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SLA of Mandarin Nominal Syntax:
Early Stages

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Outline

• Structures studied: nominals, sentences
• Processability: Theory & Methodology
• PT account of Mandarin emergence order
• Evaluation
  – Only partial success
• An alternative
  – Emergent Functional Grammar
• Conclusions
  – Contributors to processing demands
# Nominal structures

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
<th>Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronoun</td>
<td>wo, nimen etc</td>
<td>我，你们</td>
</tr>
<tr>
<td>Noun</td>
<td>hua, shu, haizi</td>
<td>画，书，孩子</td>
</tr>
<tr>
<td>Incorporated Locative</td>
<td>hubian</td>
<td>湖边</td>
</tr>
<tr>
<td>'Adj'-N</td>
<td>da shu</td>
<td>大树</td>
</tr>
<tr>
<td>Poss 0 (Affine)</td>
<td>wo mama</td>
<td>我妈妈</td>
</tr>
<tr>
<td>de (Poss/Gen)</td>
<td>nide hua</td>
<td>你的画</td>
</tr>
<tr>
<td>de (Att)</td>
<td>riben de shouyinji</td>
<td>日本的收音机</td>
</tr>
<tr>
<td></td>
<td>shu de houbian</td>
<td>树的后边</td>
</tr>
<tr>
<td>de (Loc)</td>
<td>hen da de zixingche</td>
<td>很大的自行车</td>
</tr>
<tr>
<td>de (Adj)</td>
<td>da zuqiu de ren,</td>
<td>达足球的人</td>
</tr>
<tr>
<td>de (RC)</td>
<td>ta chang de ge</td>
<td>他唱的歌</td>
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<tr>
<td>Num-Class N</td>
<td>yi ben shu</td>
<td>一本书</td>
</tr>
<tr>
<td>Dem-Class N</td>
<td>na zhang zhuzong</td>
<td>那张桌子</td>
</tr>
</tbody>
</table>
Sentence structures

SVO

她很漂亮

ADV/PP 1st

明天我去大学

我在图书馆我看书

Top

我北京没去

别的我都不知道

Ba

他把信寄了

Aspect

1。 Experiential

我去过北京

2。 Progressive

正在看书
Processability Theory (PT)

- **Thinking for speaking** (Levelt, 1989)
  - Lexical concepts activate lemmas
  - Lemmas encode syntactic information and link meanings to forms
  - Word forms compete: the best match wins
- **Incremental Procedural Grammar** (Kempen & Hoenkamp 1987)
  - Distinct procedures for each constituent type
  - Parallel processing
  - Output from one procedure feeds second procedure
- **Lexical Functional Grammar** (Bresnan, 1987)
  - Words in a structure share information (features)
  - Compatible features = Acceptable structures (unification)
Procedural Grammar

Conceptual content (概念内容)

Stage 1
Lexicon (词汇)

Stage 2
Pron

Stage 3
NP

Stage 4
S > NP VP

Stage 5
SC > NP VP

Output
Developmental Stages: Predictions

**Morphology**
1. 'Lemma': no variation in form
   
   wo 我; ni 你; hubian 湖边

2. Bound 'Lexical' morphs & function words
   
   women 我们，三个

3. Agreement *within* phrase

   ben 本～shu 书

4. Agreement *between* phrases

   [他们][互相]了解

5. Complementiser

   ? 跑得谁都找不到[

**Syntax**

1. Basic Alignment: 主题 = 主词
   
   我喜欢汉语

2. Categorial: (词类)

   Pron (代) vs N (名)

3. Phrasal (词组): modifier-head

   [我爸爸] [三个书]
   [三-本书]

4. S-procedure Marked order:

   汉语我喜欢[

   Subordinate clauses (从句)

   她唱[ ]的歌很好听
Methodology

• Unplanned spoken output
• Elicitation targets key structures
• All output analysed (TL-like or not)
• Emergence criterion (2+ tokens)
• Tests for productivity (variability in tokens)
• Longitudinal (direct observation of order)
• Implicational scaling (co-occurrence)
<table>
<thead>
<tr>
<th>tm</th>
<th>wk</th>
<th>Zhang</th>
<th>wk Charters</th>
<th>wk Gao</th>
<th>stage</th>
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</tr>
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<td>2</td>
<td>5</td>
<td>Poss de</td>
<td>7 N, Pron</td>
<td>3-7 SVO</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>Num-Class</td>
<td>10 Poss 0 &gt; Poss de</td>
<td>11-17 Num-Class</td>
<td>2</td>
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<tr>
<td>4</td>
<td>12</td>
<td>Zhengzai</td>
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<tr>
<td></td>
<td>13</td>
<td>de (ADJ / Loc de)</td>
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<td></td>
<td>(4)</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>Dem-Class</td>
<td>16 Dem-Class</td>
<td></td>
<td></td>
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<td>6</td>
<td>22</td>
<td>V-guo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>29</td>
<td>de (ADJ / RC) (S)</td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>
Evaluation of PT account

• What works?
  – Emergence order broadly similar in all studies,
  – Structures emerge in 5 rough steps
  – The stage 5 RC is late (or fails to emerge)

• What doesn't work?
  – PT's Stages 2, 3 and 4 are not clearly distinct.
  – Stage 2 structures continued to emerge throughout
    • Locative de and V-guo are very late.
  – Same structures group differently
  – Ba and topicalisation emerged alongside RC.
Zhang on De

- **Stage 2 (lexical morphs)**
  - de GEN (possessive N de N)
  - de (Att) (non-possessive N de N)
  - de (Adj) ('Adj' N)
    - "their insertion does not involve any feature unification with other constituents"

- **Stage 5**
  - de (RC) Clause de N
    - 'Syntactic and semantic information of the RC and the head noun is exchanged via the particle 'de (RC), making it an inter-phrasal morpheme as the information transfer occurs across phrasal boundaries between a clause and a noun.'
    - 'de' 'represents the head noun in that it nominalizes the RC'; it is 'related to the within-clause function (or gap) on the one hand, and the head noun on the other.'
Charters on De

• Stage 1
  – Possessive suffix

• Stage 3
  – Function word creating De P
  – Introduces an Adjunct Function (modifier)
    • 'Adj' introduces no syntactic function, freely fills adjunct slot

• Stage 5
  – Function-linking in DeP:
    • RC - V and Locative Noun introduce Grammatical Functions (SUBJ-OBJ)
    • Thes must be formally linked to ADJUNCT GF.
Emergent Functional Grammar

• Early processing is semantic
  – Two lemmas may access one categorial procedure: compounds like *hubian*
  – Two lemmas may be activated by the same concept with no comparison in syntax: classifier and noun

• Structure building precedes agreement
  – Two unmarked words combine in a phrase, with *semantic* restrictions
  – Unmarked 'possession'

• Grammaticalisation *reduces* semantic restrictions
  – De supports all modifier types

• BUT it brings processing costs
  – Formal GFs require syntactic checking processes
The END
Development in EFG

Conceptual content (概念内容)

Stage 1a
Lexicon (词汇)

Stage 2

Stage 3a

Stage 1b

Output

Stage 4

Stage 5
Allocation to stages

Morphology
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   [三本书]
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Subordinate clauses (从句)
   她唱[ ]的歌很好听
(20) wǒ mǎi __ de shū hěn piányí.
(I buy _ de book very cheap
The book I bought is cheap)

- Zhang (2001)