

# Determining the extent to which L1 learner choices influence the L2: exploring semantic and syntactic choices.

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## Introduction

- **Models (e.g. Levelt, 1989; Jiang 2000) imply semantic and syntactic component related to lexical development.**
- **L2 word forms are mapped to L1 semantic structures' Jiang (2004, P.426)**
- **Is lexical development universal?**
- **Is there L1 (semantic / syntactic) influence?**

## Research Questions

1. Are L1 subjects, whose L2 follows a different syntactical structure to their L1, **slower** in their judgement of L2 strings than L1 subjects whose L2 follow(s) the same or a similar pattern to their L2?
2. Are L1 subjects, whose L2 follows a different syntactical structure to their L1, **less accurate** in their judgement of L2 strings than L1 subjects whose L2 follows the same or a similar pattern to their L2?

88 subjects

- L1 English (n = 31)
- L1 European (n = 30), Norwegian, Spanish, Greek, Italian, Ukrainian, Portuguese, German, other
- L1 Japanese (n = 27)

L2 proficiency levels

Vocabulary shown to be a 'good predictor' of overall proficiency ( DeJong, Steinel, Florijn, Schoonen, and Hulstijn 2012)

No significant difference( $t(57) = 1.339, p = .186$ ) on vocabulary size measure (X&Y-Lex)

L1 European (M = 5695, SD 1805);

L1 Japanese (M = 5168, SD 1121)

## Procedure

- DMDX: response time and accuracy are interpreted to draw inferences about cognitive processing.
- Words selected from BNC 1k
- Strings identified by pilot testing with different L1 groups (E,E,J).
- L2 responses compared with L1 English control group, evaluated for:
  - reaction time (RQ1)
  - accuracy (RQ2)
- DMDX presented semantic/ syntactic strings in random order – subjects required to judge whether correct (c) or incorrect (ic).

## Example sets:

### ➤ Semantics:

nouns: brother, mother, sister (c);  
brother, village, room (ic)

mixed: dead, kill, shoot (c);  
accept, talk, school (ic)

### ➤ Syntax:

SVO: my sister married a doctor(c);  
she a doctor shot (ic)

mixed: one plus two(c);  
seven six plus (ic)

- Processing difficulties / interference (Sunderman 2014, p206) inferred from:
  - Longer reaction time
  - lower accuracy

## Results

Semantic categories – reaction time (RQ1)

- Multiple comparisons of group reaction time shows that there is no difference between L1 Europeans and L1 Japanese.

Semantic categories - accuracy (RQ2)

- Japanese L1: fewer items judged correctly compared to L1 European, and L1 English  $F(2, 85) = 5.88, p = .004$

Syntax – reaction time (RQ1)

- Overall effect for first language groups,  $F(2,85) = 21.738, p < .001$
- L1 English speakers and L1 Europeans: no significant difference between reaction times
- L1 Japanese: significantly slower to react

Syntactic categories – reaction time (RQ1)

- Interaction between category and L1 group,  $F(6, 255) = 5.124, p < .001$
- L1 English and L1 Europeans: slower for the SVO incorrect and Mixed incorrect sets
- L1 Japanese: no difference in reaction time between correct and incorrect SVO sets

Syntax – accuracy (RQ2)

- An effect for L1 group,  $F(2,85) = 4.612, p < .05$
- Pairwise comparisons show the L1 English more accurate than L1 Europeans overall but not different from L1 Japanese.
- L1 European most inaccurate judgements

## Summary

Semantics:

- L1 Japanese least accurate
- L1 Japanese & L1 European reaction time – no sig. diff.

Syntax:

- L1 European most inaccurate
- L1 Japanese significantly slowest

## Tentative implications

- How to explain less semantic L1 Japanese judgements:
  - Japanese - topologically more distant to English than European languages
- How to explain less accurate L1 European:
  - competition/ syntactical interference between L1&L2
- How to explain slower syntactic L1 Japanese judgements:
  - different L1 & L2 word order: SVO (IC/C) difficult to judge
- Do lexical development models (e.g. Levelt, 1989; Jiang, 2000) need refining to incorporate L1 To L2 differences?
  - Other possible explanations / need for further study:
    - L2 level might impact upon response times i.e. threshold effect (rather than L1 effect?):
    - Cultural factors related to testing environment, etc.

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