolescent child to use, maintain, and even acquire L1 in this environment, there must be a need and function for the L1 and social networks in which it is used within as well as outside the community. In this respect, present efforts for L1 maintenance among adolescents at the level of family and community seem to have a rather limited role in New Zealand (cf. de Bot & Clyne, 1994).

Ideally, L1 maintenance should be integrated into mainstream schooling by utilising a long-term bilingual programme that gives “cognitively complex on-grade-level academic instruction” (Thomas & Collier, 1997, p. 15) in L1 to such adolescent immigrant children

until they acquire L2 proficiency at the age-appropriate level. L1 academic instruction should, however, be continued even after the child's L2 proficiency reaches this level since their cognitive academic development continues. Without on-going support, their L1 may fall into disuse, perhaps again leading to another state of delayed L1 attrition or *subtractive bilingualism* (Lambert, 1977)—acquisition of L2 at the expense of L1. In order to grow to be a true, mature *multicompetent* bilingual (Cook, 1999, 2003), an adolescent bilingual child continuously needs to be cognitively challenged and motivated for academic achievements as well as social interactions using both languages in a balanced way.

In a dearth of L1 attrition studies on Korean, this study has a significant contribution to this field particularly in New Zealand, where research on the Korean immigrant community is rare. Although not the purpose of the present study, the findings may help teachers of Korean community schools and heritage language programmes in New Zealand and other English-speaking countries understand their students' difficulties and design their lessons to accommodate their needs. The findings from an in-depth analysis of five cases may help teachers raise their awareness of individual differences in the degrees of L1 maintenance or attrition among their students who are similarly fluent in their surface performance. Ultimately, by illuminating a specific phenomenon of Korean young immigrants, it is hoped that this study contributes to an understanding of the particular population by their own Korean community as well as their host society. It is also hoped that this understanding may lead to the welfare of linguistic minority children in New Zealand as well as in other countries around the world and that it may slow down the process of L1 attrition in their generation and eventually delay or even prevent intergeneration language shift in the generations to come.

### ***6.3 Suggestions for further research***

Although the present study has a number of important implications, there are also limitations that could not be overcome. The limitations of the study mainly stem from its cross-sectional design with a small sample. While the number of the late bilingual participants satisfied the

minimum required for inferential statistics, it did not allow more sophisticated statistics that require a larger number of participants and could have been more powerful in predicting the relationships between various variables and L1/L2 measures. In addition, since the participants were not a random sample, they do not represent general populations. It is possible that the participants who volunteered to the research were already to some extent confident about their L1 and L2 proficiency as they were willing to put themselves on display. Although the participants selected mainly through a personal network were very cooperative and provided quality data, the findings from the study should be taken as tentative and applied cautiously to other populations in different contexts. Age of arrival and other related variables were controlled in this study in order to reduce these drawbacks. Although this enabled a relatively coherent picture of attrition of L1 proficiency occurring in a relatively homogeneous group, it could not address the effects of the variables controlled for.

While it is necessary to conduct larger scale research with a coherent approach, there is also an urgent need to address longitudinal effects of L1 attrition in late bilinguals. Since longitudinal research is not often plausible particularly on late bilingual attriters due to a number of reasons as discussed in sections 2.2.2.1 and 3.1.2, an alternative would be to conduct a follow-up study using the same methodology with (at least some of) the same bilinguals as in de Bot and Clyne (1994). This may enable us to test de Bot and Clyne's suggestions (1994; see also Hutz, 2004; Nessier, 1984) that L1 attrition may occur in the first decade of immigration but that L1 skills remain relatively stable after this period. Another alternative would be to employ a comparable group of bilinguals who meet the same criteria that were applied to this study but are slightly older and had a higher education at the time of departure from Korea. This may enable investigation into the effect of age of arrival/prior education in L1. As the participant pool grows, it would be possible to control for other variables, for example, length of residence. Since it is almost impossible to address all these issues in a single project, the study calls for more collaborative long-term research perhaps using this study as a template for research on Korean-English bilinguals in other immigrant

contexts. This will enable the comparison and evaluation of findings on L1 attrition in different contexts in a principled way and a more comprehensive picture of L1 attrition.

Using this study as a template for research, it will enrich our understanding of L1 attrition to investigate diverse variables for each aspect of proficiency. The accuracy measure utilised in this study (i.e., error-free clauses) was effective in detecting differences in L1 performance but not in L2. While using this method was also useful in comparing L1 and L2 performance, future studies may focus on specific features in Korean (e.g., *l* deletion, particle use, verb inflection, adverbial placement, zero anaphora, etc.), some of which are discussed in chapter 5. As for L2 performance, investigation using such specific features as article use, verb inflection, and agreement morphology in English may be useful in identifying differences and their relationships with other variables. As noted in 6.1, using hesitation phenomena as an alternative measure for fluency may illuminate another aspect of fluency in the L1 and L2 of the attriter. It has been acknowledged that this study could not provide much information related to phonological differences in the participants' L1 and L2. Areas of future research in this regard may be phonetic/phonemic distinctions, intonation/stress patterns, consonant clusters (or deletion thereof), or other morphophonemic rules in either Korean or English that are salient to each other.

Future research needs to provide more information on individual cases as well as on L2 performance through qualitative analysis. It is also important to include actual speech data for language use as well as more various types of spontaneous data across all domains including code-switching and experimental tests. This may reveal why language use with some interlocutor types is relevant to L1 attrition and why language use with others is not.

With respect to language use related to interlocutor types, there are two issues that particularly deserve future research. The first is related to the issue of the role of family members in L1 maintenance/attrition. While the present study highlights the particular role of the father, it could not fully address the issue relating to solo-parent families. Future research should investigate this issue by differentiating the participant samples according to this

variable. The second is related to L1 use within the friend domain. Although the present study gave some explanations through qualitative analysis for why L1 use with friends—perhaps the most important domain of language use for adolescents—is of little relevance to L1 proficiency, future study may give a more clear account of this issue by focusing on actual speech samples produced in this domain and other qualitative data.

It is not plausible to claim to be able to provide an account of L1 attrition without acknowledging the tentativeness of the findings, or to define the degree of attrition with confidence. Nevertheless, each L1 attrition project can contribute to the larger body of research only when consistent and rigorous rules are applied in the design of its methodology. It is like a jigsaw puzzle. When the parts fit in the correct place, the whole entity is coherent. As de Bot (2001, p. 79) notes, the body of empirical research on L1 attrition is a multiple case study on language loss “on line” in various types of language use by various kinds of language “losers” with various L1s and L2s in different contexts. Each piece of L1 attrition research is a valuable means of enriching our existing body of knowledge and collectively contributing to the ultimate aim of illuminating the process of L1 attrition. This study hopefully makes one such contribution by providing one small piece of the puzzle.

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# Appendices

## *Appendix A: Ethics forms*



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### **PARTICIPANT INFORMATION SHEET**

Title: Mother tongue use in a second language learning environment: The case of Korean-English bilinguals in New Zealand

To: Participant (Target Group)

My name is Sun Hee Kim. I am currently enrolled for a Doctoral Degree in Applied Linguistics in the Department of Applied Language Studies and Linguistics at the University of Auckland. I am conducting this research for my thesis on mother tongue use of Korean-English bilinguals who are learning and/or using English as a second language. There are many factors which influence a bilingual's choice about which language to use and when, and I am interested in finding out more about this. I'd also like to find out how much you remember of your mother tongue and how much English you have learned.

You are invited to participate in my research and I would appreciate any assistance you can offer me. As part of my thesis, I would like to look at how you use Korean and English by audio-recording your actual use of the two languages as well as by administering a questionnaire.

I would like to visit you twice. On the first visit, which will take approximately 35-40 minutes, I would like to ask you first to complete a questionnaire for general information about your language use. It will take about 15-20 minutes. And then I would like you to listen to and retell four different stories: the first two entirely in Korean and the next two entirely in English (or vice versa) after listening to them in the relevant language. After you finish retelling the stories, I will ask you a few questions about the task. The whole session of the story-retelling task will take about 20 minutes. On the second visit, which will take approximately 45-50 minutes, I will show you a series of pictures, each of which you will try to name using Korean and English. This task will take about 20 minutes for both languages. After that, I will ask you to tell a story looking at a picture book without text and ask a few questions about the task after you finish it. This will take about 10 minutes. Lastly, I would like to interview you for about 15-20 minutes to follow up your responses to the questionnaire you have completed in the previous meeting. I would prefer to audio record all the interaction during both visits but this would only be done with your consent and the tape recorder could be turned off if you want to have a break. You can withdraw information you have provided any time up to May 31<sup>st</sup> 2004. Additionally, the data collected through this project may be used again for the possible future study. However, this would also be done with your consent.

In addition, I hope this will be an opportunity to help you look back upon your use of Korean and English and develop your bilingual and bicultural awareness.

If you do wish to participate in the research please let me know by filling in a Consent Form and sending it to me or phoning me on Tel: 630 0748 after hours. All information you provide for this research is confidential and your name will not be used in the thesis or any future report on the data.

Thank you very much for your time and help in making this study possible. If you have any queries or wish to know more, please phone me at home at the number given above or write to me at:

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For any queries regarding ethical concerns please contact:

The Chair, The University of Auckland Human Subjects Ethics Committee,  
The University of Auckland, Research Office - Office of the Vice Chancellor, Private Bag 92019, Auckland. Tel.  
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**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE on  
12 / February /2003 for a period of 3 years, from 12 / February / 2003 Reference 2003 / 001**



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## PARTICIPANT INFORMATION SHEET

Title: Mother tongue use in a second language learning environment: The case of Korean-English bilinguals in New Zealand

To: Parent/Guardian (Target Group)

My name is Sun Hee Kim. I am currently enrolled for a Doctoral Degree in Language Teaching and Learning in the Department of Applied Language Studies and Linguistics at the University of Auckland. I am conducting this research for my thesis on mother tongue use of Korean-English bilinguals who are learning and/or using English as a second language. There are many factors which influence a bilingual's choice about which language to use and when and I am interested in finding out more about this. I'd also like to find out how much your child remembers of his/her mother tongue and how much English he/she has learned.

Your child is invited to participate in my research and I would appreciate any assistance your child can offer me. As part of my thesis I would like to look at how your child uses Korean and English by audio-recording his/her actual use of the two languages as well as by administering a questionnaire.

I would like to visit your child twice. On the first visit, which will take approximately 35-40 minutes, I would like to ask your child first to complete a questionnaire for general information about his/her language use. It will take about 15-20 minutes. And then I would like your child to listen to and retell four different stories: the first two entirely in Korean and the next two entirely in English (or vice versa) after listening to them in the relevant language. After your child finishes retelling the stories, I will ask him/her a few questions about the task. The whole session of the story-retelling task will take about 20 minutes. On the second visit, which will take approximately 45-50 minutes, I will show your child a series of pictures, each of which he/she will try to name using Korean and English. This task will take about 20 minutes for both languages. After that, I will ask your child to tell a story looking at a picture book without text and ask a few questions about the task after he/she finishes it. This will take about 10 minutes. Lastly, I would like to interview your child for about 20 minutes to follow up his/her responses to the questionnaire he/she has completed in the previous meeting. I would prefer to audio record all the interaction during both visits but this would only be done with the consent of you and your child and the tape recorder could be turned off if your child wants to have a break. You can withdraw information your child has provided any time up to May 31<sup>st</sup> 2004. Additionally, the data collected through this project may be used again for the possible future study. However, this would also be done with the consent of you and your child.

In addition, I hope this will be an opportunity to help your child look back upon his/her use of Korean and English and develop positive attitudes to his identity as a bilingual and bicultural individual.

If you do wish your child to participate in the research please let me know by filling in a Consent Form and sending it to me or phoning me on Tel: 630 0748 after hours. All information your child provides for this research is confidential and your child's name will not be used in the report.

Thank you very much for your time and help in making this study possible. If you have any queries or wish to know more, please phone me at home at the number given above or write to me at:

Department of Applied Language Studies and Linguistics  
The University of Auckland  
Private Bag 92019  
Auckland Tel 373 7599 ext. 87125

My supervisors are:

Dr. Catherine Elder  
Department of Applied Language Studies and Linguistics  
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Private Bag 92019  
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Professor Rod Ellis  
Department of Applied Language Studies and Linguistics  
The University of Auckland  
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Auckland Tel. 373 7599 ext. 84876

Dr. Gary Barkhuizen  
Department of Applied Language Studies and Linguistics  
The University of Auckland  
Private Bag 92019  
Auckland Tel. 373 7599 ext. 88197

The Head of Department is:

Professor Rod Ellis  
Department of Applied Language Studies and Linguistics  
The University of Auckland  
Private Bag 92019  
Auckland Tel. 373 7599 ext. 84876

For any queries regarding ethical concerns please contact:

The Chair, The University of Auckland Human Subjects Ethics Committee,  
The University of Auckland, Research Office - Office of the Vice Chancellor, Private Bag 92019, Auckland. Tel. 373 7599 ext. 87830

**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE on  
12 / February /2003 for a period of 3 years, from 12 / February / 2003 Reference 2003 / 001**



## **CONSENT FORM**

### **THIS CONSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS**

Title: Mother tongue use in a second language learning environment: The case of Korean-English bilinguals in New Zealand

Researcher: Sun Hee Kim

For Participant (Target Group)

I have been given and have understood an explanation of this research project. I have had an opportunity to ask questions and have them answered.

I understand that I may withdraw myself or any information traceable to me at any time up to May 31st, 2004 without giving a reason.

- I agree to take part in this research.
- I agree that I will answer a questionnaire during the data collection period.
- I agree to have my voice audio recorded while telling and retelling stories, naming pictures, and participating in an interview.
- I agree/disagree (circle one) that the data collected through this project may be used again for a possible future study.

Signed:

Name:  
(please print clearly)

Date:

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Researcher: Sun Hee Kim

For Parent/Guardian (Target Group)

I have been given and have understood an explanation of this research project. I have had an opportunity to ask questions and have them answered.

I understand that I may withdraw my child or any information traceable to my child at any time up to May 31st, 2004 without giving a reason.

- I agree that .....who is under my guardianship may participate in this research.
- I agree that my child will answer a questionnaire during the data collection period.
- I agree to have the voice of my child audio recorded while telling and retelling stories, naming pictures, and participating in an interview.
- I agree/disagree (circle one) that the data collected through this project may be used again for a possible future study.

Signed:

Name:  
(please print clearly)

Date:

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## **ASSENT FORM**

### **THIS ASSENT FORM WILL BE HELD FOR A PERIOD OF SIX YEARS**

Title: Mother tongue use in a second language learning environment: The case of Korean-English bilinguals in New Zealand

Researcher: Sun Hee Kim

For Participant (Target Group)

I have been given and have understood an explanation of this research project. I have had an opportunity to ask questions and have them answered.

I understand that I may withdraw myself or any information traceable to me at any time up to May 31st, 2004 without giving a reason.

- I agree to take part in this research.
- I agree that I will answer a questionnaire during the data collection period.
- I agree to have my voice audio recorded while telling and retelling stories, naming pictures, and participating in an interview.
- I agree/disagree (circle one) that the data collected through this project may be used again for a possible future study.

Signed:

Name:  
(please print clearly)

Date:

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## PARTICIPANT INFORMATION SHEET (연구조사 참여 내용)

제목: Mother tongue use in a second language learning environment: The case of Korean-English bilinguals in New Zealand (제 2 언어 학습 환경에 있어서의 모국어 사용: 뉴질랜드 내에서 한국어와 영어를 사용하는 이중 언어 사용자들의 경우)

조사 참가자용 (조사 대상 집단)

저는 옥선희(영문 이름: Sun Hee Kim)라고 합니다. 저는 현재 오uckland 대학교의 응용언어학과(Department of Applied Language Studies and Linguistics)에서 언어교육학 박사 과정을 밟고 있습니다. 저는 영어를 배우거나 사용하고 있는 한국어와 영어의 이중 언어 사용자들의 모국어 사용에 관한 연구를 하고 있습니다. 이중 언어 사용자들이 두 가지 언어 중 어느 것을 어떤 때 선택하는지에는 여러 가지 요인이 작용하고 있으며, 저는 이 점에 대하여 좀 더 연구하고자 합니다. 저는 또한 여러분이 모국어를 어느 정도 기억하고 있고, 영어를 어느 정도 습득했는지도 알아 보고자 합니다.

여러분께서 저의 연구에 참여하기를 부탁드립니다. 여러분으로부터 어떤 도움이라도 제가 받을 수 있다면 대단히 감사하겠습니다. 본 연구의 일환으로 저는 여러분이 한국어와 영어를 어떻게 실제로 사용하고 있는지를 녹음을 통해서, 또 설문지 조사를 통해서 살펴보고자 합니다.

저는 여러분을 2 회에 걸쳐서 방문하고자 합니다. 방문 시간은 각각 40-50 분 정도 되리라고 예상하고 있습니다. 첫 번째 방문에서 저는 약 15-20 분에 걸친 설문지 조사에 응해 주시도록 부탁할 것입니다. 설문지 내용은 여러분의 일반적인 언어사용에 관한 내용일 것입니다. 또한, 저는 여러분에게 각각 두 가지씩 한국어와 영어로 된 이야기를 들려 드린 후 그것을 다시 이야기해 보도록 부탁할 것입니다. 이것은 통틀어서 약 20 분이 걸릴 것입니다. 이것이 다 끝난 후 저는 이 이야기 다시 하기에 관한 몇 가지 질문을 여러분께 할 것입니다. 두 번째 방문에서는 여러분은 일련의 그림을 보시고, 각 그림에 해당하는 단어를 한국어로, 또 영어로 말하게 될 것입니다. 이는 통틀어서 약 20 분이 걸릴 것입니다. 그 다음, 여러분은 글자 없이 그림으로만 된 그림책을 보고 스스로 이야기를 만들어서 하게 될 것입니다. 이야기하기가 다 끝나면 저는 다시 몇 가지 질문을 할 것입니다. 마지막으로, 저는 여러분을 약 15-20 분에 걸쳐서 인터뷰하고자 합니다. 인터뷰 내용은 여러분의 설문 응답에 관한 것일 것입니다. 저는 두 차례에 걸친 방문에서 행해지는 언어를 사용하는 모든 활동을 녹음하기를 원하지만 이는 여러분의 동의하에 이루어질 것이며 쉬기를 원하면 중지될 수 있습니다. 또한 2004 년 5 월 31 일 이전에는 언제든지 여러분이 제공한 정보의 사용을 중지하기를 요청하실 수 있습니다. 덧붙여서 이 연구 조사에서 수집된 자료는 추후에 가능한 연구에 사용될 수도 있습니다. 그러나, 이 또한 여러분의 동의하에 이루어질 것입니다.

덧붙여서, 이 연구에의 참여가 여러분께서 자신이 한국어와 영어를 어떻게 사용하는지 돌아 보고, 자신의 두 언어와 두 가지 문화를 소유한 한 사회의 구성원으로서의 중요성에 대한 인식을 새롭게 할 수 있는 기회를 갖게 되기를 희망합니다.

여러분이 이 연구에 참여하는데 동의하면, 첨부된 동의서에 서명하셔서, 저에게 우편으로 보내 주시거나, 아니면 일과 후 6300748 로 연락해 주십시오. 여러분의 모든 개인적 정보에 대해서는

비밀이 유지될 것이며 여러분의 본명은 논문 및 추후에 있을 수집된 자료에 관한 연구 발표에 사용되지 않을 것입니다.

