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## Reference

Annotating the mental lexicon: Developmentally Moderated Transfer starts in the Conceptual Stratum. Regional PhD Workshop on Processability, Second Language Acquisition and Bilingual First Language Acquisition, Sydney, 21 Jan 2008 - 21 Jan 2008.

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# Annotating the mental lexicon:

Developmentally Moderated Transfer starts  
in the Conceptual Stratum.

*Helen Charters* & *Louise Jansen*

*University of Auckland*

*Australian National University*

**Regional PhD Workshop on Processability, Second Language  
Acquisition and Bilingual First Language Acquisition**  
January 21, Sydney, University of Western Sydney



# Context

- Joint work in progress with Helen Charters
- Overview of empirical research
- Acquisition of nominal plural marking
- Numerals
  - vs other phrasal contexts
  - vs lexical plural marking.
- Focus
  - the interface between the conceptual and the lemma stratum
  - PT's developmentally moderated transfer hypothesis
- Position
  - more detailed work on the interface is needed
  - as proposed by Charters (2005, 2007).



# Focus of presentation

- Theoretical predictions
  - Functional Hypothesis
  - Processability Theory
- Similarities in the predictions
  - Numerals inhibit
- Explanatory differences
  - Use vs acquisition
- Contradiction in empirical findings
  - Numerals: Inhibiting vs facilitating
- Theory
  - Focus on conceptual representation
  - Interface between conceptual and lemma stratum
  - Developmentally Moderated Transfer Hypothesis

# Theoretical predictions and explanations

- Functional Hypothesis
  - Prediction
    - Nominal plural marking lower frequency of suppliance
  - Explanation
    - Redundancy
- Processability Theory
  - Prediction
    - Nominal plural marking emerges later
  - Explanation
    - Agreement
- Similarity in the predictions
  - Numerals inhibit

# Empirical corollary

- Both predictions suggest that the presence of numerals inhibits plural marking on the noun, but for different reasons
- Most empirical studies focus on frequency of suppliance
- Raw data figures crucial to establish non-acquisition and emergence
- Few studies present raw data figures on individual learners



# Empirical evidence

- Studies supporting the numeral as inhibiting acquisition/production of phrasal plural, e.g.
  - L1 French/L2 Spanish
    - Bruhn de Garavito (2007)
- Studies supporting the numeral as facilitating acquisition/production of phrasal plural, e.g.
  - L1 Vietnamese/L2 English
    - Dao (2007)
  - L1 Mandarin/ L2 English
    - Young (1991)
- Observation
  - Facilitation involves L1 classifier languages
  - L1 influence could be a factor

# Explanatory approach

- Functional Hypothesis
  - Omission presupposes prior acquisition
  - “You can’t omit what you haven’t got”
- Processability Theory
  - Agreement presupposes annotation of the relevant diacritic feature in the mental lexicon
  - “You can’t unify what you haven’t got”
- Commonality between the FH and PT
  - The inhibiting role of the numeral can come into play only once the prerequisites for suppliance of nominal plural marking have been acquired



# Empirical corollary

- Functional Hypothesis
  - Evidence that plural marking in non-redundant contexts has emerged.
- Processability Theory
  - Evidence of emergence of nominal plural marking
  - Marker reflects the value Plural of a diacritic feature Number which is PART OF THE NOUN LEMMA

# L1 influence starts in the conceptual stratum

- Theory of speaking (Levelt, 1989)
- Theory of Lexical Access - Weaver++ (Levelt et al., 1999)
- Three consecutive strata
  - Conceptual, Lemma, Form
- Words accessed when activation flows from lexical concept to grammatical features to lexical forms
- Lexical concepts
  - Language specific
  - Linked to form
    - lexical morpheme
    - Grammatical morpheme (with lean semantic content)

# Theory of Lexical Access

## Weaver ++

Conceptual  
Stratum

Star

Lexical Concepts

*activation*

Lemma  
Stratum

N Sg

Syntactic and Grammatical  
features

*activation*

Form  
Stratum

[sta:]

Forms





# Assumptions vis-à-vis L1 influence

- Learners initially employ their L1 conceptual and lemma representations to process the L2
- They possibly need to develop new lexical concepts to process the L2.
- SLA requires development of new *links* between conceptual-grammatical and formal interfaces