본 연구가 가능하게 되도록 협조해 주어서 감사합니다. 문의 사항이 있거나 본 연구에 대해 더 궁금한 점이 있으면 위 전화 번호로 일과 후에 연락하거나 아래 주소로 편지를 보내 주십시오:

Department of Applied Language Studies and Linguistics  
The University of Auckland  
Private Bag 92019  
Auckland Tel:(09) 3737599 ext 87125

지도교수:

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The University of Auckland  
Private Bag 92019  
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Private Bag 92019  
Auckland Tel: 373 7599 ext 84876

Dr. Gary Barkhuizen  
Department of Applied Language Studies and Linguistics  
The University of Auckland  
Private Bag 92019  
Auckland Tel: 373 7599 ext 88197

학과장:

Professor Rod Ellis  
Department of Applied Language Studies and Linguistics  
The University of Auckland  
Private Bag 92019  
Auckland Tel: 373 7599 ext 84876

윤리적인 문제로 문의하시려면 아래 주소나 전화 번호를 이용하십시오:

The Chair, The University of Auckland Human Subjects Ethics Committee,  
The University of Auckland, Research Office - Office of the Vice Chancellor, Private Bag 92019  
Auckland Tel: 373 7599 ext 87830

**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE on  
12 / February /2003 for a period of 3 years, from 12 / February / 2003 Reference 2003 / 001**



## PARTICIPANT INFORMATION SHEET (연구조사 참여 내용)

제목: Mother tongue use in a second language learning environment: The case of Korean-English bilinguals in New Zealand (제 2 언어 학습 환경에 있어서의 모국어 사용: 뉴질랜드 내에서 한국어와 영어를 사용하는 이중 언어 사용자들의 경우)

학부모/보호자용 (조사 대상 집단)

저는 옥선희(영문 이름: Sun Hee Kim)라고 합니다. 저는 현재 오uckland 대학교의 응용언어학과(Department of Applied Language Studies and Linguistics)에서 언어교육학 박사 과정을 밟고 있습니다. 저는 영어를 배우거나 사용하고 있는 한국어와 영어의 이중 언어 사용자들의 모국어 사용에 관한 연구를 하고 있습니다. 이중 언어 사용자들이 두 가지 언어 중 어느 것을 어떤 때 선택하는지에는 여러 가지 요인이 작용하고 있으며, 저는 이 점에 대하여 좀 더 연구하고자 합니다. 저는 또한 귀하의 자녀가 모국어를 어느 정도 기억하고 있고, 영어는 어느 정도 습득했는지도 알아 보고자 합니다.

귀하의 자녀가 저의 연구에 참여하기를 부탁드립니다. 귀하의 자녀로부터 어떤 도움이라도 제가 받을 수 있다면 대단히 감사하겠습니다. 본 연구의 일환으로 저는 귀하의 자녀가 한국어와 영어를 실제로 어떻게 사용하고 있는지를 녹음을 통해서, 또 설문지 조사를 통해서 살펴보고자 합니다.

저는 귀하의 자녀를 2 회에 걸쳐서 방문하고자 합니다. 첫 번째 방문은 35-40 분 정도 걸릴 예정인데, 이 때 저는 귀하의 자녀에게 약 15-20 분에 걸친 설문지 조사에 응해 주도록 부탁할 것입니다. 설문지 내용은 자녀분의 일반적인 언어 사용에 관한 내용일 것입니다. 또한, 저는 귀하의 자녀에게 각각 두 가지씩 한국어와 영어로 된 이야기를 들려준 후 그것을 다시 이야기해 보도록 부탁할 것입니다. 이것은 통틀어서 약 20 분이 걸릴 것입니다. 이것이 다 끝난 후 저는 이 이야기 다시 하기에 관한 몇 가지 질문을 귀하의 자녀에게 할 것입니다. 두 번째 방문은 45-50 분 정도 걸릴 예정인데, 이 때 저는 귀하의 자녀에게 일련의 그림을 보여주고, 각 그림에 해당하는 단어를 한국어로, 또 영어로 말해 보게 할 것입니다. 이는 통틀어서 약 20 분이 걸릴 것입니다. 그 다음, 저는 귀하의 자녀에게 글자 없이 그림으로만 된 그림책을 보여 주고 스스로 이야기를 만들어서 하게 하려고 합니다. 이야기하기가 다 끝나면 저는 귀하의 자녀에게 몇 가지 질문을 할 것입니다. 마지막으로, 저는 귀하의 자녀를 약 15-20 분에 걸쳐서 인터뷰하고자 합니다. 인터뷰 내용은 귀하의 자녀의 설문 응답에 관한 것일 것입니다. 저는 두 차례에 걸친 방문에서 행해지는 언어를 사용하는 모든 활동을 녹음하기를 원하지만 이는 귀하와 귀하의 자녀의 동의하에 이루어질 것이며 자녀분이 쉬기를 원하면 잠시 중지될 수 있습니다. 또한 2004 년 5 월 31 일 이전에는 언제든지 귀하의 자녀가 제공한 정보의 사용을 중지하기를 요청하실 수 있습니다. 덧붙여서 이 연구 조사에서 수집된 자료는 추후에 가능한 연구에 사용될 수도 있습니다. 그러나, 이 또한 귀하와 자녀분의 동의하에 이루어질 것입니다.

덧붙여서, 이 연구에 참여함으로써 귀하의 자녀가 자신이 어떻게 한국어와 영어를 사용하는지 돌아보고, 또한 두 언어와 두 문화를 가진 개인으로서 긍정적인 정체성을 기르는 기회를 갖게 되기를 희망합니다.

귀하의 자녀가 본 연구에 참여하는데 동의하시면, 첨부된 동의서에 서명하셔서 저에게 우편으로 보내 주시거나 일과 후 630 0748 로 전화를 주시어 저에게 알려 주실 수도 있습니다. 자료 수집 과정에서 귀하의 자녀의 모든 개인적 정보에 대해서는 비밀이 유지될 것이며 본명은 논문 및 추후에 있을 수집된 자료에 관한 연구 발표에 사용되지 않을 것입니다.

본 연구가 가능하게 되도록 협조해 주심에 감사드립니다. 문의 사항이 있거나 본 연구에 대해 궁금하신 점이 있으면 상기 전화 번호로 일과 후에 연락 주시거나 아래 주소로 편지를 보내 주십시오:

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윤리적인 문제로 문의하시려면 아래 주소나 전화 번호를 이용하십시오:

The Chair, The University of Auckland Human Subjects Ethics Committee,  
The University of Auckland, Research Office - Office of the Vice Chancellor, Private Bag 92019  
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**APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE on  
12 / February /2003 for a period of 3 years, from 12 / February / 2003 Reference 2003 / 001**



## CONSENT FORM (동의서)

### 이 동의서 (CONSENT FORM)는 6년간 보관될 것입니다

제목: Mother tongue use in a second language learning environment: The case of Korean-English bilinguals in New Zealand (제 2 언어 학습환경에 있어서의 모국어 사용: 뉴질랜드 내에서 한국어와 영어를 사용하는 이중 언어 사용자들의 경우)

연구조사원: 옥선희 (영문 이름: Sun Hee Kim)

조사 참가자용 (조사 대상 집단)

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날짜:

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN SUBJECTS ETHICS COMMITTEE on  
12 / February /2003 for a period of 3 years, from 12 / February / 2003 Reference 2003 / 001



### CONSENT FORM (동의서)

이 동의서 (CONSENT FORM)는 6 년간 보관될 것입니다

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연구조사원: 옥선희 (영문 이름: Sun Hee Kim)

학부모/보호자용 (조사 대상 집단)

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### ASSENT FORM (동의서)

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## ***Appendix B: Aesop's fables for story-retelling tasks***

### **Aesop's Fables in English**

*(Instruction) I am going to read you two stories which may be familiar to you. While you listen, you may look at the cartoon strips based on the story. After I finish reading the first one, I would like you to retell the story to me. After that, we will continue with the next story.*

*PAUSE (5 SECONDS)*

Story 1.

#### **The fox and the stork**

The fox met the stork in the woods and invited him home for dinner. He served soup in a flat bowl. The fox licked his plate clean, but the stork couldn't get anything up his long beak. The next time they met, the stork invited the fox to his place for dinner. This time the stork served their meal in bottles with long necks. He enjoyed his food but the fox went hungry. The stork said, "Now you and I are even."

*PAUSE (5 SECONDS)*

*(Instructions) Now would you tell me the same story in your own words? But I would like you to recall as much as possible from what I read to you. You may have a look at the cartoon strips which may help you to tell the story.*

***THE SUBJECT RETELLS THE STORY***

Story 2.

*(Instruction) Now I'll read you the second story. Please listen carefully and do the same as you did for the first one.*

*PAUSE (5 SECONDS)*

#### **The rabbit and the turtle**

The rabbit challenged the turtle to race him to the flag on a faraway hill. The rabbit took off at a gallop, and soon left the turtle behind. After a while, the rabbit was so sure of himself that he stopped for a nap. When he woke up and finished the race, he found that the turtle had beaten him. Slow and steady is the best rule to follow.

*PAUSE (5 SECONDS)*

*(Instructions) Now please tell me the story again in your own words. Again, you may have a look at the drawings while you tell the story.*

*THE SUBJECT RETELLS THE STORY*

### **Aesop's fables in Korean**

Story 1.

*(Instructions) 이제부터 잘 알고 있는 이야기 두 가지를 읽어 드리겠어요. 그림을보면서 첫번째 이야기를 들은 다음에 저에게 그 이야기를 다시 해 주시면 좋겠어요. 그 다음에 두 번째 이야기를 가지고 계속하겠어요.*

*PAUSE (5 SECONDS)*

#### **여우와 까마귀 (The fox and the crow)**

여우가 숲 속을 걸어가다가 까마귀가 고깃덩이를 물고 나뭇가지 위에 앉아 있는 것을 발견했습니다. 여우는 “내가 저 고깃덩이를 차지하고야 말아야지.” 라고 생각했습니다.

“오, 까마귀님, 당신은 왕처럼 멋지군요.”

하지만 까마귀는 입을 벌리지 않았습니다. 여우는 다시 한 번, “ 오, 까마귀님, 노래만 하실 수 있다면 틀림없이 왕이 되실텐데요.” 라고 말했습니다. 까마귀가 드디어 자기 목소리를 뽐내 보이려고 노래를 시작하자 고깃덩이는 땅에 떨어졌습니다. 까마귀가 속아 넘어간

데에 대해 분해하고 있는 동안 여우는 고깃덩이를 낚아채 가지고 즐거워 웃으면서 달아났습니다.

*PAUSE (5 SECONDS)*

(Instructions) 자, 이제 같은 이야기를 저에게 해 주시겠어요? 똑같이 외워서 하려고 하지 말고 이야기 나오는 대로 해 주세요. 하지만 제가 읽어드린 내용을 가능한 한 많이 생각해 내서 이야기해 주세요. 내용을 담은 그림을 보면서 해 주세요.

*THE SUBJECT RETELLS THE STORY*

Story 2.

(Instructions) 자, 두번째 이야기를 읽어 드릴테니까 잘 듣고, 첫번째 이야기를 듣고 한 것처럼 해 주세요.

*PAUSE (5 SECONDS)*

생쥐와 사자 (The mouse and the lion)

생쥐 한 마리가 기어다니다가 자고 있는 사자를 건드렸습니다. 사자는 벌떡 일어나서 생쥐를 손아귀에 잡고 먹어 버리려고 했습니다. 생쥐는 살려 달라고 애원하면서 은혜를 꼭 갚겠다고 맹세했습니다. 사자는 이 말을 믿지 않고 웃었지만 생쥐를 그냥 놓아 주었습니다. 그로부터 오래지 않아 사냥꾼들이 와서 사자를 잡아 나무에 묶어 놓았습니다. 사자가 신음하는 소리를 듣고 생쥐가 달려와서 밧줄을 이빨로 갉아 끊어 주었습니다. 약한 자에게 친절을 베풀면 언젠가는 그 보답을 받게 되는 법입니다.

*PAUSE (5 SECONDS)*

(Instructions) 자, 이제 이 이야기를 다시 해 주시겠어요? 외우려고 하지 말고 들은 내용을 생각나는 대로 이야기해 주세요. 이번에도 이야기하는 동안 그림을 보여드리겠습니다.

*THE SUBJECT RETELLS THE STORY*

## *Appendix C: Language use questionnaire*

### **Bilingual Questionnaire**

이름 Name \_\_\_\_\_  
(한글 Korean)                      (영어 English)

날짜 Date \_\_\_\_\_

시간 Time \_\_\_\_\_

주. 귀하의 이름은 단지 참조하기 위해 필요한 것이며, 본 연구의  
보고나 이에 관련되어 나중에 출판될 글들에는 절대로 사용되지 않을  
것입니다.

Note. Your name is required only for reference. Your name will be  
used neither in the report of this research nor in other future  
publication relating to this study.

## Questionnaire

이 설문지는 응답자의 편의를 위하여 한국어와 영어가 각 문항마다 함께 사용되고 있습니다. 답을 써야 하는 문항에 대해서는 한국어나 영어 중 편하신 것 한 가지로 답해 주십시오.

### Section 1 (1-13)

당신에게 해당되는 답의 □안에 ✓ 표시를 하거나, \_\_\_\_\_ 안에 알맞은 답을 써 주십시오.

1. 성별 (✓ 표시를 해 주십시오.)  
 남                       여
2. 직업: \_\_\_\_\_
3. 태어난 해: \_\_\_\_\_
4. 언제 뉴질랜드로 이사왔습니까?  
\_\_\_\_\_년 ( \_\_\_\_\_월)
5. 한국을 떠날 때 (한국에서) 몇 학년이었습니까? (하나를 고르고 \_\_\_\_\_을 메워 주십시오.)  
 초등학교 \_\_\_\_\_학년  
 중학교 \_\_\_\_\_학년  
 고등학교 \_\_\_\_\_학년

Each item in this questionnaire is given in both Korean and English for your convenience. For the item you are required to write an answer, use either Korean or English as you feel comfortable with.

Tick ✓ in the □ of the answer that applies to you or write the answer in the \_\_\_\_\_.

1. Gender (Please give a tick ✓.)  
 male                       female
2. Occupation: \_\_\_\_\_
3. Year of birth: \_\_\_\_\_
4. When did you move to New Zealand?  
\_\_\_\_\_ (\_\_\_\_\_)  
year                                      month
5. What school year (in Korea) were you in when you left Korea?  
(Choose one and fill in the \_\_\_\_\_.)  
 Year \_\_\_\_ at primary school  
 Year \_\_\_\_ at middle school  
 Year \_\_\_\_ at high school

6. 뉴질랜드에 오기 전에 영어를 공부한 적이 있습니까?  
(✓표시를 하십시오.)

- 네                       아니오

6a. 위 6에서 '네'를 고른 경우:

얼마 동안?

\_\_\_\_\_ 년 /달 (알맞은 것에 동그라미를 해 주십시오.)

언제? \_\_\_\_\_살 때

어느 나라에서? (✓표시를 하십시오. )

- 한국  
 다른 나라 (구체적으로 \_\_\_\_\_)

7. 뉴질랜드에 오기 전에 영어를 사용하는 나라에 살았던 적이 있습니까? (✓표시를 하십시오.)

- 전혀 없다.  
 3개월 이내로 살았던 적이 있다.  
 3개월 이상 살았던 적이 있다.

6. Have you ever studied English before coming to New Zealand?  
(Please tick ✓.)

- Yes                       No

6a. If yes to 6 above:

For how long?

\_\_\_\_\_ years/months (circle the one which is applicable)

When? When I was \_\_\_\_\_ years old.

Where? (Choose one and tick ✓.)

- In Korea  
 In other countries (Please specify \_\_\_\_\_)

7. Before coming to New Zealand, have you lived in any English-speaking countries? (Please tick ✓.)

- Never  
 Less than three months  
 Three months or more

8. 뉴질랜드에 살기 시작한 처음 6 개월동안 사람들이 당신이 영어로 말하는 것을 알아듣기 힘들어했습니까? (한 가지에 ✓표시를 하십시오.)

- 네       아니오       가끔

9. 뉴질랜드에 도착한 후 영어회화실력이 늘었습니까?

- 네       아니오

10. 다음 중 어느 것이 뉴질랜드에 온 이후의 당신의 한국어 말하기 수준을 가장 잘 표현하고 있습니까? (한 가지에 ✓표를 하십시오.)

- 나의 한국어 말하기 수준이 향상되었고 한국에 사는 내 또래의 사람들과 같은 수준으로 말할 수 있다.
- 나의 한국어 말하기 수준이 향상되었지만, 한국에 사는 내 또래의 사람들의 수준까지는 미치지 못한다.
- 나의 한국어 말하기 수준은 한국을 떠날 때와 마찬가지로이다.
- 나의 한국어 말하기 수준은 한국을 떠날 때보다 낮아졌다.

8. During your first six months in New Zealand, did people have difficulties in understanding your English? (Choose one and tick ✓.)

- Yes       No       Sometimes

9. Since arriving in New Zealand, has your knowledge of spoken English improved?

- Yes       No

10. Which of the following statements best describes your level of spoken Korean since coming to New Zealand? (Choose one and tick ✓.)

- My spoken Korean has improved and is at the same level of Korean spoken by people in my age in Korea.
- My spoken Korean has improved but hasn't reached the level of Korean spoken by people in my age in Korea.
- My level of spoken Korean is the same as when I left Korea.
- My level of spoken Korean is not as good as it was when I left Korea.

11. 뉴질랜드에 이사온 후 몇 번이나 한국을 방문했습니까?

\_\_\_\_\_ 번

12. 한국에 다니러 가면 보통 몇 주정도 머무릅니까?

\_\_\_\_\_ 주

13. 얼마나 자주 한국에서 손님이 오십니까?

- 한 번도 온 적이 없다.
- 1년에 한 번 오기 힘들다.
- 1년에 한두 번 온다.
- 1년에 두 번보다 더 자주 온다.

13a. 손님들은 당신의 집에 머무릅니까?

- 네
- 아니오

13b. 13a에 '네'라고 대답한 경우, 손님들은 대개 얼마동안 머무릅니까?

- 6일 이내
- 1-2 주
- 3-4 주
- 2-4 개월
- 4 개월 보다 오래

11. How many times have you visited Korea since moving to New Zealand? \_\_\_\_\_ times

12. On average, roughly how many weeks have you spent on return visits to Korea?

\_\_\_\_\_ weeks

13. How often do you have visitors from Korea?

- Never
- Less frequently than once a year
- Once or twice a year
- More frequently than twice a year

13a Do the visitors stay at your house?

- Yes
- No

13b If yes to 13a, how long do they stay usually?