# L1 : Classifier Language (Vietnamese)

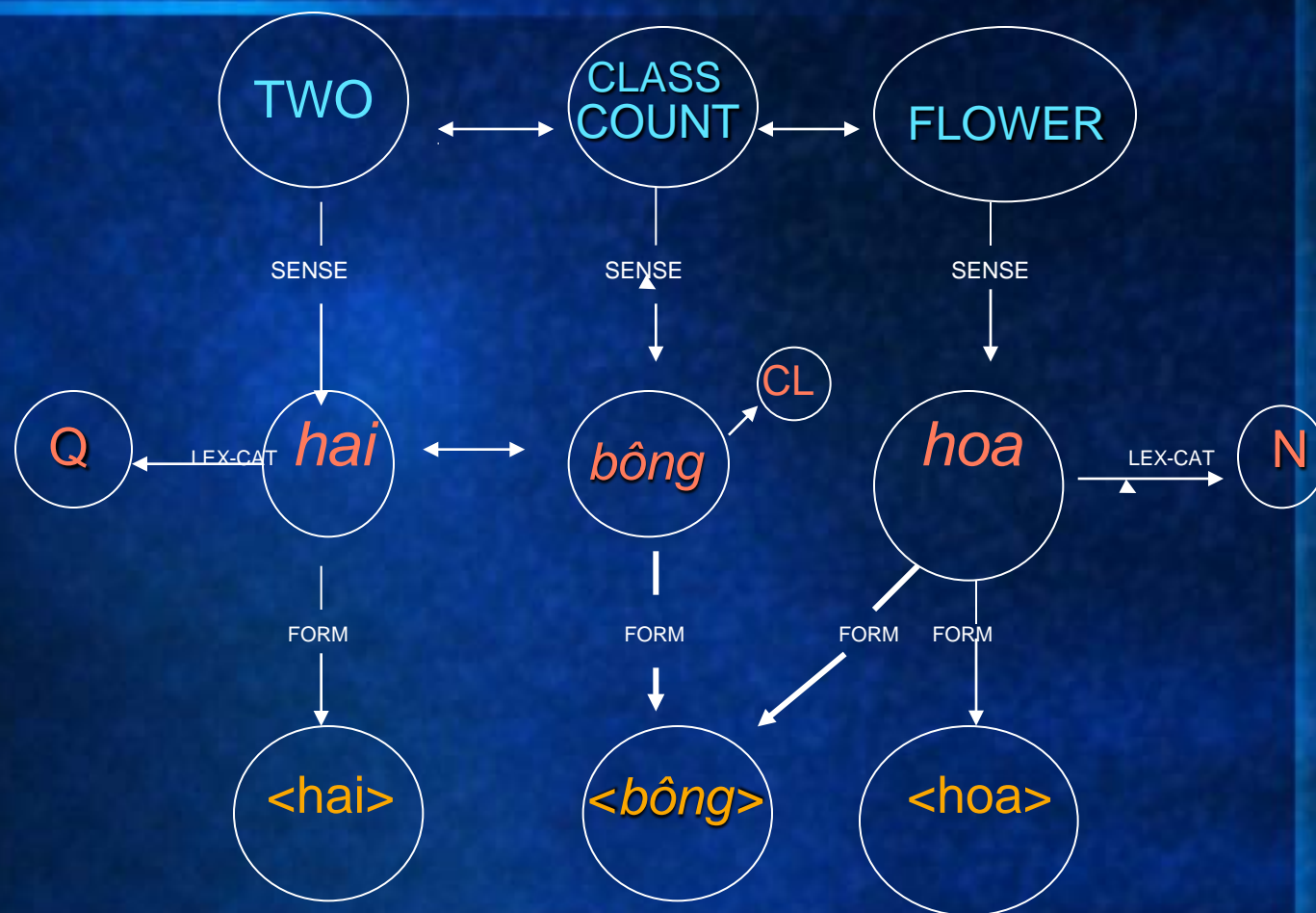
Numeric expression

No Plural but COUNT/class Lexical Concept

Conceptual  
Stratum

Lemma  
Stratum

Form  
Stratum



# L2: *Non-Classifier* Language (English)

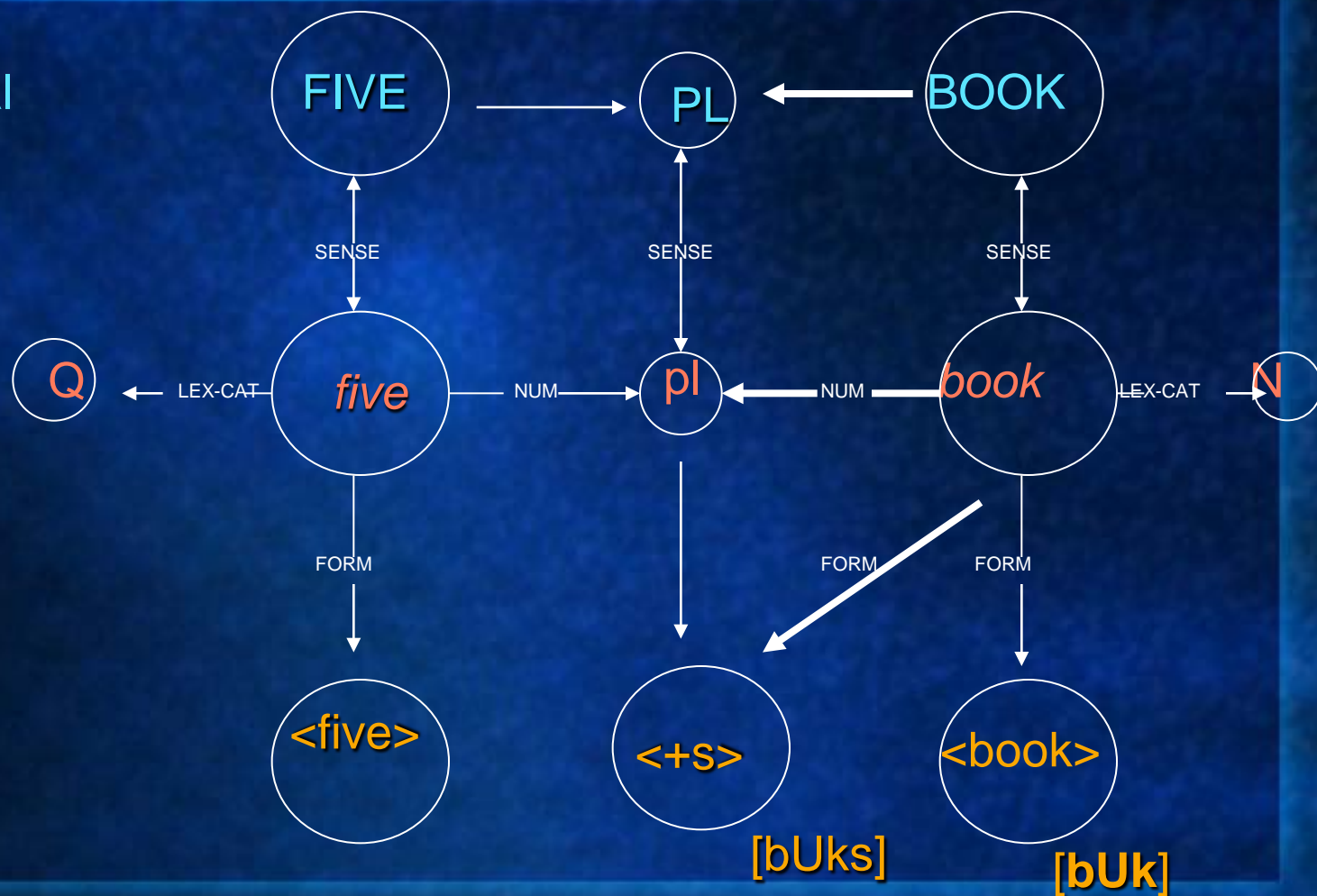
## Numeric expression

### Plural Concept

Conceptual  
Stratum

Lemma  
Stratum

Form  
Stratum





## Results Dao (2007)

- 2 learners acquired lexical but not numeric PLs
- 6 learners acquired numeric but not lexical PLs!
- 3 Stages in use of PL Nouns in plural contexts:
  - Stage 1 *book five book / one book* No PL
  - Stage 2 *book five books / one book* Numeric PL
  - Stage 3 *books five books / one book* Lexical PL
- Numeric PL was acquired first

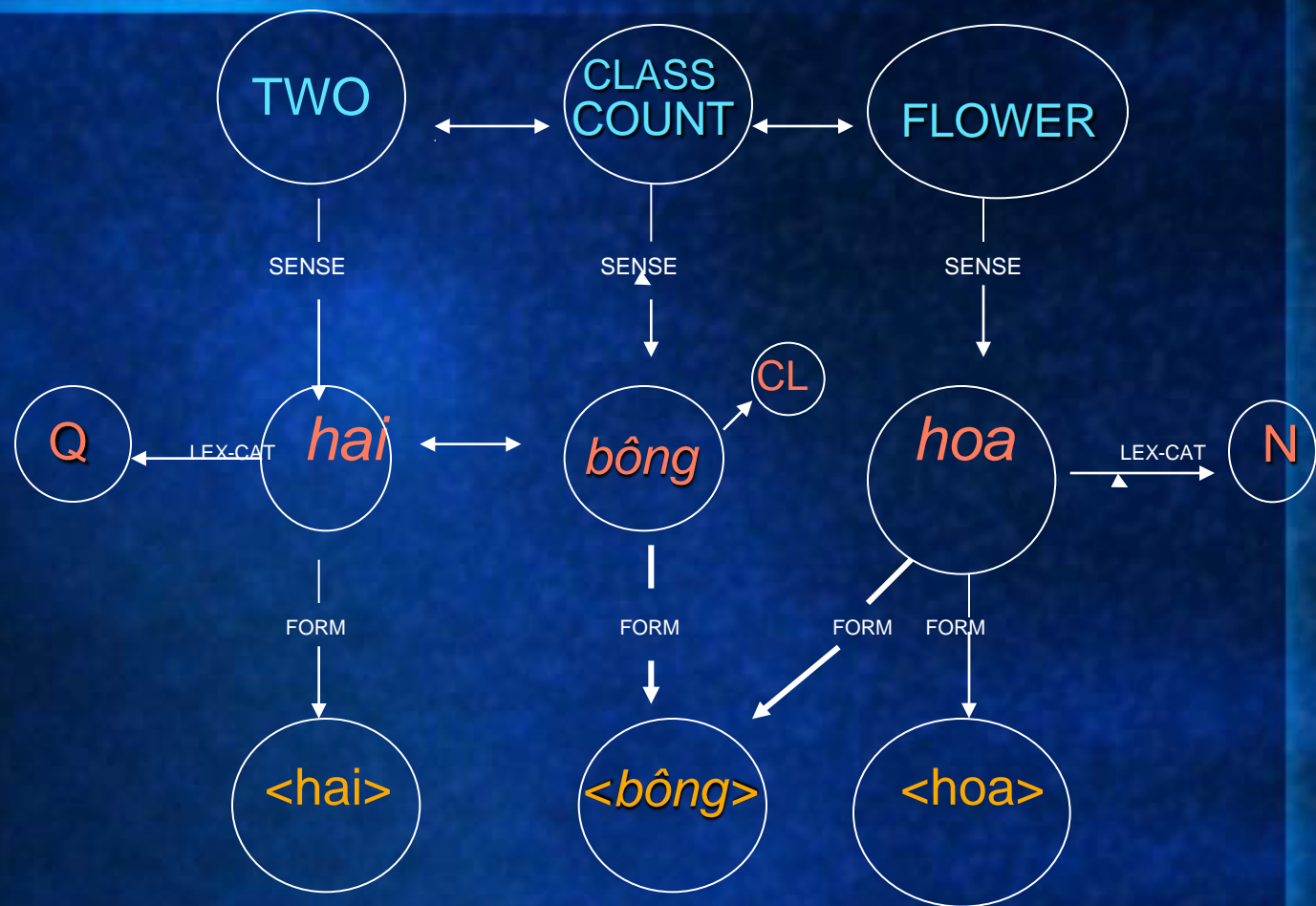


# L1 : Numeric expression No Plural Concept

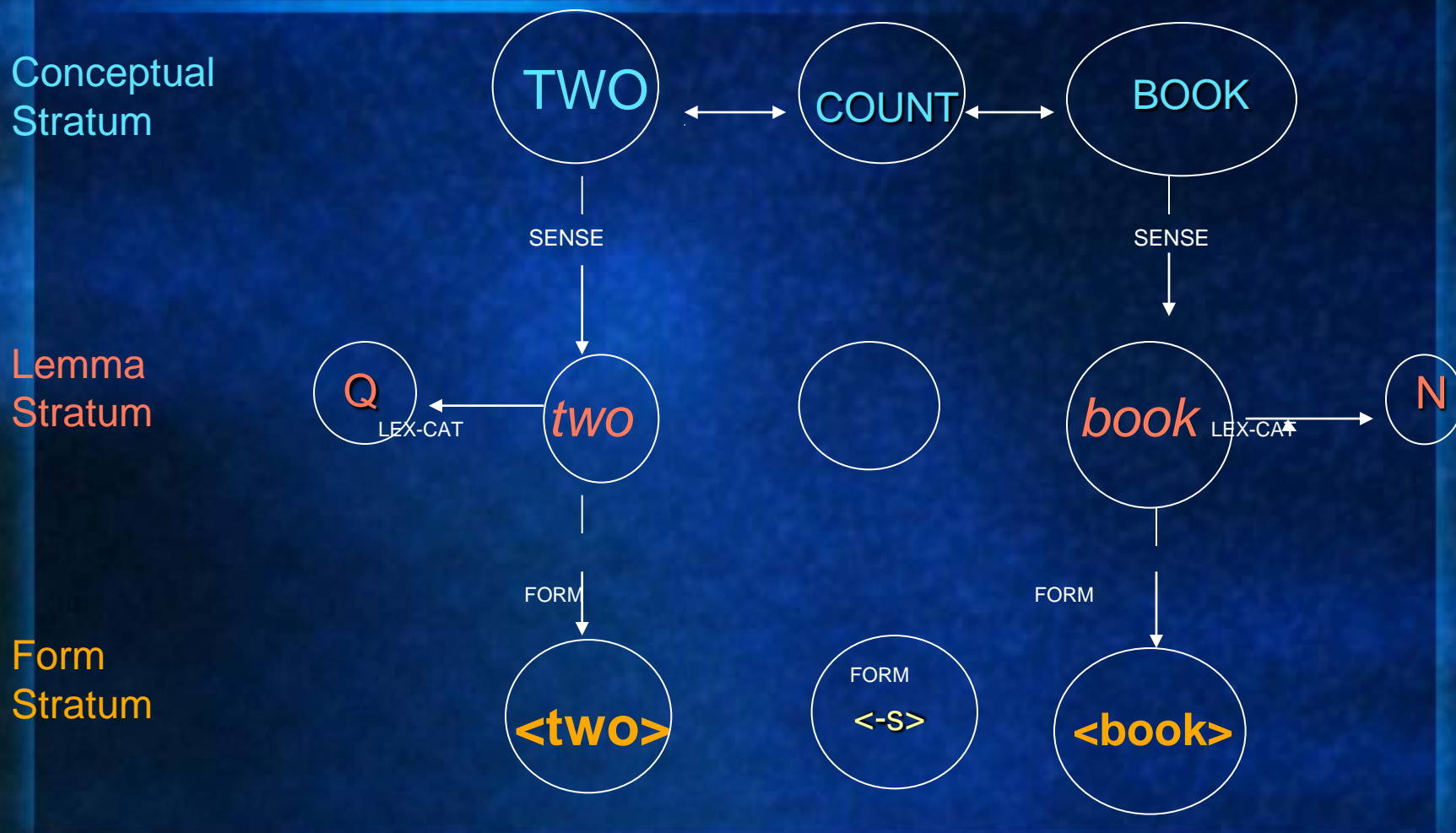
Conceptual  
Stratum