- No longer than 6 days
- 1-2 weeks
- 3-4 weeks
- 2-4 months
- Longer than 4 month

**Section 2 (14-27)**

요즘 당신은 다음과 같은 사람들에게 어느 언어로 이야기합니까?  
당신이 각 사람에게 이야기할 때에 해당하는 것을 6 가지 중에  
선택해서 ✓ 표시를 하십시오

*In which language do YOU speak to the following people these days? Tick (✓) one out of the six choices for each person you speak to.*

	언제나 한국말로 Always in Korean	영어보다 한국말로 더 자주 In Korean more often than English	한국말과 영어 모두 비슷하게 In Korean and English almost equally	한국말보다 영어로 더 자주 In English more often than in Korean	언제나 영어로 Always in English	해당 사항 없음 Not applicable
14. 아버지께 To Father						
15. 어머니께 To Mother						
16. 형제에게 To brothers/sisters						
17. 배우자에게 To spouse						
18. 교실 안에서 친구들에게 그리고/또는 동료들에게 To friends in the classroom and/or workmates in the office/workplace						
19. 교실 밖에서 친구들에게 그리고/또는 동료들에게 (예: 점심시간) To friends outside the classroom and/or workmates outside the office/workplace (e.g., during lunchtime)						
20. 교실 안에서 한국인 친구들에게 그리고/또는 동료들에게 To Korean friends in the classroom and/or workmates in the office/workplace						

	언제나 한국말로 Always in Korean	영어보다 한국말로 더 자주 In Korean more often than English	한국말과 영어 모두 비슷하게 In Korean and English almost equally	한국말보다 영어로 더 자주 In English more often than in Korean	언제나 영어로 Always in English	해당 사항 없음 Not applicable
21. 교실 밖에서 한국인 친구들에게 그리고/또는 일터 밖에서 한국인 동료들에게 To Korean friends outside the classroom and/or workmates outside the office/workplace						
22. 학교 선생님들께 To teachers at school/university						
23. 한국인 선생님들께 (개인 지도 받는 선생님 포함) To Korean teachers (including private tutors if you have any)						
24. 이웃집 사람들에게 To neighbours						
25. 할머니, 할아버지께 (응답자와 한 집에 사시는 경우만) To grandparents (if they live together with you )						
26. 오클랜드에 사는 다른 친척에게 To other relatives who live in Auckland						
27. 학교나 직장과 관련 없는 친구들에게 To friends who are not related to school/workplaces						

**Section 3 (28-41)**

다음 사람들은 당신에게 요즘은 어느 언어로 이야기합니까? 각 사람들이 당신에게 이야기할 때에 해당하는 것을 6 가지 중에 선택해서 ✓ 표시를 하십시오.

*In which language do the following people speak TO YOU these days? Tick (✓) one out of the six choices for each person.*

	언제나 한국말로 Always in Korean	영어보다 한국말로 더 자주 In Korean more often than English	한국말과 영어 모두 비슷하게 In Korean and English almost equally	한국말보다 영어로 더 자주 In English more often than in Korean	언제나 영어로 Always in English	해당 사항 없음 Not applicable
28. 아버지 Father						
29. 어머니 Mother						
30. 형제 Brothers/sisters						
31. 배우자 Spouse						
32. 교실 안에서 친구들이 그리고/또는 일터에서 동료들이 Friends in the classroom and/or workmates in the office/workplace						
33. 교실 밖에서 친구들이 그리고/또는 일터 밖에서 동료들이 (예: 점심시간) Friends outside the classroom and/or workmates outside the office/workplace (e.g. lunchtime)						
34. 교실 안에서 한국인 친구들이 그리고/또는 일터에서 한국인 동료들이 Friends outside the classroom and/or workmates outside the office/workplace						

	언제나 한국말로 Always in Korean	영어보다 한국말로 더 자주 In Korean more often than English	한국말과 영어 모두 비슷하게 In Korean and English almost equally	한국말보다 영어로 더 자주 In English more often than in Korean	언제나 영어로 Always in English	해당 사항 없음 Not applicable
35. 교실 밖에서 한국인 친구들이 그리고/또는 일터 밖에서 한국인 동료들이 Korean friends outside the classroom and/or workmates outside the office/workplace						
36. 학교 선생님들 Teachers at school /university						
37. 한국인 선생님들 (개인 지도 받는 선생님 포함) Korean Teachers (including private tutors if you have any)						
38. 이웃집 사람들 Neighbours						
39. 할머니, 할아버지 (응답자와 한 집에에 사시는 경우만) Grandparents (if they live in Auckland)						
40. 오클랜드에 사는 다른 친척 Other relatives who live in Auckland						
41. 학교나 직장과 관련 없는 친구들 Friends who are not related to school/workplaces						

**Section 4 (42-54)**

당신은 아래의 일들을 하는 데 요즈음 어느 언어를 씁니까? 각 문항마다 주어진 6칸 중 하나에 ✓ 표시를 해 주십시오.

Which language do YOU use these days for the following? Tick (✓) one out of the six choices for each activity.

	언제나 한국말로 Always in Korean	영어보다 한국말로 더 자주 In Korean more often than English	한국말과 영어 모두 비슷하게 In Korean and English almost equally	한국말보다 영어로 더 자주 In English more often than Korean	언제나 영어로 Always in English	해당 사항 없음 Not applicable
42. TV 나 비디오, DVD 를 볼 때 Watching TV/Videos/DVD						
43. 주일 예배/미사 Sunday services/Mass						
44. 기도, 성경읽기 Prayers, reading the Bible						
45. 신문/만화 Newspapers/comics						
46. 레코드/카세트/CD Records/cassettes/CDs						
47. 라디오 청취 Listening to radio						
48. 물건을 살 때 Shopping						
49. 운동할 때 Playing sports						
50. 전화로 이야기할 때 On the telephone						
51. 독서 Reading books						
52. 돈 버는 일 Earning money						
53. 클럽/사교 모임 Club/Societies						
54. 다른 여가 활동 Other leisure activities						

**Section 5 (55- 67)**

당신은 요즘 다음과 같은 경우에 어느 언어를 사용합니까? 각 경우에 해당하는 것을 다섯 가지 중에 골라서 ✓ 표시를 하십시오.

Which language do YOU use on the following occasions these days? Tick (✓) one out of the five choices for each occasion.

	언제나 한국말로 Always in Korean	영어보다 한국말로 더 자주 In Korean more often than English	한국말과 영어 모두 비슷하게 In Korean and English almost equally	한국말보다 영어로 더 자주 In English more often than Korean	언제나 영어로 Always in English	해당 사항 없음 Not applicable
55. 꿈꿀 때 When dreaming						
56. 물건의 갯수를 셀 때 When counting the number of objects						
57. 번호를 외울 때(예: ID 번호, 전화 번호 등) When memorising numbers (ID numbers, phone numbers, etc.)						
58. 걸려 오는 전화를 받을 때 (즉, “여보세요” 할 때) When receiving incoming telephone calls (i.e. saying ‘hello’)						
59. 화가 났을 때 (욕할 때) When angry (swearing)						
60. 놀랐을 때 When shocked						
61. 피곤할 때 When tired						
62. 긴장해 있을 때 When stressed						

	언제나 한국말로 Always in Korean	영어보다 한국말로 더 자주 In Korean more often than English	한국말과 영어 모두 비슷하게 In Korean and English almost equally	한국말보다 영어로 더 자주 In English more often than Korean	언제나 영어로 Always in English	해당 사항 없음 Not applicable
63. 당황했을 때 When embarrassed						
64. 논쟁할 때 When arguing						
65. 급할 때 When in a hurry						
66. 위험할 때 When in danger						
67. 어리둥절할 때 When confused						

수고하셨습니다.  
 협조해 주셔서 대단히 감사합니다.  
*This is the end of the questionnaire.*  
*Thank you for your co-operation.*

## ***Appendix D: Interview schedule***

*Examples for in-depth questions to follow-up the answers given in the questionnaire (Items are repeated from the Questionnaire)*

### *Section 1 General background*

#### *Item 2 Occupation*

Q. Can you tell me what your usual task for the job is?

Tell me what kind of communications are you involved in during your working day?

#### *Item 6 Have you ever studied English before coming to New Zealand?*

Q If you have studied English in Korea/other countries, where and how did you learn it?

Did you enjoy studying English?

What did you most enjoy about English?

Did the teacher(s) use English for instruction?

Did you find the learning useful for your further learning after coming to New Zealand?

#### *Item 7 Before coming to New Zealand, have you lived in any English-speaking countries?*

Q Tell me the background of your stay in an English-speaking country.

Were you alone or with other members of your family?

Which language did you usually use to interact with people around you?

#### *Item 8 During your first six months in New Zealand, did people have difficulties in understanding your English?*

Q How did you feel on such occasions?

What did you do when you found they did not understand you?

Do you think the circumstances have changed now?

*Item 9 Since you arrived in New Zealand, has your knowledge of spoken English improved?*

Q Did you put any special efforts to improve your spoken English? How?

Were they effective?

*Item 10 Which of the following statement best describes your level of spoken Korean since coming to New Zealand?*

Q What do you feel about your current state of spoken English and Korean?

*Items 11-13*

*How many times have you visited Korea since moving to New Zealand?*

Q On average, roughly how many weeks have you spent on return visits to Korea?

How often do you have visitors from Korea?

Can you tell me for what reason you visited Korea?

Have you found any difficulty in understanding what people talk about?

Did people in Korea understand easily what you said?

What kind of communications did you usually involve in when you visited Korea?

*Sections 2-3 Language spoken by the subject according to addressee; language spoken to the subject by various addresser*

Q What are the usual topics when you speak to these people / when these people speak to you?

Section 4 Language used according to the type of activity

Q Which TV/radio program is your favourite programme?

Does your church hold services in Korean?

Section 5 Language used according to the emotional/cognitive load

Q Could you give me some examples and tell me some interesting episodes about these occasions if you have any?

Have there been any changes in your choice of language on the above occasions since coming to New Zealand?

## *Appendix E: Tools for data analysis*

### **Basic transcription conventions**

1. Transcribe everything including: all false starts, all hesitations, pause fillers, laughs, coughs, etc.
2. Use standard orthography (normal spelling) in Korean and English. In the case of Korean, transcribe using Korean orthography first and then convert the transcript into roman script using the Yale system. Any extreme deviation from standard pronunciation is marked by IPA symbols in the [ ] beside the standard spelling of the word.
3. A word boundary is marked by a space. In the case of romanisation of Korean, a hyphen (-) is used to locate a morpheme boundary as needed. Where a syllable boundary is needed, a full-stop (.) is used as in *en.e* ‘language’ and *mek-e.ya hay* “[you] must eat”.
4. The unit of analysis is the AS-unit (Foster et al., 2000, p. 365), defined as “a single speaker’s utterance consisting of *an independent clause, or sub-clausal unit*, together with *any subordinate clause(s) associated with either* [italics original].” Guidelines for identifying an AS-unit are provided separately.
5. There is no punctuation at the end of an AS-unit. Each AS-unit is put in a double spaced separate line and is assigned a sequential number within each transcript. If there is not enough space for a single lengthy AS-unit in a single line, just put it in single spaced lines, the last line of which is double spaced with the next AS-unit.
6. Pauses are indicated within parentheses. The length of any pause which is 0.5 seconds or longer is given in numbers to one decimal place. Thus (1.0) indicates roughly a pause of one second. A brief but perceivable pause shorter than a half second is indicated as (.). The length of pause may be measured by a stopwatch or by examining the graphic representation of the sound obtained by sound-editing software.
7. A colon is used to indicate a lengthened segment. That is, in 1) below, the colon indicates the consonant /f/ is prolonged, while the vowel /æ/ is lengthened in 2) below:

- 1) there was a f:ox and stork
  - 2) a:nd served the food in a flat bowl
8. Mazes including pause fillers, false starts, repetitions, self-corrections, interjections, and backchannels are surrounded by parentheses as in 3) below.
- 3) (um) and (they were) they ate good meal
9. > is used for an abandoned utterance as in 4) below
- 4) and while he is asleep the turtle crawled towards the flag steady and slow until (ah)>
10. Unintelligible segments are indicated by using X as shown in 5) below. X indicates an unintelligible syllable or word; XX, an unintelligible segment longer than a word.
- 5) so he had nap XX tree
11. Non verbal noises such as laughs, coughs, sneezes, etc. produced by the speaker is indicated by a nominal description typed in brackets, as in 6) below:
- 6) and turtle just got beat [laugh] rabbit
12. Emphatic stress is indicated by bold face in the case of Korean orthography or by all caps in the case of Roman orthography.
13. Do not capitalise the sentence-initial letter. However, 'I' and the first letter of a proper noun should remain capitalised.
14. Numbers spoken in the text are spelled out, not written as numerals.
15. The initial transcript prepared according to the above rules will serve as the basis for further analysis. Save it as a word file (subject code\_org\_transcript.doc.).

## **Guidelines for identifying an AS-Unit in narratives (adapted from Foster et al., 2000)**

### 1. Definitions

An AS-unit consists of “*an independent clause or sub-clausal unit* together with any *subordinate clause(s)* associated with either.” [italics original] (Foster et al., 2000, p. 365)

- An independent clause minimally includes a finite verb.
- An independent sub-clausal unit consists of either one or more phrases which can be elaborated to a full clause by means of recovery of ellipsed elements from the context.

### 2. Subordination

- A segment including a non-finite verb is assigned clausal status only when it is accompanied by at least one additional clause element (i.e. Subject, Object, Complement, or Adverbial). For example, 1) and 2) below are regarded as AS-units consisting of one clause with pre-nominal/post-nominal modification by a single non-finite verb (*camca-nun* / to read) respectively; 3) and 4), as AS-units consisting of two clauses respectively, with the italicized part as the subordinate clause. In the examples given hereafter within these guidelines, an AS-unit boundary is marked by an upright slash (/), while a clause boundary within an AS-unit is marked by a double colon (::)<sup>1</sup>

1) | *sayngcwi-ka camca-nun saca-lul kkaywu-ess-supnita* |  
“a mouse woke a sleeping lion”

2) | I have no time to read |

3) | *sayngcwi-ka :: konhi ca-nun :: saca-lul kkaywu-ess-supnita* |  
“a mouse woke a lion who was fast asleep”

4) | I have no time :: to read a novel |

- Adverbial clauses in the sentence-initial and -medial positions are usually regarded as subordinate to the main clause. As for the sentence-final position, adverbial clauses should be in the same tone unit as at least one of the clause elements in the main clause in order to be treated as subordinate clause to the main clause (Foster et al., 2000, p. 367)<sup>2</sup>.

5) | and when the rabbit was (.) up (1.6) :: turtle finished the race | (1 AS-unit)

6) | and fox went hungry :: because he couldn't (.) eat it | (1 AS-units)

### 3. Coordination

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<sup>1</sup> These symbols do not appear in the transcripts appended as an exemplar since they were only needed for the analysis of accuracy and complexity.

<sup>2</sup> If the relationship between the messages carried by the adverbial clause and the main clause is not clear, and if there is a clear prosodic feature (i.e. a falling intonation at the end of the preceding clause or a pause of 0.5 seconds or longer) at the boundary between the two clauses, the adverbial clause is regarded as a separate AS-unit. (Foster et al., 2000, p. 368). However, no such examples are found in the data for the current study.

- Coordinated main clauses are regarded as separate units if they meet the definition in 1 above.

7) | stork could finish his meal, | but fox couldn't | (2 AS-units)

- In the case of a subjectless finite verb in the second clause in the coordinative construction:

Coordinated verb phrases are considered to belong to the same unit unless the first phrase is marked by falling or rising intonation and is followed by a pause of 0.5 seconds or longer (see Examples 8 and 9 below). In the case of Korean data, if the pause filler, laughs, cough, etc. and other hesitation phenomena lasts for 0.5 seconds or longer, and the intonation changes at the boundary of the phrases, the two phrases constitute two AS-units.

If a string of two coordinated verbs has no pause in between and no element other than the two verbs and 'and' in the case of English (as in "I'll go and get it"), or a conjunctive suffix attached to the first verb in the case of Korean (See *kaci-ko* in Example 9 below), denoting a simultaneous/sequential occurrence of events or two events compounded, the whole unit is regarded as consisting of one clause.

Otherwise, the coordinated segments are treated as separate clauses within an AS-unit (see Example 10 below).

8) | and stork invite fox to the dinner | (0.7) and served the food in the bottle of long neck | (2 AS-units)

9) | yewu-nun ku koki-lul kaci-ko kass-supnita. | (1 clause 1 AS-unit)  
 "The fox took the meat and went (The fox took the meat away)."

10) | the turtle had already finished the race :: and waiting at the end point | (2 clauses 1 AS-unit)

#### 4. The issue of ungrammatical utterances

There are errors in the speech both in Korean (L1) and in English (L2) since the speakers' L1 skills may be attriting and their L2 skills have not been fully mastered. If the error is detected and considered crucial in identifying an AS-unit, give the best guess in favour of the speaker's intention. For example, in Example 8), above, it is obvious that the speaker has failed to produce a past form of the verb 'invite' but still this segment meets the criteria as an AS-unit. As for Example 10, the two segments are coordinated by 'and' and it is easily guessed that the speaker has failed to produce the correct form of 'wait' in Past Progressive 'was waiting'.

#### 5. Disfluency features

- False starts/repetitions/self-corrections which lack the elements required to constitute AS-units are surrounded by parentheses. They are treated as part of the reformulated utterance or the utterance with the last version of self correction. However, if a

segment containing disfluency features but meeting the AS-unit criteria is produced before the message is abandoned, the segment represents the utterance as an AS-unit, while the remainder, which includes the abandoned part, is ignored. A symbol > is put at the end of the segment (AS-unit) in such cases to indicate the utterance has been abandoned from that point. (see Examples 11 and 12 below). If a whole AS-unit is reformulated and every reformulated version meets the criteria as an AS-unit, all the AS-units produced by reformulation are regarded as separate AS-units (see Example 12 below).

11) | and (they were) they ate good meal,| (1 AS-unit)

12) | and fox served food in a flat > (ah) | (I mean) fox served soup in a flat plate. | (2 AS-units)

- As for repetitions, it is necessary to distinguish between repetitions that indicate disfluency and those which are used for rhetorical purposes. Only the repetitions judged as stemming from disfluency should be marked by putting parentheses around the part repeated prior to the target utterance.

13) | so the stork could (eat) eat it.|

## Adaptation of the Yale Romanisation for Korean

*Note: The phonemic and phonetic values corresponding Korean alphabets are transcribed following the International Phonetic Alphabet (IPA) system.*

**TABLE 1 Yale Romanisation for Korean (Adapted from Martin, 1992)**

	Korean alphabet	Phonemic value	Phonetic value	Yale system
Consonants	ㅍ	/p/	[p, b]	p
	ㅑ	/ph/	[ph]	ph
	ㅓ	/pʰ/	[pʰ]	pp
	ㄷ	/t/	[t,d]	t
	ㅌ	/th/	[th]	th
	ㄸ	/tʰ/	[tʰ]	tt
	ㅅ	/s/	[s, ʃ]	s
	ㅆ	/sʰ/	[sʰ, ʃʰ]	ss
	ㅈ	/c/	[c, ʃ]	c
	ㅊ	/ch/	[ch]	ch
	ㅉ	/cʰ/	[cʰ]	cc
	ㄱ	/k/	[k, g]	k
	ㅋ	/kh/	[kh]	kh
	ㄲ	/kʰ/	[kʰ]	kk
	ㅁ	/m/	[m]	m
	ㄴ	/n/	[n, ŋ]	n
	ㅇ*	/ŋ/	[ŋ]	ng
	ㄹ	/l/	[l, r]	l
	ㅎ	/h/	[h]	h

	Korean alphabet	Phonemic value	Phonetic value	Yale system
Vowels	ㅣ	/i/	[i]	i
	ㅟ	/wi, y/	[wi, y ]	wi
	ㅝ	/e/	[e]	ey
	ㅞ	/je/	[je]	yey
	ㅜ	/we/	[we]	wey
	ㅟ	/we, ø/	[we, ø ]	oy
	ㅢ	/ɛ/	[ɛ]	ay
	ㅤ	/jɛ/	[jɛ]	yay
	ㅦ	/wɛ/	[wɛ]	way
	ㅡ	/i/	[i]	u
	ㅑ	/ə/	[ə]	e
	ㅓ	/jə /	[jə]	ye
	ㅕ	/wə /	[wə]	we
	ㅗ	/a/	[a]	a
	ㅛ	/ja/	[ja]	ya
	ㅜ	/wa/	[wa]	wa
	ㅜ	/u/	[u]	wu
	ㅠ	/ju/	[ju]	y(w)u
	ㅛ	/o/	[o]	o
	ㅠ	/jo/	[jo]	yo
	ㅟ	/ij/	[ij, i, e]	uy

\* This sound may occur in both the initial and final positions of a syllable block as in ㅇ /iŋ/, where only the final ㅇ is associated with /ŋ/, while the initial ㅇ has a null sound value (H.-M. Sohn, 1999).