Lemma  
Stratum

Form  
Stratum



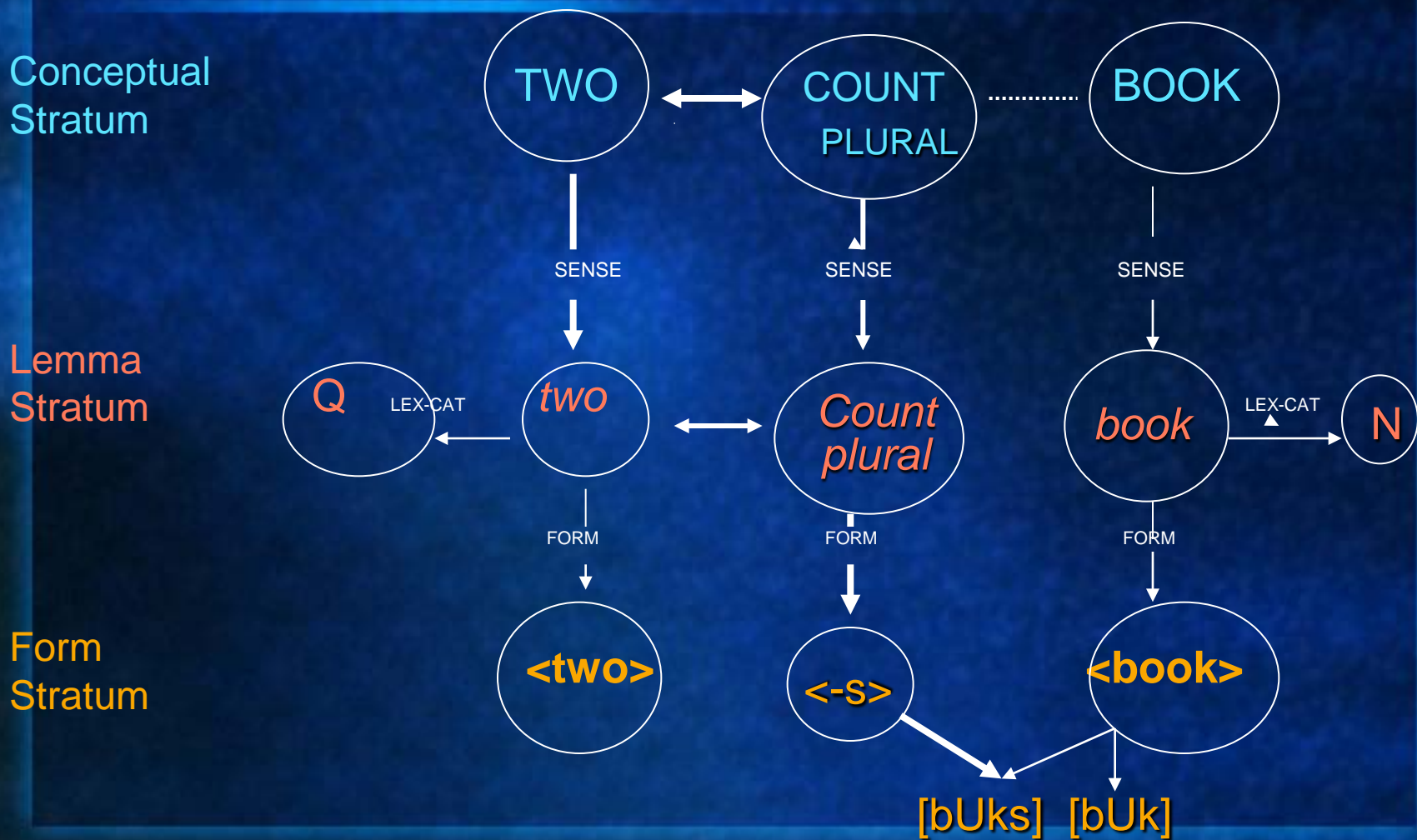
# 1. Initial State (L2) : Numeric expression No Plural Concept