## Guidelines for identifying a clause in Korean transcripts

1. Identify a conjunctive suffix (CONJ), which marks the boundary between clauses. A list of commonly-used bound morphemes including conjunctive suffixes in the Korean morphology is provided separately. For the general determination as to assigning clausal status, refer to “Guidelines Identifying an AS-Unit in Narratives” and instructions given in 2 and 3 below. The following example presents a sentence including two clauses in co-ordination with a conjunctive—*ciman* ‘but’—in between. Each clause is counted as a separate AS-unit. The boundaries of the AS-units are marked by |.

1) | saca-nun wus-ess-**ciman** | kunyang sangcwi-lul noh-a cwu-ess-supnita. |  
lion-TOP laugh-PST-**CONJ** just mouse-AC release-CMPLR give -PST-DEF:DC  
“The lion laughed, but he just released the mouse.” (2 clauses, 2 AS-units)

2. Identify a relativiser/adnominal suffix (RL) such as *-(u)n*, *-nun*, *-(u)l*, or *-ten*, which precedes a noun that the suffixed non-finite verb modifies. Since it is sometimes difficult to determine whether the construction is a simple pre-nominal modification or a relative clause with *pro-drop* and/or ellipsis of a constituent<sup>151</sup>, the rule for the identification of a segment as a clause is made simple for this analysis.

- Examine the surface structure of the AS-unit
- If the verb suffixed by an RL accompanies one or more elements which have a direct grammatical relationship with the verb (i.e. within its maximal projection), the construction is regarded as a clause; otherwise, a phrase, i.e., a single non-finite verb modifying a noun, does not constitute clausal status. This is in accordance with the discussion on clausal status of a non-finite verb included in the “Guidelines for Identifying an AS-Unit in Narratives”. Consider the following examples. In Example 2, *camca-nun* ‘sleeping’ does not have clausal status, while *konhi ca-nun* ‘sleeping tiredly—fast asleep’ in Example 3 is considered a noun-modifying clause since the verb suffixed by a RL (*iss-nun*) is accompanied by its adverbial (*konhi*).

2) | sayngcwi-ka camca-**nun** saca-lul kenduly-ess-eyo. |  
mouse-NOM sleep-**RL** lion-AC touch-PST-POL:DC  
“a mouse touched a sleeping lion” (1 clause, 1 AS-unit)

3) | yesnal-ey sayngcwi-ka :: kon-hi ca-**nun** :: saca-lul kenduly-ess-supnita |  
old day-LOC mouse-NOM deep-ADV sleep-**RL** lion-AC touch-PST-DEF:DC  
“long time ago, a mouse touched a lion who was fast asleep” (2 clauses, 1 AS-unit)

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<sup>151</sup> In Korean, there is no morphological distinction between a verb in a relative construction and a single predicate modifying a nominal including adjective expression and a participial construction (Sohn, 1999, p. 314). In fact, in Chomskyan terms, these three surface forms will be seen as having the same underlying structure. However, further discussion on this issue is beyond the scope of this instruction and the judgement regarding the identification of a segment as a clause depends on the surface structure.

3. Identify a complementiser (CMPLR) suffix such as *-a/-e*, *-ko*, *-key*, etc., which largely overlaps with conjunctive suffixes (see below, see also H.-M. Sohn, 1999, pp. 315-317). Verbs in a complement construction are semantically cohesive to varying degrees and the second verb usually serves the role as an auxiliary verb. Therefore they are considered single items as shown in Example 1 (i.e. “*noh-a cwu-ess-supnita*”) and Example 3 (“*ca-ko iss-nun*”) in spite of the spaces between the two verbs in each structure.

When a verb is suffixed by a conjunctive suffix (CONJ) and immediately followed by another verb which is not accompanied by any other word (e.g. auxiliary, its own object or adverbials, etc.), the string of verbs are regarded as one constituent in the relevant clause, as those in a complement construction, since the two verbs denote a serial occurrence of events or are compounded (see Example 4 below). Thus, this type of construction is regarded as constituting one clause if it meets other requirements.

Otherwise, follow the general rule described in the “Guidelines for Identifying an AS-Unit in Narratives”.

- 4) | yewu-nun ku koki-lul kaci-ko ka-ss-supnita. |  
fox-TOP that meat-AC have-CONJ go-PST-DEF:DC  
“The fox took the meat and went (The fox took the meat away).” (1 clause, 1 AS-unit)

4. Identify a nominaliser—NML—(e.g. *-ki*, *-(u)m*). The above rules generally apply to nominalised verbs. That is, if the suffixed verb accompanies another constituent within its maximal projection, the chunk is counted as a clause as in Example 5; otherwise, the single suffixed verb or the string of verbs in a complement construction (as explained in 3 above) is treated as a noun, as shown in the second AS-unit in Example 6. As for *-ci* accompanying the negative verb, treat the negative verb as an auxiliary verb as in a complement construction so that the combination of the two verbs may be considered as one constituent in an AS-unit (see the first AS-unit in Example 6 below).

- 5) | kkamakwi-nun :: nolay-lul pulu-ki:: sicakhay-ss-supnita. |  
crow-TOP song-AC sing-NML start-PST-DEF:DC  
“The crow started to sing a song.” (2 clauses, 1 AS-unit)

- 6) | saca-nun sangcwi-uy mal-ul mit-ci anh-ass-ciman,| noh-a cwu-ki-lo |  
lion-TOP mouse-GEN word-AC believe-NML NEG:do-PST-CONJ release-NML-DR  
hayss-supnita.  
do:PST-DEF:DC  
“The lion did not believe the mouse’s words, but he decided to release him.”  
(2 clauses, 2 AS-units)

5. The above rules 2, 3, and 4 broadly apply to quotative constructions. In Example 7 below, “*sal-li-e tal-la-ko*”, which is marked by a quotative particle (QUOT) *-ko*, is not counted as a clause. That is, the two verbs are associated with a complementiser *-e* and the meaning has been compounded (from ‘let live and give’ to ‘not to kill’) so they

don't constitute separate entities. Again, this phrase does not have any other constituent in its maximal projection as shown in the surface structure.

- 7) | sangcwi-ka sal-li-e                      tal-la-ko                      awenha-mye,|  
 mouse-NOM live-CAUS-CMPLR give-IM-QUOT beg-CONJ  
 “As the mouse begged to spare his life (Begging for his life)”                      (1 clause 1 AS-unit)

As for a direct quotation, the directly quoted part is counted as a separate clause whether it is embedded in the main clause with quotation marks (Example 8) and a quotative particle or separated from the main clause (Example 9). However, only the latter case is counted as a separate AS-unit, since the embedded quotation has a quotative particle which determines the subordination of the quoted clause. Note that the quoted clause in Example 8 does not have a QUOT.

- 8) | kuliko yewu-nun kkamakwi-hantey :: “tangsin-un wang-kati mesiss-kwunyo” lako ::  
 And fox-TOP crow-DAT                      “you-TOP king-EQU handsome-POL:DC” QUOT  
 malha-yess-una, |  
 say-PST-CONJ  
 “And the fox said to the crow, ‘you are as handsome as a king,’ but ”  
 (2 clauses, 1 AS-unit)
- 9) | yewu-ka kkamakwi-eykey malhay-ss-supnita. |  
 fox-NOM crow-DAT                      say-PST-DEF:DC  
 “The fox said to the crow,”
- 10) | “tangsin-un wang-chelem cham mesiss-kunyo.”|  
 you-TOP king-EQU                      very handsome-POL:DC  
 “you are very handsome like a king”

## Korean conjunctives, complementisers, and particles

**Conjunctives** (H.-M. Sohn, 1999, pp. 307-308)

### For coordination

a. simultaneity/sequentiality (and-coordination)

- <i>keniwa</i>	‘not only...but also, as well as’
- <i>ko</i>	‘and, and also, as well’
- <i>ko(se)</i>	‘and, and then’
- <i>(u)mye</i>	‘and, and on the other hand’
- <i>(u)myense</i>	‘while’

b. contrastiveness (but/or-coordination)

- <i>ciman(un)</i>	‘but, yet, nevertheless’
- <i>kena</i>	‘or, or else, what- (when-, how-, etc.) ever’
- <i>nuni</i>	‘rather, instead of doing’
- <i>tunci</i>	‘or, or else, what- (when, how, etc.) ever’
- <i>(u)na</i>	‘but, however’

c. use of particle *man(un)* after a sentence ender

d. *-nuntey* (*-inthey*, *-(u)lthentey*) ‘and, but, while’ and *-nunci* ‘possibly because, perhaps it does...so’

### For subordination

a. cause-effect

- <i>e(se)/-a(se)</i>	‘so, and then, as, so...that’
- <i>nulako</i>	‘while doing, as a result of’
- <i>(u)mulo</i>	‘because, due to’
- <i>(u)ni</i>	‘since, as, after’
- <i>(u)nikka</i>	‘as, since, because, when’

b. conditional

- <i>e.ya/-a.ya</i>	‘only if’
- <i>kentay</i>	‘when, if’
- <i>ketun</i>	‘if, when, provided that’
- <i>taka-nun</i>	‘if keep doing/being’
- <i>(u)myen(un)/-ta(la)myen</i>	‘if, when’

c. concessive

- <i>ca</i>	‘even if’ [occurs only with past tense]
- <i>eto/-ato</i>	‘even though, although’
- <i>keniwa</i>	‘admitting that, even so’
- <i>kenman</i>	‘even though, while’
- <i>telato</i>	‘even though, granted that’
- <i>toy</i>	‘although, even though, yet’

<i>-(u)l-cienceng</i>	‘even if’
<i>-(u)l-cilato</i>	‘even though, regardless of’
<i>-(u)l-mangceng</i>	‘even though’
<i>-(u)nama</i>	‘even if’
<i>-(u)n-tul</i>	‘even if, granted that’
d. intentive	
<i>-(u)le</i>	‘to, in order to, intending to’ [occurs only with a locomotive verb, e.g. kata ‘go’]
<i>-(u)lye(ko)</i>	‘to, in order to, with the intention to’
<i>-koca</i>	‘wanting to, intending to’
e. resultative	
<i>-key(kkum)</i>	‘so that’
<i>-tolok</i>	‘so that, to the extent that’
f. background	
<i>-tasiphi</i>	‘as, in a way such that it is possible’
<i>-tus(i)</i>	‘like, as, as if’
<i>-(u)l swulok</i>	‘the more...the more’
g. temporal sequence	
<i>-ca (maca)</i>	‘as soon as’
<i>-ese/-ase-to</i>	‘even after that’
<i>-ko(se)</i>	‘after, and then’
<i>-ta(ka)</i>	‘while doing, do and than’ [transfereptive/interruptive]
h. adverbialiser	
<i>i</i>	‘ly’

### **Complementisers (H.-M. Sohn, 1999, pp. 315-317)**

*Note: Each complementiser given below is followed by typical main clause predicates (mostly auxiliary verbs) one of which may occur immediately after the complementiser in a clause. The original meaning of the auxiliary verb if it is used independently is given in the ( ).*

a. <i>-e/-a</i> ‘to, in the state of being’ [infinitive suffix]	
<i>cita</i>	‘get to be, become’ (fall) [inchoative, passive]
<i>cwuta</i>	‘do for’ (‘give’) [benefactive]
<i>hata</i>	‘show sign of being’ (‘do’)
<i>issta</i>	‘be in the state of’ (‘exist, stay’) [resultative]
<i>kata</i>	‘continue to’ (‘go’) [persistentive]
<i>nata</i>	‘have finished’ (‘appear, occur’) [terminative]
<i>nayta</i>	‘do all the way thoroughly’ (‘produce’) [terminative]
<i>nohta</i>	‘do for later’ (‘put down’) [sustentive]

<i>ota</i>	‘continue to’ (‘come’) [persistentive]
<i>pelita</i>	‘finish up, end up with, do completely’ (‘throw away’) [terminative]
<i>poita</i>	‘appear, seem’ (‘be seen’)
<i>pota</i>	‘try, experience (to see how it will be)’ (‘see, look at’) [experiential, attemptive]
<i>ppacita</i>	‘be extremely ...’ (‘fall into’)
<i>ssahta</i>	‘continue to, do extremely’ (‘pile’) [repetitive]
<i>tayta</i>	‘do a lot’ (‘contact’) [emphatic]
<i>twuta</i>	‘get it done’ (‘place’) [sustentive]

b. *-e.ya/-a.ya* ‘only if, only to the extent that’

<i>hata</i>	‘have to, must’ (‘do’) [deontic]
<i>toyta</i>	‘have to, get to be’ (‘become’) [deontic]

c. *-keni* ‘with confidence that; with assurance that’

<i>hata</i>	‘think, assume’ (‘do’)
<i>sayngkakhata</i>	‘think, assume’ (‘think’)

d. *-key, -keykkum* (emphatic) ‘so that’ [adverbial]

<i>hata</i>	‘cause, arrange, make’ (‘do’) [causative]
<i>mantulta</i>	‘cause, make’ [causative]
<i>toyta</i>	‘turn out, get to be, it is arranged (so that)’ (become) [inchoative, passive]

e. *-ko* ‘with, and, in the state of doing’ [gerundive]

<i>issta</i>	‘be ~ing’ (‘exist, stay’) [progressive]
<i>malta</i>	‘end up doing’ (‘stop (it)’) [terminative]
<i>nata</i>	‘just finish doing’ (‘appear, occur’)
<i>pota</i>	‘do and then realise’ (‘see’)
<i>siphtha</i>	‘want, wish, desire’ [desiderative]
<i>tanita</i>	‘go around ~ing’

f. *-ko n(un)* ‘habitually’ (lit. ‘and TOP’)

<i>hata</i>	‘habitually do’ (‘do’) [habitual]
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g. *-koca* ‘wanting to, ready to, willing to’

<i>hata</i>	‘intend, wish’ (‘do’) [desiderative]
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h. *-tasiphi* ‘in the way that tends to do, nearly’

<i>hata</i>	‘almost do, behave’
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- toyta* ‘almost turn out, get to be’
- i. *-tolok* ‘so that, to the extent that’ [extensive]  
*hata* ‘cause, arrange, make’ [causative]  
*toyta* ‘turn out, get to be, it is arrange (so that)’ [inchoative, passive]
- j. *-(u)lye(ko)* ‘intending to, ready to’ [intentive]  
*hata* ‘intend to’
- k. *-(u)lyeni* ‘assuming that’ [assumptive]  
*hata* ‘assume’ (‘do’)  
*sayngkakhata* ‘assume’
- l. *-(u)mcik* ‘likely to, worth doing’  
*hata* ‘be likely to, worth doing’  
*sulepta* ‘be likely to, worth doing’
- m. *-(u)myen* ‘if’ [conditional]  
*hata* ‘wish, desire, hope’ [desiderative]  
*siphtha* ‘wish, desire’ [desiderative]

**Particles and delimiters** (H.-M. Sohn, 1999, pp. 213-215)

*Note: In the following, of the slashed pair, the form before the slash occurs after a vowel, and the one following the slash, after a consonant. AN indicates the form is used for animate nouns, IN for inanimate nouns. Hon. means the form is an honorific one.*

**Particles**

Nominative:	<i>ka/i, kkeyse</i> (AN, hon.)
Accusative:	<i>lul/ul</i>
Genitive:	<i>uy</i> ‘of, ‘s’
Dative:	<i>ey</i> (IN), <i>eykey</i> (AN), <i>hanthey</i> (AN), <i>kkey</i> (AN, hon.) ‘to’
Goal:	<i>ey</i> (IN), <i>eykey</i> (AN), <i>hanthey</i> (AN), <i>kkey</i> (AN, hon.) ‘to’; ‘ <i>tele</i> ’ (AN), <i>poko</i> (AN) ‘(tell, ask) to’
Locative-static:	<i>ey</i> (IN), <i>eykey</i> (AN), <i>hanthey</i> (AN), <i>kkey</i> (AN, hon.) ‘on, in, at’
Locative-dynamic:	<i>eyse</i> (IN), <i>eykeyse</i> (AN), <i>hantheyse</i> (AN) ‘on, in, at’
Source:	<i>eyse</i> (IN), <i>eykeyse</i> (AN), <i>hantheyse</i> (AN), <i>kkeyse</i> (AN, hon.) ‘from’
Ablative:	<i>puthe</i> ‘starting from’
Allative (Directional):	<i>lo/ulo</i> ‘towards’
Instrument:	<i>lo/ulo</i> (-sse) ‘with’
Capacity:	<i>lo/ulo</i> (-se) ‘as’

Comitative:	<i>wa/kwa, hako, lang/ilang</i> ‘with’
Connective:	<i>ey(ta(ka))</i> ‘in addition to’; <i>mye/imye, hamye, hako, lang/ilang, wa/kwa</i> ‘and’; <i>na/ina</i> ‘or’
Comparative:	<i>pota</i> ‘than’
Equative:	<i>chelem</i> ‘as, like’; <i>kathi</i> ‘like’; <i>mankhum</i> ‘as much as’
Vocative:	<i>ya/a</i> (plain), ZERO/ <i>i</i> (familiar/intimate), <i>i(si)e</i> (hyper-deferential)

### **Delimitiers**

Topic-contrast:	<i>nun/un</i> ‘as for’
Inclusion:	<i>to</i> ‘also, too, indeed’
Limitation:	<i>man</i> ‘only, solely’
Toleration:	<i>ya/iya</i> ‘only if it be, as only for, finally’
Concession:	<i>lato/ilato</i> ‘even, for lack of anything better’
Inception:	<i>puthe</i> ‘beginning with’
Bounds:	<i>kkaci</i> ‘as far as, even up to’
Comprehensiveness:	<i>mata</i> ‘each every’
Addition:	<i>cocha</i> ‘even, as well’
Exhaustion:	<i>mace</i> ‘so far as, even’
Dissatisfaction:	<i>nama/inama</i> ‘in spite of’
Alternative:	<i>na/ina</i> ‘rather, or something’
Contrariness:	<i>khenyeng</i> ‘far from, in the contrary’
Exclusiveness:	<i>pakkey</i> ‘(not) except for, other than’
Illustration:	<i>sekken</i> ‘and so on, and others’
Goal focus:	<i>ta(ka)</i>
Plurality:	<i>tul</i>
Politeness:	<i>yo</i>
Confirmation:	<i>kulye</i> ‘indeed, I confirm’

## Example of Korean transcript and its Romanisation

**Subject code: Mt01**

### **Story 1**

- 1 까마귀가 (고깃꺼) 고깃덩어리를 (.) 물고 (.9) 나뭇가지에 앉아 있었다 (1.6)
2. 지나가던 (.5) 여우가 그것을 보고 (1.3)
- 3 (어) (.6) 내가 그 고기를 꼭 차지하고 말겠다 (1.2) 라고 생각했습니다 (3.6)
- 4 (여우는) (.) (아) (여우는) (아) 여우는 (2.1) (어:) (.) 까마귀한테 이렇게 말했습니다 (1.4)
- 5 까마귀님 (.) (왕처럼) 당신은 왕처럼 아름다우시군요 (2.1)
- 6 하지만 까마귀는 (.7) 입을 열지 않았습니다 (.)
- 7 그러자 (까마) (1.2) 여우는 (.9) (어) (.9) 다시 이렇게 말했습니다 (.9)
- 8 오 까마귀님 당신이 노래만 부를 수 있다면 (.) 왕처럼 (.) 되실 수 있으신데요 (.9)
- 9 그러자 까마귀는 (.) 자기 목소리를 뱉내려고 (.6) 노래를 부르기 시작했습니다 (1.2)
- 10 그리고 (1.9) (어:) 물고 있던 고기가 떨어져서 (2.9) (어:) (1.5) 여우가 그걸 차지하고 (1.2)
11. (까마귀는) (1.7) (아) 까마귀가 (.7) 고기를 뺏기고 (.5) 분해하는 동안 여우는 (1.2) (어) (1.7) 즐거워 하면서 도망갔습니다