## 2. Emergent Plural

### Activation of *Count Concept and Lemma* by Numbers





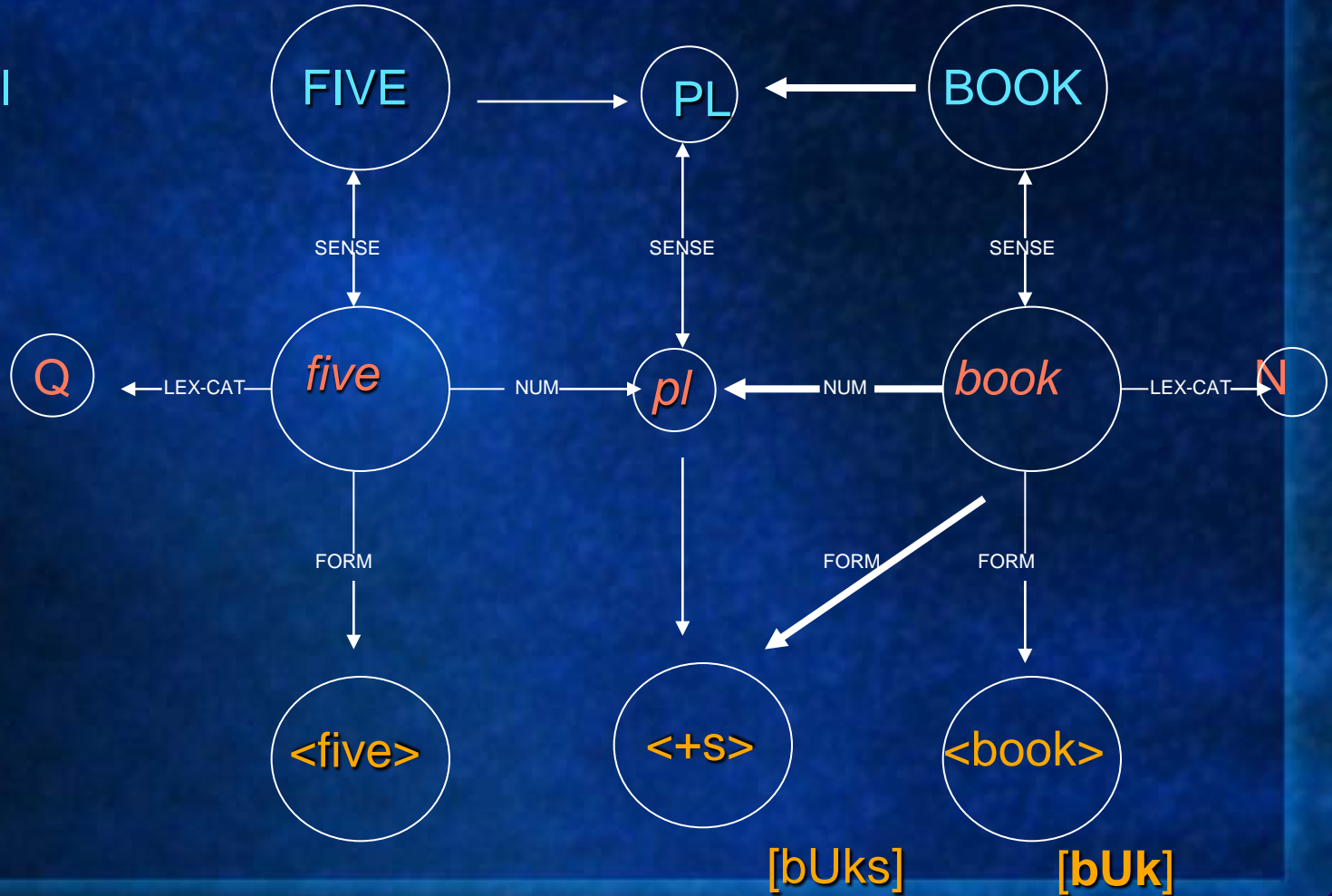
### 3. TL Numeric expression

## Plural Concept activated by numeral AND NOUN

Conceptual  
Stratum

Lemma  
Stratum

Form  
Stratum



# Summary

- L1 Classifier Ig learners of an L2 non-classifier language need to develop
  - a lexical concept for Plural
  - a diacritic Number feature in the Noun lemma
  - The lexical concept Plural activating a plural value for the Number feature in a Noun lemma