Time spent: 1 minute 23.67 seconds

### **Romanisation (Story 1)**

- 1 kkamakwi-ka (kokiskke) kokistengeli-lul (.) mwul-ko (.9) namwuskaci-e anca iss-ess-ta (1.6)
- 2 cinaka-ten (.5) yewu-ka ku kes-ul po-ko (1.3)
- 3 (e) (.6) nay-ka ku koki-lul chac-a nwa-ya keyss-ta (1.3) -lako sayngkak hay-ss-supnita (3.6)
- 4 (yewu-nun) (a) (yewu-nun) (.5) yewu-nun (2.1) (e) kkamakwi-hanthey ilehkey malhay-ss-supnita (.9)
- 5 kkamakwi-nim (.) (wang-chelem) tangsin-un wang-chelem a.lumtawu-si-kwunyo (2.1)
- 6 haciman kkamakwi-nun (.7) ip-ul yel-ci anh-ass-supnita
- 7 kuleca (kkama) (1.2) yewu-nun (.9) (e) (1.0) tasi ilehkey malhay-ss-supnita
- 8 o kkamakwi-nim (1.3) tangsin-i nolay-man pwu-lu-l swu iss-ta-myen (.5) wang-chelem toy-si-l swu iss-u-si-n theynteyyo" (.9)
- 9 kuleca kkamakwi-nun caki moksoli-lul ppomnay-lyeko nolay-lul pwulu-ki sicakhay-ss-supnita (1.3)
- 10 kuliko (1.9) (e) mwul-ko iss-ten koki-ka ttelecye-ese (2.9) (e) (1.5) yewu-ka kuke-l chaciha-ko (1.2)
- 11 (kkamakwi-nun) (1.7) (a) kkamakwi-ka (.7) koki-lul ppayss-ki-ko (.5) pwunhay ha-nun tongan yewu-nun (1.2) (e) (1.7) culkew-e ha-myen-se tomangka-ss-supnita [laugh]

Time spent: 1 minute 23.67 seconds

## Story 2

- 1 어느날 생쥐가 (.6) 잠자는 사자를 건드렸습니다 (.6)
- 2 사자는 그: (.7) 생쥐를 (잡아) (1.1) 잡아 먹으려고 했습니다 (.9)
- 3 그러자 생쥐는 (.5) 한 번만 살려 달라고 (.7) 살려 주면 이 은혜는 꼭 갚겠다고 말하였습니다 (1.0)
4. (사자는) (.7) (어:) (4.3) (사자는 그냥) (.5) 그리고 사자는 그냥 생쥐를 놓아 주었습니다 (1.0)
5. 그리고 오래 지나지 않아 (.) 사냥꾼들이 와서 (.6) 사자를 (1.5) 나무에 밧줄을 꼬박 묶어 두었습니다 (1.2)
6. 사자의 신음 소리를 듣고 (.) 생쥐가 와서 이빨로 (1.4) (어) (.) 밧줄을 끊어 주었습니다  
Time spent: 46.70 seconds
7. 약한 자를 [laughs] 도와 주면 언젠간 보답을 받는 (것입) 법입니다

## Romanisation (Story 2)

- 1 enu nal sayngcwi-ka (.6) camca-nun saca-lul kentuly-ess-supnita (.6)
- 2 saca-nun ku: (.7) sayngcwi-lul (cap-a) cap-a(1.1)-mek-ulyeko hay-ss-supnita (.9)
- 3 kuleca sayngcwi-nun (.5) han pen-man sal-ly-e tal-lako (.7) sal-ly-e cwu-myen i unhyey-nun kkok kaph-keyss-ta-ko malha-yess-supnita (1.0)
- 4 (saca-nun) (.7) (e) (4.3) (saca-nun) (kunyang) (.6) kuliko saca-nun kunyang sayngcwi-lul noh-a cwu-ess-supnita (1.0)
- 5 kuliko olay cina-ci anha (.) sanyangkkwun-tul-i wa-se (.6) saca-lul (1.5) namwu-ey pascwul-ul kkong kkong mwukk-e twu-ess-supnita (1.2)
- 6 saca-uy sinum soli-lul tut-ko (.) sayngcwi-ka wa-se ippal-lo (1.4) (e) pascwul-ul kalk-a kkunh-e cwu-ess-supnita  
Time spent: 46.75 secondss
- 7 yakha-n ca-lul [laugs] tow-a cwumyen encenka-nun potap-ul pat-key toy.-e iss-supnita

## Example of English transcript

### **Subject code: Mt01**

#### **Story 1**

1 once upon a time (1.0) fox and stork (.9) met in the wood  
2 and (0.8) first (fox) (.) fox (.6) invited (.5) the stork to the dinner  
3 and (1.1) (er) the fox served the bird the flat bowl (.8)  
4 but the (.7) stork couldn't eat anything because of her (um) long beak (.7)  
5 (and) (1.3) (anoth>) (uh) (.9) a:nd the other day (1.0) some day later (1.3) the stork invited the fox to  
the dinner (.8)  
6 and he served him with a (1.0) long necked bottle (.8)  
7 and (.8) this time the fox couldn't eat anything (.9)  
8 a:nd the stork says now it's even

Time spent: 46.79 seconds

#### **Story 2**

1 (ur) rabbit and turtle had a race  
2 a:nd (1.4) (e:r) rabbit (.5) was faster  
3 and left the turtle behind (.9)  
4 a:nd some time later (1.4) (e:r) the rabbit (.7) went to sleep because (sh sh) he was so sure of  
winning (.8)  
5 a:nd (1.6) after a while (she found ) (er) (he or) the rabbit (found) found (u:m) (.9) the turtle won the  
race

Time spent: 27.84 seconds

6 a:nd (2.9) slow and steady is [laugh] (.8) sometimes (1.6) best to follow

### **Guidelines for measuring fluency in the transcripts from story retelling**

1. Fluency in each transcript is measured by the number of syllables produced per second while producing the transcript.
2. The definition of a syllable is as follows:

‘A unit of pronunciation typically larger than a single sound and smaller than a word. [...] A consonant-vowel (CV) sequence is a pattern which seems to be found in all languages [...] A CVC pattern is also common in English [...] [S]yllables can be defined in terms of the way the sound segments of a language function. In this way, for instance, one can identify the various clusters of segments which may occur at syllable margins, such as CV (*say*), CCV (*play*), CCCV (*stray*), etc. Exceptional syllables can also be identified, such as those where certain consonants occur alone to form the syllable—the nasals and laterals, i.e., /n/, /m/ and /l/ in words such as *button* and *bottle*, where...the final consonant is a syllabic consonant.’ (Crystal, 2003, pp. 447-448, italics original).

The examples of a syllabic /n/ or /m/ found in the data for this research are: *turtle*; *bottle*; *even*; *beaten*; *little*; *happen*. (The number of syllables in each word is counted as two.) Note that contractions such as *couldn't*, *didn't*, *shouldn't*, and *wouldn't* are also regarded as consisting of two syllables since the syllabic consonant /n/ between two consonants /d/ and /t/ was regarded as playing a role as nucleus of a syllable like a vowel.
3. Count the number of syllables produced in the entire transcript (discounting disfluency features such as repetitions or pause fillers) and divide it by the total number of seconds the entire narrative took to produce. Round the quotient off to two decimal places.
4. The number of syllables for unintelligible segments, which are transcribed as ‘X’ or ‘XX’, include the number of ‘X’s in the total number of syllables produced, since ‘X’ represents a short segment which might have been a syllable or word and ‘XX’ represents a segment longer than a word. This is based on the rationale that it was not the subject who was responsible for such intelligibility but the transcriber who could not identify the sound.
5. The mean of the fluency measures for the two narratives produced in the same language will make the subject’s overall fluency measure in the relevant language.

### **Guidelines for measuring accuracy in the transcripts of story retelling**

1. The percentage of the number of error-free clauses occupying the total number of clauses produced in each narrative serves the accuracy measure of the individual transcript. A ‘clause’ means a segment which has been assigned clausal status according to the “Guidelines for Identifying an AS-Unit in Narratives” and the “Guidelines for the Identification of a Clause from Korean Transcripts”. Divide the number of error-free clauses by the total number of clauses and multiply by 100 to obtain the accuracy measure rounded off to two decimal places for an individual transcript. The subject’s overall accuracy measure in each language is obtained by calculating the mean of the individual accuracy measures for the transcripts in the relevant language.
2. Reorganise the transcript by putting a double colon at the boundaries of clauses within an AS-unit as appears in the “Guidelines for Identifying an AS-Unit in Narratives” and the “Guidelines for the Identification of a Clause from Korean Transcripts”. Leave out mazes (i.e. the part which is marked by parentheses in the transcript) to facilitate data analysis (see 3 below).
3. Ignore hesitation phenomena—i.e. mazes. If the reformulated clause is free of errors, credit one point.
4. Mark each clause with either ‘C’ if it is free of error or ‘E’ if it has any error (the number of errors within the clause does not matter.). ‘C’ stands for ‘correct’ and ‘E’ stands for ‘error’.
5. Ignore connectives such as ‘and’, ‘so’, ‘(ku)nikka’, ‘kuntey’, etc. uttered at the beginning of a unit, which frequently function as discourse markers during verbal interaction (Y.-Y. Park, 1997; Schiffrin, 1987). Even though the use of these words sometimes may be excrement, do not treat them as error.
6. If the unit has a part which is unintelligible (marked as X/XX) or abandoned (marked by a >), presume the part error-free and judge the accuracy in terms of the rest of the unit. In Example 1, the unit is credited as ‘correct’ since the unit, except for the abandoned part is error-free.
  - 1) but the stork couldn't eat anything with his long >
7. Ignore the errors at the discourse level (such as the use of reference items). Limit the analysis to the morpho-syntactic grammaticality of the individual clause in an AS-unit.
8. Ignore non-native-likeness. If the clause is grammatically correct and there is no problem in understanding its message within an AS-unit, give a credit.
9. Put a footnote for a clause which is given a credit according to 7 and 8 above in spite of its problem(s) at the discourse level and/or in terms of non-native-likeness.

10. The judgment of the accuracy of subordinate clauses is to be made in terms of the grammatical relationship to the main clause (e.g. agreement in tense, person, etc.).
11. The definition of error-free clauses follows Foster and Skehan (1996):  
A clause in which there is no error in syntax, morphology, or word order. Errors in lexis were counted when the word used was incontrovertibly wrong. In cases of fine decisions of appropriacy, no error was recorded.

(Foster & Skehan, 1996, p. 310)

### **Guidelines for measuring grammatical complexity in the transcripts of story retelling**

1. Grammatical complexity in each narrative is measured in terms of the number of clauses divided by the total number of AS-units.
2. Identify ‘clauses’—segments which have been assigned clausal status within each AS-unit—in the transcript reorganised for measurement of accuracy (see the “Guidelines for Identifying an AS-Unit in Korean and English Narratives” and the “Guidelines for the Identification of a Clause from Korean Transcripts”) and write down the number of clauses beside it.
3. Calculate the total number of ‘clauses’ and divide it by the number of AS-units in each transcript. Round the quotient off to the second decimal place.
4. The subject’s overall complexity measure in each language will be produced by calculating the mean of the grammatical complexity measures for the two narratives produced in the relevant language.

**Guidelines for preparation of the transcript for measuring lexical diversity for English**  
**(adapted from MacWhinney, 2000)**

1. Copy the original transcript in a text file (.txt) with a file name “subject code\_transcript\_for\_vocd” (Put [1] for the first story and [2] for the second story at the end of the file name).
2. Put “@Begin” in the first line and apply a carriage return.
3. Put “@Participants: SUB Subject” in the second line (This is called the Participants’ tier). There is a Tab between the colon and “SUB”.
4. Start with the first AS-Unit immediately after the “Participants’ tier.
5. Remove the serial numbers at the beginning of AS-units and put “\*SUB” and a tab before each AS-Unit.
6. Put “@End” in the line immediately after the last AS-Unit.
7. There should be no space at the beginning of each AS-Unit.
8. Every AS-unit should end with a full-stop and a carriage return.
9. Remove all the non-words (laugh, etc), prosodic markers (: for a lengthened segment, > for abandoned speech, etc.), pauses, and mazes or backchannels (false starts, repetitions, etc.).
10. Remove Xs and XXs but leave the rest of the units.
11. Keep the spelling consistent. For example, once you have started to write ‘programme’ rather than ‘program’, keep to ‘programme’. Never switch to the alternative spelling throughout the text.
12. Check that spelling of every word follows standard spelling. Remove the phonetic spelling which has been given to mark deviant pronunciation.
13. Strip off the regular inflections. For example, convert the inflected forms such as ‘invited’ or ‘invites’ to the stem form ‘invite’.
14. Keep the fused form so that it may be treated by the software as a different word from the stem form. That is, keep ‘children’, ‘went’, ‘fell’, etc to be treated as different words from ‘child’, ‘go’, and ‘fall’, etc. respectively.
15. In the case of a word which is used for different parts of speech in the same transcript, capitalise the word for one case and keep the small letter for the other. For example, write ‘Race’ as a noun and ‘race’ as a verb. Also there may be homographs that overlap the former case. That is, ‘race’ may have been used to mean ‘ethnic group’. In this case, double the first letter (i.e. rrace) to differentiate it from the first two. Note that verbs such as ‘have’ or ‘do’ should be differentiated according to whether it is used as the main verb or an auxiliary verb. The above rule applies in this case as well. Capitalise the

auxiliary and keep small letters for a main verb. When you put such changes to the spelling, write a note at the end of the file.

16. Keep the contraction. That is, 'isn't', 'is', and 'not' are treated three different words.
17. Remove the space(s) or hyphen(s) between the segments in a compound word, if the compound is an entry in a dictionary. Otherwise, put a space in between. For example, change 'story-telling' to 'storytelling' and 'end point' to 'endpoint', but write 'vase like'
18. The file is ready to be analysed by the software. Save the file.

*Sample of CLAN file (from mt13\_E1)*

```
@Begin
@Participants:      SUB Subject
*SUB:  so the fox invite stork to his house for dinner.
*SUB:  and he serve soup in a flat dish.
*SUB:  so the fox lick the plate clean.
*SUB:  but the stork couldn't lick the soup in his beak.
*SUB:  next time the stork invite fox to his place for dinner.
*SUB:  this time he serve fox the soup in a bottle with long neck.
*SUB:  and then the stork enjoy the soup.
*SUB:  and the fox couldn't eat any.
*SUB:  and the stork said now we're even.
@End
```

*Original text*

- 1 so the fox invited stork to his house for dinner (1.2)
- 2 and he served (.5) soup in a flat dish: (1.0)
- 3 so the fox licked the plate clean (.5)
- 4 but the stork couldn't (lick the:) lick the soup (1.5) up (.5) in his beak (1.7)
- 5 next time the stork invited fox to his place for dinner (1.1)
- 6 this time he served fox (.6) the soup in a: bottle with long neck (1.1)
- 7 and then (.) the stork enjoyed the soup (1.2)
- 8 and the fox couldn't (1.1) eat any (.6)
- 9 and the stork said now we're even

### **Guidelines for preparation of the transcript for measuring lexical diversity for Korean**

1. Copy the initial transcript in a text file (.txt) with a file name “code\_K\_morphological\_segmentation.txt”.
2. Do not put a title but start with the first AS-unit straight away.
3. There should be no space at the beginning of each AS-Unit.
4. Every AS-unit should end with a full stop or a question mark and a carriage return.
5. Remove the serial numbers at the beginning of AS-units.
6. Remove all the non-words (laugh, etc), prosodic markers (: for a lengthened segment, > for abandoned speech, etc.), pauses, and mazes (false starts, repetitions, etc.).
7. Remove Xs and XXs, but leave the rest of the units.
8. Check that romanisation follows the Yale system accurately.
9. Put . at the syllable boundary between two vowels which otherwise may make multiple combinations (e.g., ‘*eya*’ may be read either /əja/ or /ea/ unless a syllable boundary is not specified. With a syllable boundary marker, ‘*e.ya*’ can be read as the former pronunciation, ‘*ey.a*’, as the latter pronunciation.
10. Replace a contraction with its original form if the contraction is a result of di- or triphthongisation between different vowels or from simple shortening of two consecutive same single vowels during verb inflection. Identify and separate all the bound morphemes within a word and hyphen them. Thus, ‘*kassupnita*’ should be replaced with ‘*ka-ass-supnita*’, ‘*malhayssupnita*’ with ‘*malha-yess-supnita*’, ‘*alumtawusikunyo*’ with ‘*alumtap-si-kunyo*’ and so on.
11. In the case of contraction between the last syllable of a pronoun and a case marker (notably *-un/nun*, *-i/ka*, and *ul/lul*), do not change it back to its original form. So ‘*iken*’, ‘*ikel*’, and ‘*ikey*’ are treated as different words and differentiated from the respective forms of ‘*ikes-un*’, ‘*ikes-ul*’, and ‘*ikes-i*’, which are treated as one type. Do not apply this rule to the combination of a noun and one of the above case markers. That is, separate the noun and the case marker. For example, ‘*kokil*’ should be replaced with ‘*koki-lul*’.
12. If two or more phonetic variants of the same word (i.e. before inflection) are used in one transcript, choose one of the variants or the standard form and replace all other variants with it. That is, replace ‘*yayki*’ with ‘*iyaki*’; ‘*ikhey*’ with ‘*ilekhey*’; ‘*kunthey*’ with ‘*klenthey*’; ‘*kulekwu*’ and ‘*kuliku*’ with ‘*kuliko*’ and so on. In the case of pronouns, choose ‘*ikes*’, rather than ‘*ike*’, etc. In the case of ‘*mwues*’, discard ‘*mwue*’ but keep ‘*mwe*’ as a different word from ‘*mwues*’. The same rule applies between ‘*na*’ and ‘*nay*’ meaning ‘I’; ‘*ne*’ and ‘*ney*’ meaning ‘you’; ‘*ce*’ and ‘*cey*’ meaning ‘I (humble form)’.

Rules 11 and 12 are summarised with the words given as examples in the following table.