# Implications for the FH and PT

- Functional Hypothesis
  - Evidence that plural marking has emerged (in non-redundant contexts).
- Processability Theory
  - Evidence of emergence of nominal plural marking
  - Marker reflects the value Plural of a diacritic feature Number which is PART OF THE NOUN LEMMA

## Stage 2

### L1 Vietnamese/L2 English

- The marker appears only in the presence of numerals
- The simplest account for this in linguistics terms:
  - The marker is NOT a Noun suffix
  - It is a Numeral clitic

# L1 Transfer and PT - DMT

- Transfer is developmentally moderated
- DMT starts in the conceptual stratum
- PT may underestimate transfer and wrongly assume to be in place what first needs to be acquired/developed
  - Plural concepts/features,
  - Syntactic categories
  - Lemmas in the mental lexicon
- We see our work as a contribution to try remedy this



# *To Further This Research we need...*

- Studies from various L1/L2 combinations
  - similar NP/DP typology and Number system
  - different NP/DP typology and Number system
  - Longitudinal as well as cross-sectional designs
- Emergence Orders for Nominal Structures
  - Emergence Orders for individual learners
  - Spontaneous, meaning-focused oral production data
- Data presentation
  - Raw figures are crucial
  - Identification of emergence



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# Lexical Functional Grammar applied to PT

## Stages within the noun phrase

Charters (2005)

5. Resolution of structural uncertainty
4. GF assignment
3. Agreement
2. Local licensing
1. Lexical access



# Initial ESL State – Lexical access (Lexocentric phrase structure)

- No overt morphology

- LEXICAL ENTRIES

many    Q:    [↑Num > 4] ;

five     Q:    [↑Num = 5] ;

one      Q:    [↑Num = 1] ;

book     N:    [PRED 'BOOK' ]

# Initial ESL State – Bare plural

C-Structure

F-Structure

NP

PRED 'BOOK'

↑ = ↓

N

[PRED 'BOOK']

*book*

# Initial ESL State - Quantified Plural

C-Structure

QP/NP



[↑Num > 4] [PRED 'BOOK']

*many*

*book*

F-Structure

Num > 4

PRED 'BOOK'



# ESL Stage 2 - Local licencing

(Endocentric structure with constructive morphology in QP)

- Nouns agree with lexical quantifiers, but...
- Nouns are insensitive to plural *referents*

- LEXICAL ENTRIES

many    Q:    [↑Num > 4] ;

five    Q:    [↑Num = 5] ;

one    Q:    [↑Num = 1] ;

+s    Q:    [↑Num > 1]

book    N:    [PRED 'BOOK' ]