**TABLE 2 Summary of rules 11 and 12 with some examples**

Standard form	Part of speech	Variants without a case marker	Case marker attached	Contraction with a case marker
<i>ikes</i> ('this')	pronoun	<i>ikes</i> (✓); <i>ike</i> (x)	all (- <i>un</i> , - <i>i</i> , - <i>ul</i> , - <i>ui</i> , ...)	<i>iken</i> (✓); <i>ikel</i> (✓); <i>ikey</i> (✓), etc.
<i>koki</i> ('meat')	noun	NA	e.g., <i>koki-lul</i>	<i>kokil</i> (x)
<i>iyaki</i> ('story')	noun	<i>iyaki</i> (✓); <i>yayki</i> (x)	e.g., <i>iyaki-lul</i>	<i>iyakil</i> (x) <i>yaykil</i> (x)
<i>ilekhey</i> ('in this way')	adverb	<i>ilekhey</i> (✓); <i>ikhey</i> (x)	NA	NA
<i>kulentey</i> ('but/by the way')	(connective) adverb	<i>kulentey</i> (✓); <i>kuntey</i> (x)	NA	NA
<i>kuliko</i> ('and')	(connective) adverb	<i>kuliko</i> (✓); <i>kulikwu</i> (x); <i>kulekwu</i> (x)	NA	NA
<i>mwues</i> ('what')	(question) pronoun	<i>mwues</i> (✓); <i>mwue</i> (x)	all (- <i>un</i> , - <i>i</i> , - <i>ul</i> , - <i>ui</i> , ...)	NA
<i>mwe</i> ('what'—contraction)	(question) pronoun	<i>mwe</i> (✓); <i>mwes</i> (x)	e.g., <i>mwe-lul</i> , <i>mwe-ka</i>	<i>mwel</i> (✓)
<i>na</i> ('I')	pronoun (1st person singular for any case except for subject—nominative)	<i>na</i> (✓); <i>nay</i> (x)	all, (- <i>nun</i> , - <i>lul</i> , - <i>ui</i> ...) except for - <i>ka</i>	<i>nan</i> (✓); <i>nal</i> (✓)
<i>nay</i> ('I'/'my')	pronoun (1st person singular as the subject or genitive case)	<i>nay</i> (✓); <i>na</i> (x)	<i>nay-ka</i> no marker for genitive (already fused into <i>nay</i> )	NA
<i>ne</i> ('you')	pronoun (2nd person singular for any case except for subject—nominative)	<i>ne</i> (✓); <i>ney</i> (x); <i>ni</i> (x)	all (- <i>nun</i> , - <i>lul</i> , - <i>ui</i> ...) except for - <i>ka</i>	<i>nen</i> (✓); <i>nel</i> (✓)
<i>ney</i> ('you'/'your')	pronoun (1st person singular as the subject or genitive case)	<i>ney</i> (✓); <i>ne</i> (x); <i>ni</i> (x)	<i>ney-ka</i> no marker for the case genitive (already fused into <i>ney</i> )	NA
<i>ce</i> ('I'—humble)	pronoun (1st person singular humble for any case except for subject—nominative)	<i>ce</i> (✓); <i>cey</i> (x); <i>ci</i> (x)	all (- <i>nun</i> , - <i>lul</i> , - <i>ui</i> ...) except for - <i>ka</i>	<i>cen</i> (✓); <i>cel</i> (✓)

Standard form	Part of speech	Variants without a case marker	Case marker attached	Contraction with a case marker
<b>cey</b> ('I'/my'—humble)	pronoun (1st person singular humble for subject or genitive)	cey (✓); ce (x); ci (x)	cey-ka no marker for the genitive case (already fused into cey)	NA

*Note:* As for the items in Columns Three and Five, items marked by x should be replaced by those marked by ✓.

13. Identify compounds and remove the space (if you have put one) between the compounded segments only if the compound is a dictionary entry. Thus, if you have written ‘*swup kil*’ in the initial transcript, it should appear ‘*swupkil*’ in this file and the next two files that you are going to create based on this file. However, if the compound is not a dictionary item as a compound, keep the space in between as in ‘*swup sok*’.
14. Save the file and copy the text of each narrative separately to save in two sets of files— one set for the analysis of lexical diversity with file names “code\_K\_lex\_diversity[1].txt” and “code\_K\_lex\_diversity[2].txt” and the other set for morphological density with a file names “code\_K\_morph\_density[1].txt” and “code\_K\_morph\_density[2].txt”.
15. Open one of the files saved for lexical diversity in 14 above.
16. Put “@Begin” in the first line and apply a carriage return.
17. Put “@Participants: SUB Subject” in the second line (This is called the Participants’ tier). There is a Tab between the colon and “SUB”.
18. Start with the first AS-Unit immediately after the “Participants’ tier.
19. Make sure that there are no serial numbers at the beginning of AS-units and put “\*SUB” and a tab before each AS-Unit.
20. Put “@End” in the line immediately after the last AS-Unit.
21. Remove all the bound morphemes except for case particles, causative suffixes—‘*-i*’, ‘*-hi*’, ‘*-li*’, ‘*-ki*’, ‘*-wu*’ ‘*-kwu*’, ‘*-chwu*’—and passive suffixes—‘*-i*’, ‘*-hi*’, ‘*-li*’, ‘*-ki*’. Then, further remove *-un/nun*, *-i/ka*, *-ul/lul*, *-uy*, and their honorific forms. Replace a hyphen with a space between a noun and its case particle so the software may recognise the case particle as a word. As for causative and passive suffixes, remove the hyphens between the verb stem and one of these remaining suffixes so there is no space between them so the software may recognise this type of combination as a word.
22. Since many case particles represent various semantic functions, it is deemed that the ability to use various types of case particles should be taken into account in measuring lexical density of a text. However, of these case particles, it is decided to exclude *-un/nun*, *-i/ka*, *-ul/lul*, *-uy*, and their honorific forms from consideration, since they behave

differently from others. That is, their function is limited to indicating the syntactic relationship of the words preceding them within the sentence and there is no choice for a different form for the same case other than selection of an allomorph, which depends on the sound value of the preceding sound but not on the speaker's intention. Moreover, the use of these specific case markers tends to be optional in the surface structure of a sentence, particularly during speech production since they are predictable from the context, as opposed to other case markers (H.-M. Sohn, 1999).

As for causative/passive suffixes, since addition of one of these suffixes changes the argument structure of the original verb and the forms with one of these suffixes are dictionary entries separate from the original verbs, it is deemed that the software should recognise them as different from the original ones, which is enabled by removing the spaces and hyphens in between (in fact, these kind of suffix appears in the slot right after the stem).

Thus, the initial transcription '*sangcwinun salye tallako malhayssupnita*', which must have changed to '*sangcwi-nun sal-li-e tal-la-ko malha-yess-supnita*' at 13 above has been changed to '*sangcwi salli tal malha*'.

23. Since there are many case markers having allomorphs, one of the allomorphs for the same case marker should represent it in order to ensure the validity of the analysis. A list of such case markers and their forms that have to be selected for this analysis is provided in TABLE 3. Identify such case markers and replace them with those recommended in this table.

**TABLE 3** Forms to be selected for the analysis of lexical diversity

<b>Forms (Allomorphs)</b>	<b>Opted form for the analysis of lexical diversity</b>
<i>-lo/-ulo</i>	<i>-lo</i>
<i>-wa/-kwa</i>	<i>-kwa</i>
<i>-lose/-ulose</i>	<i>-lose</i>
<i>-losse/-ulosse</i>	<i>-losse</i>
<i>-lang/-ilang</i>	<i>-lang</i>
<i>-na/-ina</i>	<i>-ina</i>
<i>-ya/-a</i>	<i>-ya</i>
<i>-lato/-ilato</i>	<i>-lato</i>
<i>-nama/-inama</i>	<i>-nama</i>

24. In the case of homographs appearing in the same transcript, capitalise the word to differentiate one case from the other. If there are three cases for a homograph to

distinguish from each other, capitalise the first letter and double it in small letters for the third case. For example, if *pay* is used in three meanings in a transcript, write *pay* for ‘pear’, *Pay* for ‘ship’ and *Ppay* for ‘stomach’. Once you start to use a certain form for a certain case for a homograph, be consistent in using it for the same case throughout the entire transcript. Never switch to other form for the same case. Also note that some verbs are used as both a main verb and an auxiliary verb in the same form as in ‘*nolay-lul ha-ta*’ and ‘*sulphu-e ha-ta*’. Identify such cases and follow the above rule for homographs.

25. The text is ready for the analysis of lexical diversity. Save the file.

*Sample of CLAN file (from mt13\_K1)*

```
@Begin
@Participants:      SUB Subject
*SUB:  yewu sankil keleka kkamakwi kokistengeli mwul namuskaci wi ey anc
      iss kes palkyenha.
*SUB:  kulayse yewu nay ce koki mek swu iss cham coh nay lako nay ce
      koki kkok mek sayngkak ha.
*SUB:  kulayse yewu kkamakwi eykey kkamakwi kkamakwi wang chelem mesci
      iyakiha.
*SUB:  kkamakwi amwulen mal to ha anh.
*SUB:  ku taum ey tto yewu o kkamakwi kkamakwi manyak ey mesci moksoli
      lo nolay ha wang chelem ppomnay swu iss malha.
*SUB:  kulayse kkamakwi caki moksoli ppomnay wiha nolay ha swunkan koki
      ttang lo tteleci.
*SUB:  kkamakwi yewu eykey sok kes ey punhayha iss tongan yewu koki mek.
@End
```

*Original text*

1 yewu-ka sankil-ul keleka-taka kkamakwi-ka kokistengeli-lul mwul-ko namuskaci wi-ey anc-a iss-nun ke-lul palkyenhay-ss-supnita (.7)  
 2 kulayse yewu-nun nay-ka ce koki-lul mek-ul swu iss-ta-myen cham (coh) coh-keyss-ney-[laugh]-lako nay-ka ce koki-lul kkok mek-e.ya-ci-lako sayngkak-ul hay-ss-supnita (1.2)  
 3 kulayse yewu-nun kkamakwi-eykey kkamakwi-nim kkamakwi-nim-un wang-chelem mescisi-kwunyo(0.7)-lako yaykihay-ss-ciman (.)  
 4 kkamakwi-nun amwulen mal-to ha-ci anh-ass-supnita (.8)  
 5 ku ta.um-ey (.9) tto yewu-ka (0.5) o kkamakwi-nim kkamakwi-nim-i manyak-ey (1.3) (ur) (mesci-n moksoli-lul) (1.2) (ah) (nolayha-si) mesci-n moksoli-lo nolay-l ha-si-n-ta-myen wang-chelem ppo:mnay-l swu iss-ultendey-yo-lako malhay-ss-supnita (.6)  
 6 kulayse kkamakwi-ka caki-uy (.5) moksoli-lul ppomnay-ki wihay-se nolay-lul ha-n swunkan koki-nun ttang-ulo ttelecy-ess-ko (1.6)  
 7 kkamakwi-ka yewu-eykey sok-un ke-ey punhay-ha-ko iss-nun tongan yewu-nun koki-lul (1.6) mek-ess-supnita [laugh]

### **Guidelines for the measurement of morphological density**

1. Open one of the files saved for morphological density as in 13 of “Guidelines for preparation of the transcript for measuring lexical diversity for Korean”.
2. Calculate the agglutination index of the narrative by dividing the total number of morphemes produced in the entire narrative by the total number of words produced in the entire narrative. Word boundaries are marked by spaces.
3. Calculate the overall measure of morphological density for each subject by getting the mean of the two agglutination indices.

**Appendix F: Classifications of the social domains investigated in Section 4 of the Language-Use Questionnaire**

Question	Social domains	Type of interaction			Type of Medium		
		Private	Public	Both	Verbal	Print	Audio-visual
42	Watching TV/video/DVD	✓					✓
43	Sunday services/Mass		✓		✓		
44	Prayer, reading the Bible			✓		✓	
45	Newspapers/comics	✓				✓	
46	Records/cassettes/CDs	✓					✓
47	Listening to the radio	✓					✓
48	Shopping		✓		✓		
49	Playing sports			✓			N/A
50	On the telephone	✓			✓		
51	Reading books	✓				✓	
52	Earning money		✓				
53	Clubs/societies		✓		✓		
54	Other leisure activities			✓			N/A

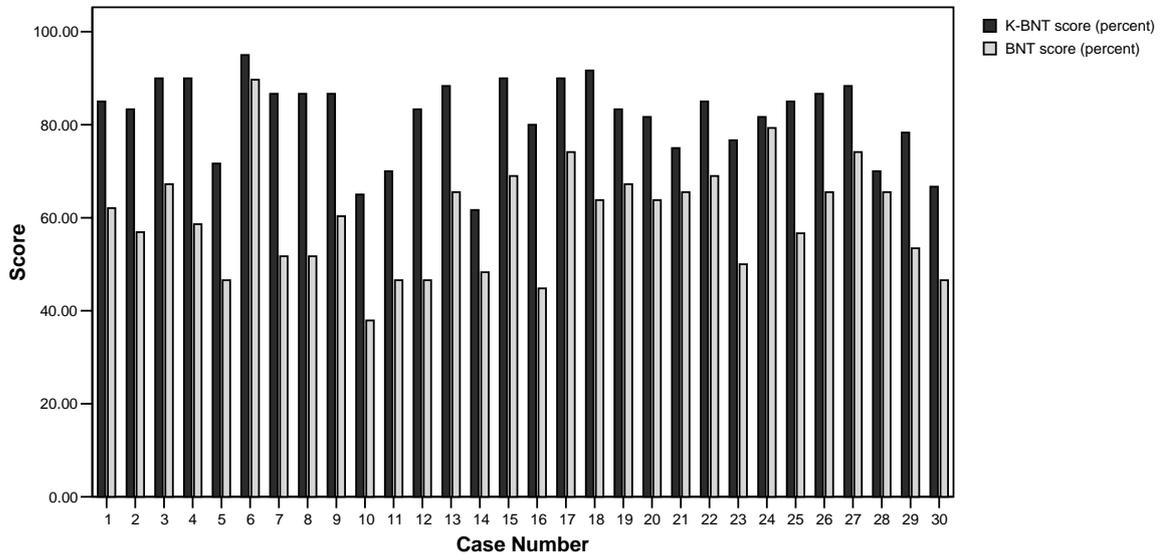
**Appendix G: Comparison of percentages of correct responses for K-BNT items among the groups**

K-BNT items	Bilingual group	Monolingual group	K-norm
Q1 손 hand	100.00	100.00	100.00
Q2 모자 hat	100.00	100.00	99.83
Q3 고추 hot pepper	100.00	100.00	99.83
Q4 넥타이 necktie	100.00	100.00	99.50
Q5 자전거 bicycle	100.00	100.00	99.67
Q6 바나나 banana	100.00	100.00	99.67
Q7 선풍기 fan	100.00	100.00	99.17
Q8 장화 gumboot	100.00	100.00	97.67
Q9 바둑(판) <i>paduck</i> (-board): oriental board game	100.00	100.00	97.50
Q10 태극기 Korean flag	100.00	100.00	99.17
Q11 장구 Korean traditional drum (double-headed)	96.67	100.00	95.67
Q12 버섯 mushroom	100.00	100.00	96.51
Q13 거미줄 cobweb	100.00	100.00	93.51
Q14 낙타 camel	100.00	100.00	93.84
Q15 풍선 balloon	100.00	100.00	92.68
Q16 지네 centipede	90.00	100.00	93.01
Q17 용 dragon	100.00	100.00	93.18
Q18 거북선 Turtle Ship (Korean historical warship)	100.00	100.00	92.51
Q19 고드름 icicle	100.00	100.00	90.18
Q20 저울 scale	80.00	90.00	89.52
Q21 선인장(백년초) cactus	100.00	100.00	92.01
Q22 올챙이 tadpole	100.00	100.00	89.35
Q23 박쥐 bat (animal)	100.00	100.00	88.35
Q24 눈사람 snowman	100.00	100.00	88.69
Q25 달팽이 snail	96.67	100.00	89.05
Q26 수갑 handcuff	96.67	90.00	84.03
Q27 신호등 traffic light	96.67	100.00	84.69
Q28 청진기 stethoscope	90.00	80.00	82.86
Q29 인어(공주) mermaid	100.00	100.00	83.03
Q30 대패 plane (carpenter's instrument)	73.33	0.00	81.86
Q31 가재 crayfish	100.00	90.00	82.36
Q32 소화기 fire extinguisher	86.67	100.00	80.37
Q33 하모니카 harmonica	96.67	90.00	80.70
Q34 골무 thimble	53.33	10.00	81.03
Q35 도토리 acorn	100.00	100.00	74.38
Q36 (돌)하루방 Korean folk stone statue	76.67	90.00	78.20
Q37 나침반 compass (for direction)	100.00	100.00	72.55
Q38 유모차 pram	86.67	90.00	74.04
Q39 등대 lighthouse	93.33	80.00	71.55
Q40 야자수 (나무) palm tree	83.33	50.00	71.88
Q41 공룡 dinosaur	96.67	100.00	69.38
Q42 첨성대 Korean historical observatory	40.00	70.00	67.55
Q43 지구의(지구본) globe	96.67	90.00	66.22
Q44 에스컬레이터 escalator	100.00	100.00	64.56
Q45 석류 pomegranate	30.00	20.00	64.39
Q46 현미경 microscope	90.00	70.00	63.56
Q47 도르래 pulley	70.00	20.00	63.73
Q48 뗏목 raft	73.33	50.00	61.73
Q49 깔때기 funnel	73.33	50.00	56.91
Q50 불가사리 starfish	96.67	100.00	60.73
Q51 모래시계 hourglass	100.00	100.00	50.92

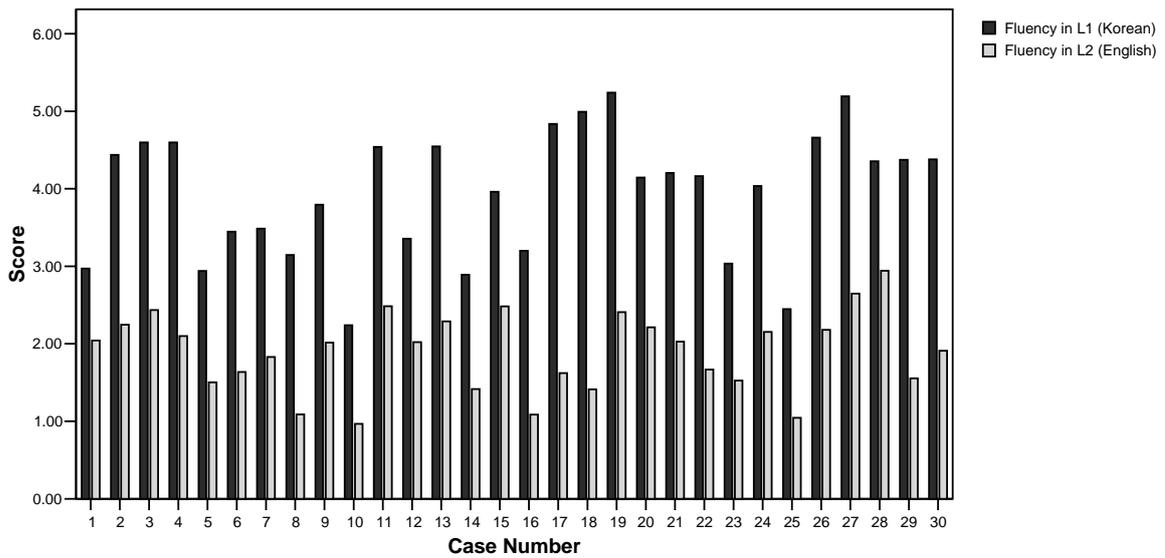
K-BNT items	Bilingual group	Monolingual group	K-norm
Q52 방독면 gas mask	63.33	0.00	49.75
Q53 고깔 peaked hat worn by Buddhist monks and nuns	3.33	0.00	44.43
Q54 목발 crutch	50.00	40.00	46.59
Q55 평행봉 parallel bars	26.67	10.00	38.94
Q56 토시 wristlets	43.33	10.00	43.76
Q57 작살 fish spear	40.00	20.00	37.60
Q58 흙손 trowel	0.00	0.00	36.44
Q59 풍경 wind-bell	6.67	0.00	28.29
Q60 (소)코뚜레 (a cow's) nose ring	10.00	10.00	35.11

*Appendix H: Comparison between L1 and L2 measures for individual participants*

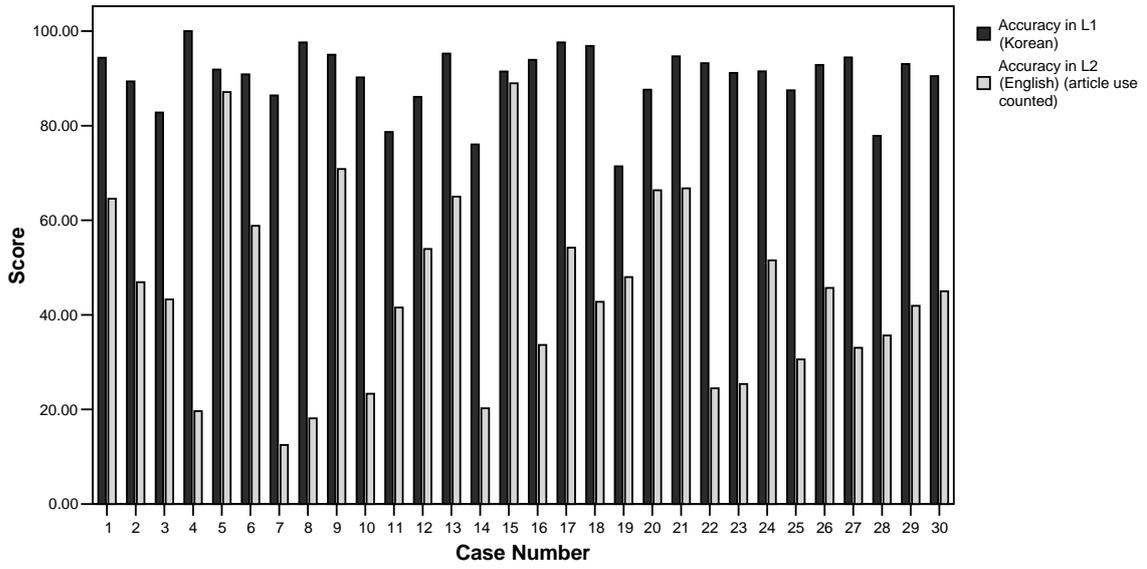
**(K-)BNT**



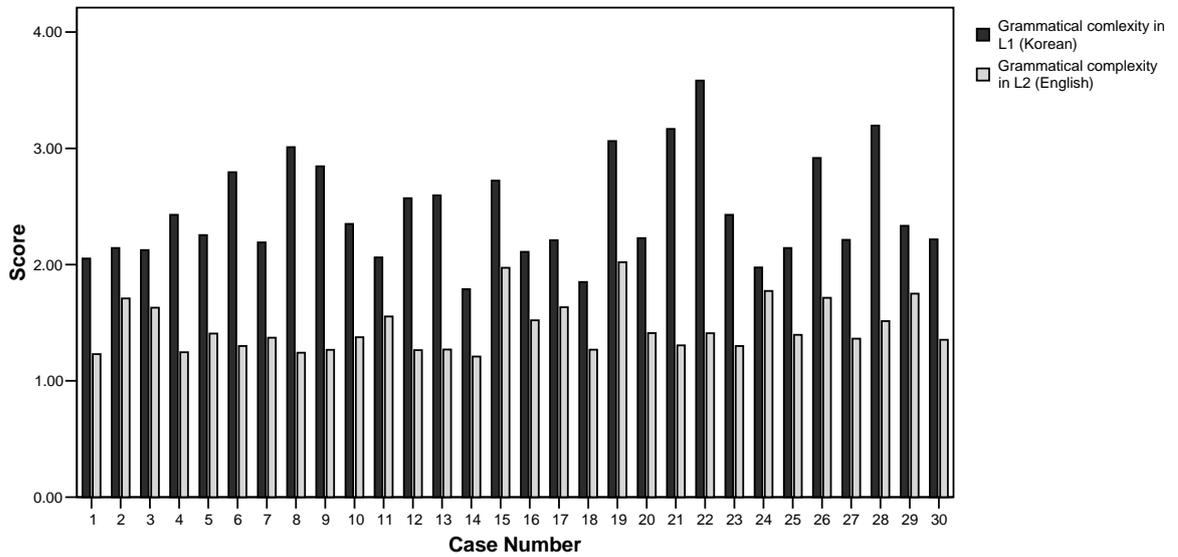
**Fluency**



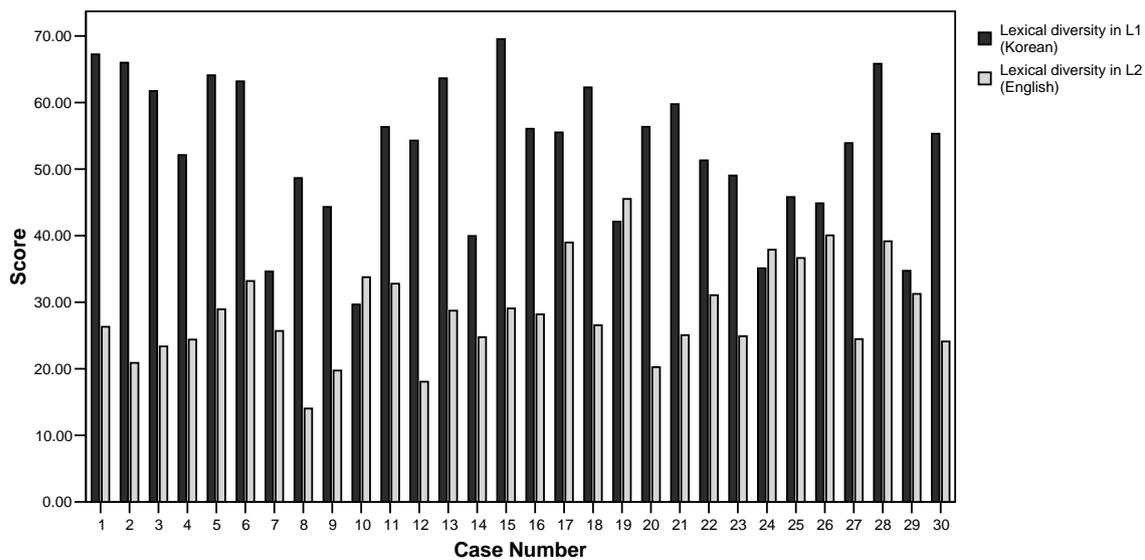
### Accuracy



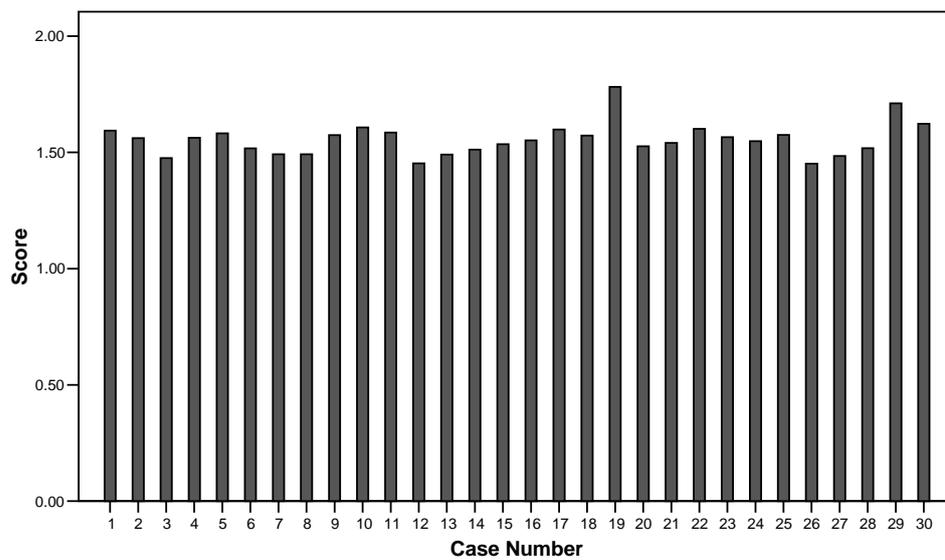
### Grammatical Complexity (G-C)



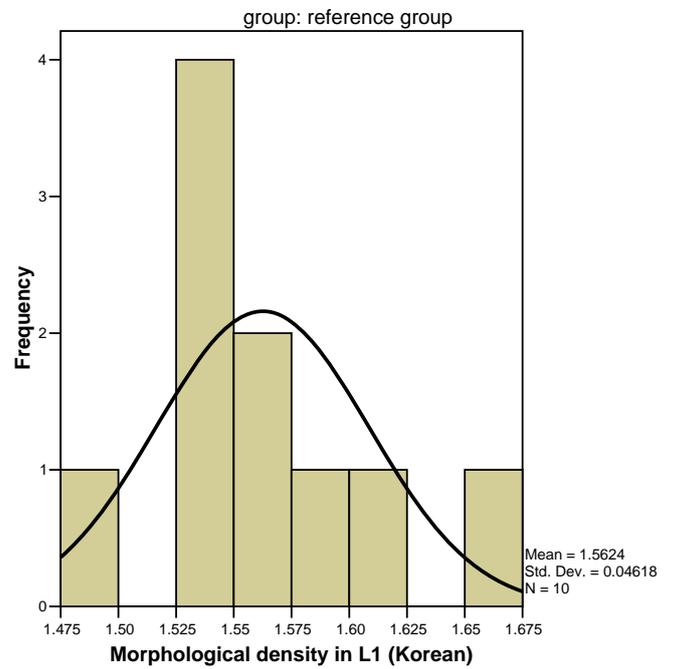
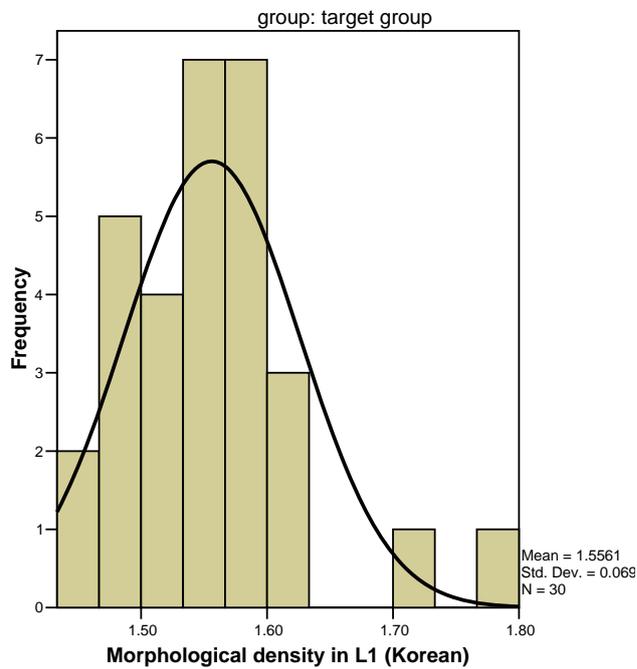
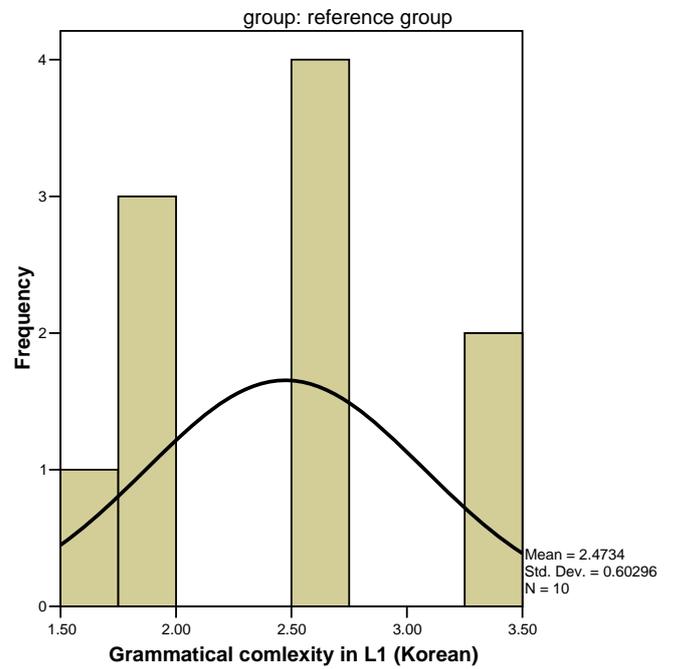
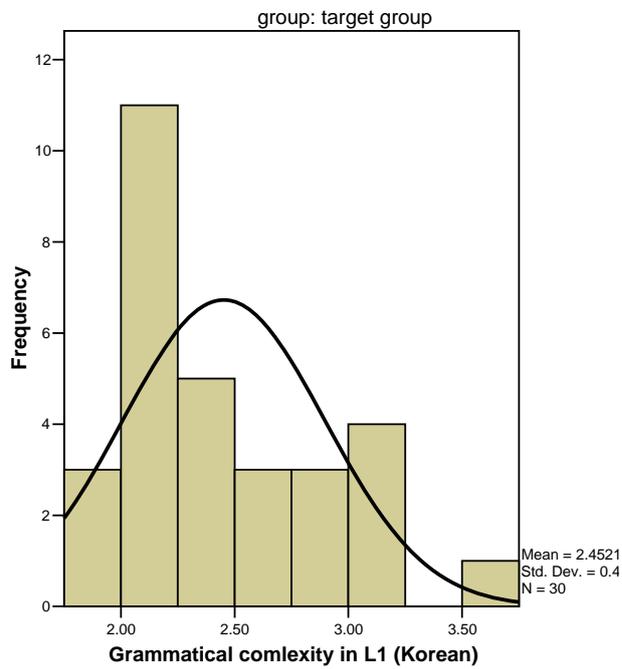
### Lexical Diversity



### Morphological density (L1)



*Appendix I: Distribution of scores for grammatical complexity and morphological density*



***Appendix J: Performance of the bilingual group on BNT items***

BNT items	Percentage correct	BNT items	Percentage correct
Q1 bed	100.00	Q31 harmonica	40.00
Q2 tree	100.00	Q32 acorn	13.33
Q3 pencil	100.00	Q33 igloo	56.67
Q4 house	100.00	Q34 stilts	0.00
Q5 whistle	80.00	Q35 dominoes	13.33
Q6 scissors (shears)	100.00	Q36 cactus	36.67
Q7 comb	73.33	Q37 escalator	96.67
Q8 flower	100.00	Q38 harp	83.33
Q9 saw	53.33	Q39 hammock	23.33
Q10 toothbrush	93.33	Q40 knocker	16.67
Q11 helicopter	100.00	Q41 pelican	50.00
Q12 broom	53.33	Q42 stethoscope	6.67
Q13 octopus	100.00	Q43 pyramid	100.00
Q14 mushroom	90.00	Q44 muzzle	3.33
Q15 hanger	83.33	Q45 unicorn	96.67
Q16 wheelchair	93.33	Q46 funnel	33.33
Q17 camel	76.67	Q47 accordion	40.00
Q18 mask	96.67	Q48 noose	3.33
Q19 pretzel*	NA	Q49 asparagus	63.33
Q20 bench	86.67	Q50 compass	90.00
Q21 racquet	96.67	Q51 latch	3.33
Q22 snail	93.33	Q52 tripod	50.00
Q23 volcano	96.67	Q53 scroll	33.33
Q24 seahorse	80.00	Q54 tongs	30.00
Q25 dart	53.33	Q55 sphinx	70.00
Q26 canoe	86.67	Q56 yoke	0.00
Q27 globe	33.33	Q57 trellis	3.33
Q28 wreath	3.33	Q58 palette	60.00
Q29 beaver*	NA	Q59 protractor	40.00
Q30 harmonica	90.00	Q60 abacus	10.00

\*These items are excluded from the analysis.

## *Appendix K: L1 performance and self-estimation on L1 proficiency*

### Mann-Whitney U test

**Test Statistics<sup>b</sup>**

	vocabulary	fluency	accuracy	grammatical complexity	lexical diversity	morohological density
Mann-Whitney U	66.500	57.000	74.000	40.500	78.000	72.000
Wilcoxon W	144.500	148.000	165.000	118.500	169.000	150.000
Z	-.627	-1.142	-.218	-2.041	.000	-.327
Asymp. Sig. (2-tailed)	.531	.253	.828	.041	1.000	.743
Exact Sig. [2*(1-tailed Sig.)]	.538 <sup>a</sup>	.270 <sup>a</sup>	.852 <sup>a</sup>	.040 <sup>a</sup>	1.000 <sup>a</sup>	.769 <sup>a</sup>

a. Not corrected for ties.

b. Grouping Variable: percprof

### Descriptive statistics

**group = same**

**Descriptive Statistics<sup>a</sup>**

	N	Minimum	Maximum	Mean	Std. Deviation
vocabulary	12	61.67	91.67	79.5842	9.48408
fluency	12	2.89	4.99	4.1400	.70217
accuracy	12	76.04	96.88	89.3367	6.61594
grammatical complexity	12	1.79	2.92	2.2133	.31933
lexical diversity	12	34.73	65.99	52.0883	11.14574
morohological density	12	1.45	1.71	1.5533	.06893
Valid N (listwise)	12				

a. group = same

**group = slight increase**

**Descriptive Statistics<sup>a</sup>**

	N	Minimum	Maximum	Mean	Std. Deviation
vocabulary	13	65.00	95.00	81.9231	8.78852
fluency	13	2.24	5.24	3.7315	.98259
accuracy	13	71.43	97.62	88.4377	8.18606
grammatical complexity	13	2.05	3.20	2.5415	.42061
lexical diversity	13	29.66	67.24	52.3354	12.14995
morohological density	13	1.45	1.78	1.5615	.08214
Valid N (listwise)	13				

a. group = slight increase

**Appendix L: Patterns of language choices derived from Sections 2-5 of the Language Use Questionnaire**

**Language spoken to/by family members**

		L1	L1>L2	L1 = L2	L1 < L2	L2	Total (N)
TO FATHER (Q14)	Count	23	6	0	0	0	29
	%	79.3%	20.7%	.0%	.0%	.0%	
TO MOTHER (Q15)	Count	26	3	1	0	0	30
	%	86.7%	10.0%	3.3%	.0%	.0%	
TO SIBLINGS (Q16)	Count	10	10	3	2	0	25
	%	40.0%	40.0%	12.0%	8.0%	.0%	
TO RELATIVES (Q26)	Count	10	3	3	0	0	16
	%	62.5%	18.8%	18.8%	.0%	.0%	
BY FATHER (Q28)	Count	23	6	0	0	0	29
	%	79.3%	20.7%	.0%	.0%	.0%	
BY MOTHER (Q29)	Count	27	3	0	0	0	30
	%	90.0%	10.0%	.0%	.0%	.0%	
BY SIBLINGS (Q30)	Count	8	10	5	2	0	25
	%	32.0%	40.0%	20.0%	8.0%	.0%	
BY RELATIVES (Q40)	Count	10	4	2	0	0	16
	%	62.5%	25.0%	12.5%	.0%	.0%	

*Note.* TO = the situation where the participant is the addresser to the interlocutor; BY = the situation where the participant is addressed by the interlocutor. 'L1' = always in Korean; 'L1>L2' = more frequently in Korean than in English; 'L1 = L2' = almost equally in English and Korean; 'L1 < L2' = more frequently in English than in Korean; 'L2' = always in English.