# ESL Stage 2 – Bare plural

C-structure

NP



↑ = ↓  
N

*book*

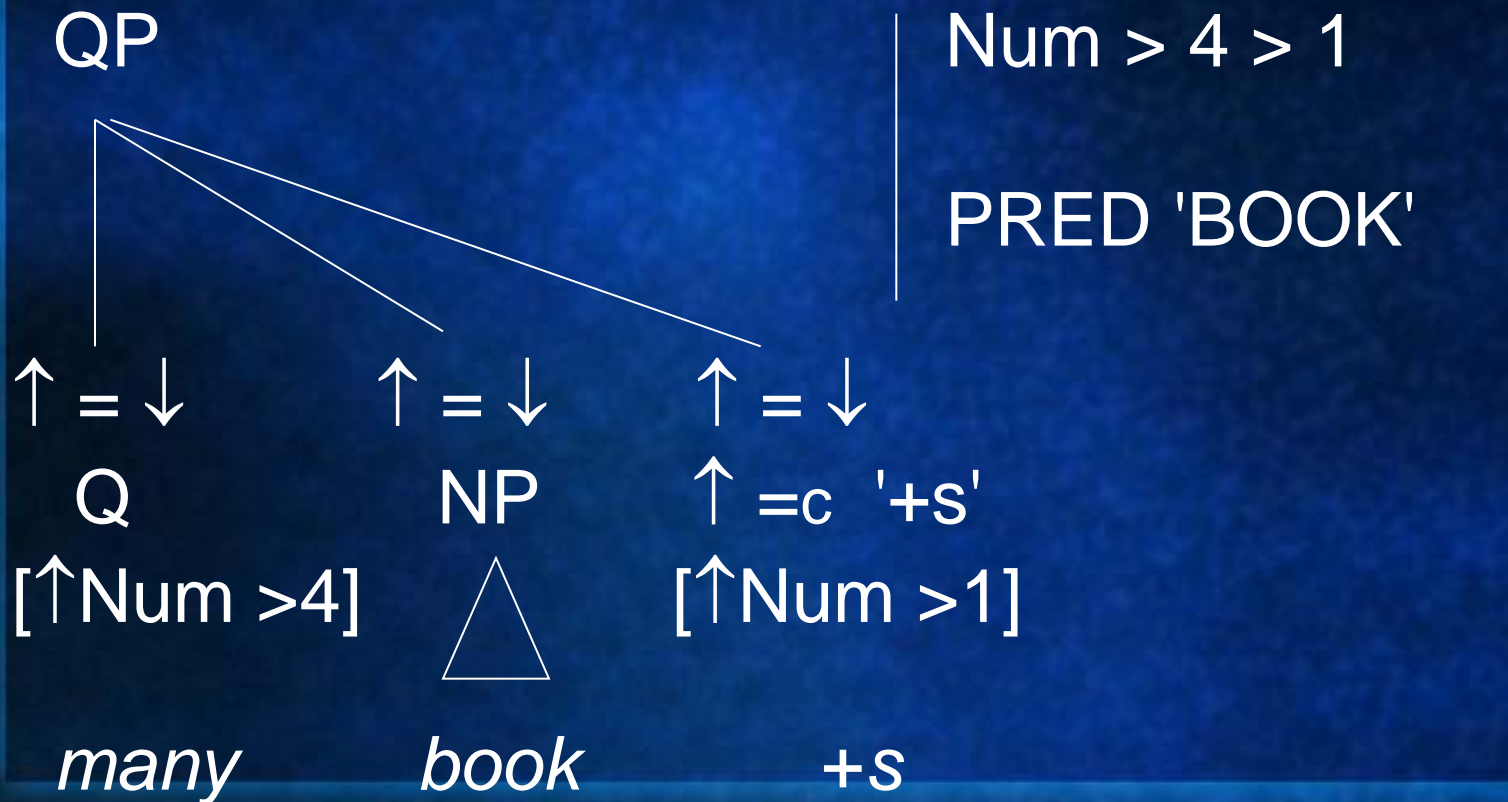
F-structure

PRED 'BOOK'

# ESL Stage 2 – quantified plural

## C-structure

## F-Structure





# ESL Stage 3 - agreement

(Endocentric phrase structure)

- Nouns lexically specified for number
- bare nouns express plurality in plural contexts

## □ LEXICAL ENTRIES

five      Q:    [↑ Num = 5];

many     Q:    [↑ Num > 4]

one      Q:    [Num = 1]

books    N:    [PRED 'BOOK' ↑ Num > 1];

book     N:    [PRED 'BOOK' ↑ Num = 1]

# ESL Stage 3

## Singular Noun Phrase

### C-structure

NP



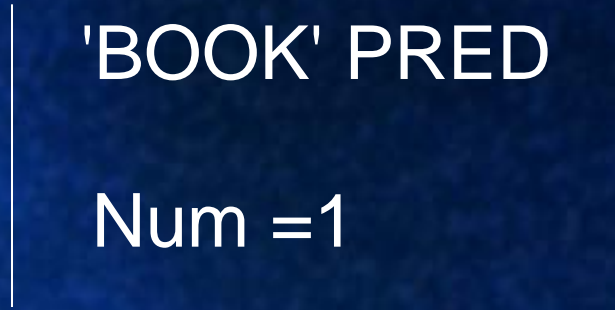
↑ = ↓

N

[↑ Num = 1]

*book*

### F-structure

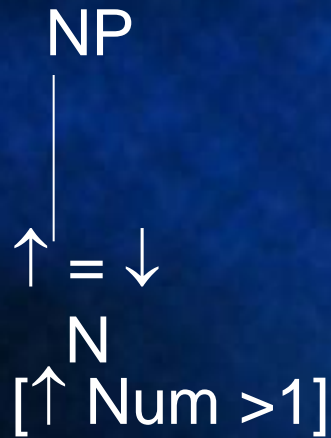


'BOOK' PRED

Num = 1

# ESL Stage 3 - Plural Noun Phrase

C-structure



*books*

F-structure

'BOOK' PRED  
Num >1



# ESL Stage 3 - Quantifier Phrase

C-structure

QP

↑ = ↓

Q

[↑Num = 5]

*five*

↑ = ↓

NP

↑ = ↓

N

[↑Num > 1]

*books*

F-structure

PRED 'BOOK'

Num = 5 / >1