**Language spoken to/by non-family members**

		L1	L1>L2	L1 = L2	L1 < L2	L2	Total (N)
TOFDF (Q18)	Count	0	3	5	7	15	30
	%	.0%	10.0%	16.7%	23.3%	50.0%	
TOFDI (Q19)	Count	1	9	4	7	9	30
	%	3.3%	30.0%	13.3%	23.3%	30.0%	
TOKFDF (Q20)	Count	12	9	3	1	1	26
	%	46.2%	34.6%	11.5%	3.8%	3.8%	
TOKFDI (Q21)	Count	13	12	3	0	0	28
	%	46.4%	42.9%	10.7%	.0%	.0%	
TOFOI (Q27)	Count	7	7	7	3	6	30
	%	23.3%	23.3%	23.3%	10.0%	20.0%	
TONEI (Q24)	Count	1	3	1	0	23	28
	%	3.6%	10.7%	3.6%	.0%	82.1%	
BYFDF (Q32)	Count	0	4	4	7	15	30
	%	.0%	13.3%	13.3%	23.3%	50.0%	
BYFDI (Q33)	Count	1	9	2	6	12	30
	%	3.3%	30.0%	6.7%	20.0%	40.0%	
BYKFDF (Q34)	Count	10	14	2	3	0	29
	%	34.5%	48.3%	6.9%	10.3%	.0%	
BYKFDI (Q35)	Count	12	15	1	2	0	30
	%	40.0%	50.0%	3.3%	6.7%	.0%	
BYFOI (Q41)	Count	6	9	7	3	5	30
	%	20.0%	30.0%	23.3%	10.0%	16.7%	
BYNEI (Q38)	Count	0	1	3	0	25	29
	%	.0%	3.4%	10.3%	.0%	86.2%	

*Note.* TO = the situation where the participant is the addresser to the interlocutor; BY = the situation where the participant is addressed by the interlocutor. FDF = 'friends (daily/formal)'; FDI = 'friends (daily/informal)'; KFDF = 'Korean friends (daily/formal)'; KFDI = 'Korean friends (daily/informal)'; FOI = 'friends (occasional/informal)'; NEI = 'neighbours'. 'L1' = always in Korean; 'L1>L2' = more frequently in Korean than in English; 'L1 = L2' = almost equally in English and Korean; 'L1 < L2' = more frequently in English than in Korean; 'L2' = always in English.

**Language spoken within social domains**

		L1	L1 > L2	L1 = L2	L1 < L2	L2	Total (N)
TV/video/DVD (Q42)	Count %	1 3.3%	3 10.0%	13 43.3%	10 33.3%	3 10.0%	30
Sunday services/Mass (Q43)	Count %	13 50.0%	7 26.9%	3 11.5%	2 7.7%	1 3.8%	26
Prayer, reading Bible (Q44)	Count %	11 42.3%	7 26.9%	5 19.2%	3 11.5%	0 .0%	26
Newspaper/comics (Q45)	Count %	2 6.7%	6 20.0%	12 40.0%	7 23.3%	3 10.0%	30
CD/record/cassette (Q46)	Count %	3 10.3%	7 24.1%	12 41.4%	5 17.2%	2 6.9%	29
Listening to radio (Q47)	Count %	1 4.2%	2 8.3%	2 8.3%	7 29.2%	12 50.0%	24
Shopping (Q48)	Count %	0 .0%	0 .0%	3 10.0%	14 46.7%	13 43.3%	30
Playing sports (Q49)	Count %	1 3.7%	4 14.8%	11 40.7%	6 22.2%	5 18.5%	27
On the telephone (Q50)	Count %	1 3.3%	15 50.0%	11 36.7%	2 6.7%	1 3.3%	30
Reading (Q51)	Count %	1 3.4%	3 10.3%	13 44.8%	10 34.5%	2 6.9%	29
Earning money (Q52)	Count %	1 4.5%	3 13.6%	7 31.8%	6 27.3%	5 22.7%	22
Club/societies (Q53)	Count %	5 20.0%	6 24.0%	5 20.0%	3 12.0%	6 24.0%	25
Other leisure activities (Q54)	Count %	2 8.0%	8 32.0%	7 28.0%	5 20.0%	3 12.0%	25

*Note.* 'L1' = always in Korean; 'L1>L2' = more frequently in Korean than in English; 'L1 = L2' = almost equally in English and Korean; 'L1 < L2' = more frequently in English than in Korean; 'L2' = always in English.

**Language spoken in situations involving emotion**

		L1	L1 > L2	L1 = L2	L1 < L2	L2	Total (N)
When dreaming (Q55)	Count %	5 17.9%	9 32.1%	10 35.7%	3 10.7%	1 3.6%	28
When counting the numbers of objects (Q56)	Count %	4 13.3%	14 46.7%	9 30.0%	2 6.7%	1 3.3%	30
When memorising numbers (e.g. id numbers) (Q57)	Count %	6 20.0%	10 33.3%	8 26.7%	5 16.7%	1 3.3%	30
When receiving incoming telephone calls (Q58)	Count %	15 50.0%	6 20.0%	5 16.7%	3 10.0%	1 3.3%	30
When angry (Q59)	Count %	3 10.0%	5 16.7%	11 36.7%	6 20.0%	5 16.7%	30
When shocked (Q60)	Count %	5 16.7%	8 26.7%	6 20.0%	9 30.0%	2 6.7%	30
When tired (Q61)	Count %	6 20.0%	9 30.0%	12 40.0%	2 6.7%	1 3.3%	30
When stressed (Q62)	Count %	5 16.7%	11 36.7%	10 33.3%	3 10.0%	1 3.3%	30
When embarrassed (Q63)	Count %	3 10.0%	12 40.0%	11 36.7%	3 10.0%	1 3.3%	30
When arguing (Q64)	Count %	6 20.0%	7 23.3%	11 36.7%	5 16.7%	1 3.3%	30
When in a hurry (Q65)	Count %	4 13.3%	10 33.3%	11 36.7%	4 13.3%	1 3.3%	30
When in danger (Q66)	Count %	4 13.3%	10 33.3%	10 33.3%	5 16.7%	1 3.3%	30
When confused (Q67)	Count %	3 10.0%	11 36.7%	12 40.0%	3 10.0%	1 3.3%	30

*Note.* 'L1' = always in Korean; 'L1>L2' = more frequently in Korean than in English; 'L1 = L2' = almost equally in English and Korean; 'L1 < L2' = more frequently in English than in Korean; 'L2' = always in English.

**Correlations between responses to Sections 4 and 5 of the questionnaire**

	Q55	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67
TOFAT (Q14)	.366	.065	-.063	.453*	.349	.351	.413*	.405*	.529**	.480**	.538**	.538**	.647**
TOMOT (Q15)	.146	-.179	-.040	.365*	.398*	.467**	.276	.155	.331	.397*	.430*	.296	.319
TOSIB (Q16)	.363	.090	-.186	.406*	.362	.373	.514**	.523**	.488*	.477*	.476*	.337	.514**
TOFDF (Q18)	.442*	.245	.250	.050	.124	.071	.348	.337	.393*	.237	.229	.147	.341
TOFDI (Q19)	.464*	-.040	-.045	.317	.050	.173	.565**	.550**	.311	.244	.257	.182	.371*
TOKFDF (Q20)	.426*	.469*	.248	.473*	.574**	.647**	.706**	.686**	.703**	.612**	.417*	.296	.513**
TOKFDI (Q21)	.159	.090	.276	.283	.365	.647**	.536**	.487**	.527**	.483**	.310	.175	.326
TONEI (Q24)	.094	-.085	-.107	-.255	.229	.083	.151	.255	.097	.120	-.067	-.264	.000
TOREL (Q26)	.295	.138	.478	.310	.236	.529*	.426	.470	.549*	.433	.178	.178	.178
TOFOI (Q27)	.399*	.036	.145	.235	.146	.241	.390*	.312	.265	.407*	.452*	.397*	.257
BYFAT (Q28)	.229	.157	-.163	.221	.116	.084	.247	.128	.237	.132	.181	.075	.237
BYMOT (Q29)	.209	-.289	.206	.359	.352	.410*	.358	.215	.348	.287	.316	.167	.177
BYSIB (Q30)	.283	.226	-.059	.248	.221	.252	.358	.434*	.258	.244	.229	.104	.264
BYFDF (Q32)	.411*	.187	.101	-.010	.008	.015	.268	.252	.261	.124	.213	.163	.354
BYFDI (Q33)	.384*	-.004	-.104	.280	.044	.186	.462*	.494**	.321	.277	.267	.248	.417*
BYKFDF (Q34)	.420*	.295	.579**	.446*	.313	.485**	.539**	.528**	.680**	.576**	.421*	.444*	.447*
BYKDI (Q35)	.366	.021	.328	.357	.472**	.714**	.695**	.654**	.629**	.552**	.518**	.402*	.441*
BYNEI (Q38)	-.072	-.018	-.030	-.189	.130	.148	.124	.124	.035	-.026	-.055	-.127	-.074
BYREL (Q40)	.229	.216	.424	.246	.183	.487	.372	.418	.505*	.381	.111	.111	.111
BYFOI (Q41)	.405*	-.001	.172	.144	.020	.125	.361	.264	.171	.281	.356	.308	.167

Note. \* $p < .05$ ; \*\* $p < .01$ . Q55 = When dreaming; Q56 = When counting the number of objects; Q57 = When memorizing numbers; Q58 = When receiving incoming telephone calls; Q59 = When angry; Q60 = When shocked; Q61 = When tired; Q62 = When stressed; Q63 = When embarrassed; Q64 = When arguing; Q65 = When in a hurry; Q66 = When in danger; Q67 = When confused.

**Correlations between L1/L2 measures and language choice patterns for spontaneous language use**

	Q55	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67
<b>L1</b>													
VOC	.153	-.010	.133	.088	.020	.036	.048	.113	-.143	.105	.183	.178	.035
FLU	-.074	-.162	.085	.052	-.015	.080	.018	-.058	-.111	.040	.159	.096	-.008
ACC	.335	.055	.086	.328	.493**	.215	.368*	.419*	.399*	.384*	.467**	.364*	.373*
G-C	.110	.096	-.068	-.069	-.126	-.097	.056	.088	.003	-.095	.054	-.020	.012
L-D	-.045	.217	-.202	-.037	-.018	-.041	-.096	-.180	-.116	-.104	-.148	-.100	-.167
M-D	-.155	-.398*	-.265	.249	.149	.004	.170	.239	.041	.200	-.018	-.034	.130
<b>L2</b>													
VOC	-.087	-.082	.293	-.189	-.132	-.296	-.198	-.102	-.216	-.148	-.170	-.188	-.293
FLU	-.366	-.098	-.076	-.236	-.346	-.291	-.470**	-.577**	-.364*	-.402*	-.319	-.316	-.373*
ACC	-.034	.044	.173	.222	.011	.064	.082	-.024	.222	.007	-.015	.115	-.032
G-C	-.267	-.225	.098	-.207	-.378*	-.249	-.235	-.204	-.207	-.038	-.177	-.082	-.201
L-D	-.168	-.074	-.047	-.285	-.340	-.394*	-.158	.009	-.335	-.224	-.314	-.280	-.333

Note. \* $p < .05$ ; \*\* $p < .01$ . Q55 = When dreaming; Q56 = When counting the number of objects; Q57 = When memorizing numbers; Q58 = When receiving incoming telephone calls; Q59 = When angry; Q60 = When shocked; Q61 = When tired; Q62 = When stressed; Q63 = When embarrassed; Q64 = When arguing; Q65 = When in a hurry; Q66 = When in danger; Q67 = When confused.

## Correlations

	Q55	Q56	Q57	Q58	Q59	Q60	Q61	Q62	Q63	Q64	Q65	Q66	Q67	Light	Medium	Heavy	Total score (emot'l loads)
Q42	.324	.047	.400*	.381*	.599**	.379*	.448*	.428*	.537**	.612**	.434*	.391*	.463**	.430*	.468**	.593**	.622**
Q43	.728**	.134	.051	.461*	.162	.319	.629**	.654**	.365	.380	.401*	.359	.501**	.325	.581**	.437*	.507**
Q44	.602**	.113	.207	.456*	.204	.394*	.573**	.533**	.329	.520**	.414*	.356	.454*	.424*	.522**	.456*	.492*
Q45	.399*	.126	.190	.276	.447*	.377*	.548**	.550**	.523**	.557**	.502**	.498**	.603**	.295	.554**	.594**	.591**
Q46	.364	.331	.173	.506**	.260	.334	.311	.257	.473**	.392*	.416*	.413*	.530**	.547**	.468*	.427*	.537**
Q47	.401	.263	.494*	.193	.507*	.248	.331	.328	.447*	.384	.308	.233	.274	.442*	.353	.395	.389
Q48	.344	.138	.262	.330	.244	.338	.483**	.412*	.341	.425*	.451*	.404*	.344	.330	.453*	.426*	.473**
Q49	.371	.096	.188	.315	.272	.120	.425*	.458*	.457*	.355	.182	.125	.306	.272	.302	.354	.409*
Q50	.666**	.300	.413*	.624**	.358	.369*	.558**	.596**	.667**	.706**	.636**	.692**	.758**	.660**	.722**	.682**	.772**
Q51	.294	.175	.302	.379*	.471**	.380*	.351	.288	.266	.347	.285	.217	.249	.445*	.323	.370*	.441*
Q52	.482*	.245	.473*	.366	.115	.210	.436*	.427*	.265	.461*	.523*	.582**	.481*	.543**	.564**	.426*	.504*
Q53	.576**	.341	.403*	.603**	.518**	.495*	.636**	.624**	.708**	.712**	.706**	.776**	.800**	.618**	.748**	.779**	.823**
Q54	.628**	.428*	.417*	.484*	.383	.466*	.695**	.613**	.733**	.572**	.553**	.648**	.616**	.620**	.660**	.670**	.742**
Private	.522**	.305	.338	.515**	.509**	.425*	.540**	.500**	.529**	.580**	.506**	.470**	.589**	.574**	.596**	.600**	.674**
Public	.693**	.340	.361*	.557**	.446*	.491**	.771**	.738**	.644**	.704**	.721**	.735**	.764**	.605**	.840**	.765**	.831**
Verbal	.732**	.330	.355	.569**	.467**	.521**	.784**	.772**	.730**	.785**	.746**	.755**	.839**	.602**	.865**	.817**	.876**
Print	.597**	.295	.320	.475**	.406*	.526**	.678**	.619**	.506**	.626**	.569**	.532**	.618**	.542**	.664**	.642**	.711**
Audio-visual	.452*	.278	.322	.440*	.456*	.353	.430*	.382*	.481**	.497**	.422*	.366*	.491**	.524**	.499**	.498**	.576**
Total score (social domains)	.681**	.383*	.391*	.572**	.521**	.525**	.731**	.691**	.680**	.722**	.655**	.644**	.734**	.655**	.776**	.761**	.843**

Note. \* $p < 0.05$ ; \*\* $p < 0.01$ . Q42 = TV/video/DVD; Q43 = Sunday services/Mass; Q44 = Prayer, reading Bible; Q45 = Newspaper/comics; Q46 = CD/record/cassette; Q47 = Listening to radio; Q48 = Shopping; Q49 = Playing sports; Q50 = On the telephone; Q51 = Reading; Q52 = Earning money; Q53 = Club/societies; Q54 = Other leisure activities. Q55 = When dreaming; Q56 = When counting the number of objects; Q57 = When memorizing numbers; Q58 = When receiving incoming telephone calls; Q59 = When angry; Q60 = When shocked; Q61 = When tired; Q62 = When stressed; Q63 = When embarrassed; Q64 = When arguing; Q65 = When in a hurry; Q66 = When in danger; Q67 = When confused. 'Private' = 'degree of L1/L2 use within private domains'; 'public' = 'degree of L1/L2 use within public domains'; 'verbal' = the degree of L1/L2 use within domains where the verbal medium is mainly used; 'print' = the degree of L1/L2 use within domains where the print medium is mainly used; 'audio-visual' = 'degree of L1/L2 use within domains where the audio-visual medium is mainly used'. 'Light' = 'degree of L1/L2 use in spontaneous language use where the relative emotional load is light'; 'medium' = 'degree of L1/L2 use in spontaneous language use where the relative emotional load is medium'; 'heavy' = 'degree of L1/L2 use in spontaneous language use where the relative emotional load is heavy'.

**Appendix M: Comparison of lexical items used in the narratives among the original version and late bilingual/comparison groups**

Category	L2 equivalent to original	Original	Late bilinguals		12-year-old monolinguals	
			Lexical item	N	Lexical item	N
Noun	piece of meat	<i>kokisteng.i</i> <sup>1</sup> : <i>koki</i> (meat) + <i>teng.i</i> (lump)	<i>kokisteng.i</i>	21	<i>kokisteng.i</i>	7
			<i>koki</i> 'meat'	9	<i>koki</i>	3
	branch of a tree <sup>2</sup>	<i>namuskaci</i> : <i>namu</i> (tree) + <i>kaci</i> (branch)	<i>namuskaci</i>	4	<i>namuskaci</i>	1
<i>namu</i> 'tree'			15	<i>namu</i>	4	
rope	<i>pascwul</i>	<i>pascwul</i>	21	<i>pascwul</i>	6	
		<i>cwul/ kkun</i>	6	<i>cwul/ kkun</i>	2	
		'line/string/strap'—long thin item used for tying something up		'line/string/strap' <i>kumwulmang</i> 'net'	1	
Verb	hold (something) in the mouth	<i>mwul-</i>	<i>mwul-</i>	27	<i>mwul-</i>	7
			<i>kaci-</i> 'have'	1	<i>kaci</i>	3
			<i>tul-</i> 'hold in the hand(s)'	1		
	take possession of (something)	<i>chaciha-</i>	<i>chaciha-</i>	4	<i>chaciha-</i>	3 <sup>3</sup>
			<i>ppayas-</i> 'take (by force)'	6		
			<i>etenay-</i> 'eventually get (something) out of'	1		
			<i>et-</i> 'get'	1		
			<i>nakkachay-</i> 'snatch'	1		
	beg	<i>aywenha-</i>	<i>aywenha-</i>	12	<i>aywenha-</i>	4
			<i>ha-</i> 'say'	4	<i>ha-</i> 'say'	3
<i>malha-</i> 'say'			3	<i>malha-</i> 'say'	2	
<i>pil-</i> 'beg'			2			
<i>sacengha-</i> 'ask for mercy'			1			
<i>iyakiha-</i> 'say'			1			
* <i>wenha-</i> 'want'			1			
* <i>kwuwenha-</i> 'save'	1					
tie (with rope/chain)	<i>mwukk-</i> <sup>4</sup>	<i>mwukk-</i>	28	<i>mwukk-</i>	7	
		<i>may-</i> 'tie/fasten'	1	<i>kel-</i> 'hook'	1	
		* <i>maytali-</i> 'hang (vi)'	1			
chew away	<i>kalk-</i>	<i>kalk-</i>	17	<i>kalk-</i>	4	
		<i>kkaymwul-</i> 'bite'	1			

*Note.* \* means a wrong lexical choice. <sup>1</sup> Many participants used *kokisteng.eli* which has the same meaning as *kokisteng.i*. Thus, the number of participants using *kokisteng.i* is counted including the number of those using *kokisteng.eli*. <sup>2</sup> Only a smaller proportion of the participants used *namwuskaci* as given in the original script. This seems due to the drawing for the given scene where the branch is not highlighted but the crow is on a small branch in the middle of the tree. <sup>3</sup> Most of the remaining monolingual participants described the part where 'chaciha-' is used in the original script in various ways without using the actual verb *chaciha-*. For example, Yuri described the scene where the fox was determined to take the meat from the crow as *kuke-l mek-ko siph-e kaci-ko* '(the fox) wanted to eat it, so...'. <sup>4</sup> This verb is used to describe the scene where the hunters caught the lion and tied him onto a tree. Some late bilingual and monolingual participants used this verb in a passive voice with the lion as the subject of the sentence.