Investigating the Organization of the Mental Lexicon in Bilinguals

Natalie Ho, Dominique Pacheco, Michele Burkholder, Laura Sabourin
University of Ottawa

Current Research

Research Questions

1. Do bilinguals possess a shared lexicon or separate lexicons for each language?
2. What roles do age of acquisition (AoA) and L2 proficiency play in the organization of the bilingual mental lexicon?
3. Is there a bidirectional relationship (L2-to-L1 <u>and</u> L1-to-L2) present in priming effects?

Background

Monolingual lexical processing
- Masked priming has provided evidence for early, unconscious semantic priming (i.e. one word is activated by a previously shown related word) (Forster & Davis, 1984)
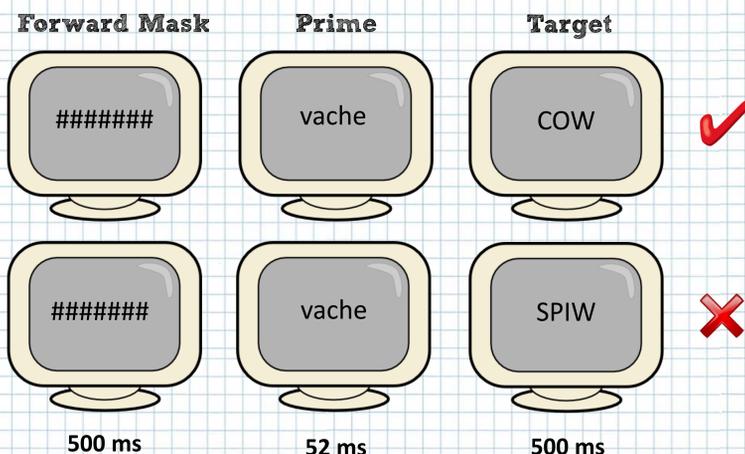
Bilingual lexical processing
- According to many recent models, the bilingual lexicon is integrated in at least one level of representation (e.g. Kroll & Stewart, 1994; Dijkstra & van Heuven, 2002)
- It is unclear whether this integration happens at the word-form level or the semantic level
- Masked priming can be used to shed light on this issue

Methodology

- Participants are required to complete a detailed language history questionnaire
- Upon completion of the experiment, participants are asked to complete French and English-language proficiency tests

- Participants are seated in a sound attenuated room in front of a computer screen. They are instructed to make yes/no lexical decisions on the target items as quickly and as accurately as possible
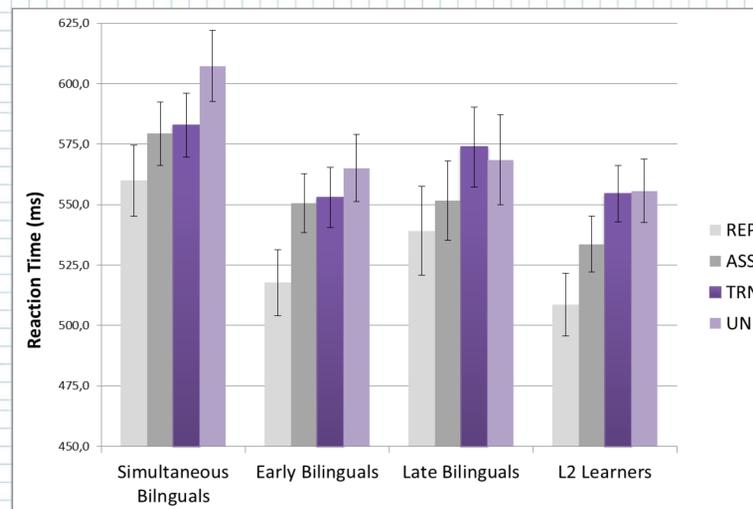
- Targets are preceded by a forward mask and prime:

Lexical Decision Task:

Forward Mask	Prime	Target	
#######	vache	COW	✔
#######	vache	SPIW	✘
500 ms	52 ms	500 ms	

Original Priming Conditions

Priming Condition		Prime	Target
Word-Form Level	Repetition	cow	COW
Semantic Level	Associative	milk	COW
	Translation	vache	COW
Unrelated Controls	Within-language unrelated	door	COW

Response Times in Lexical Decision Task

- Simultaneous and early bilinguals showed L2-to-L1 translation priming effects
- Late bilinguals who reported having language proficiency equal to early bilinguals did not show L2-to-L1 translation priming effects

References

Dijkstra, T. & van Heuven, W.J.B. (2002). The architecture of the bilingual word recognition system: From identification to system. *Bilingualism: Language and Cognition*, 5(3), 175-197.

Forster, K. I., & Davis, C. (1984). Repetition priming and frequency attenuation in lexical access. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 10, 680-698

Kroll, J. F., & Stewart, E. (1994). Category interference in translation and picture naming: Evidence for asymmetric connections between bilingual memory representations. *Journal of Memory and Language*, 33, 149–174.

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Acknowledgements

Proposed Research

Participants

Participants of various language proficiencies in French and/or English between the ages of 18-45 residing in the Ottawa-Gatineau region will be recruited for the purposes of this study

They will be categorized under one of the following eight groups (new groups are indicated in blue) :
- Simultaneous bilinguals (speaking both languages from birth)
- L1 English, early French
- L1 French, early English
- L1 English, late French
- L1 French, late English
- L1 English, French learned as an adult
- L1 French, English learned as an adult
- English monolinguals (control group)

Novel Priming Conditions

Priming Condition		Prime	Target
Word-Form Level	Orthographic	cop	COW
	Cross-language orthographic	cou	COW
Semantic Level	Cross-language associative	lait	COW
Unrelated Controls	Cross-language unrelated	porte	COW

Predicted Results

Simultaneous and early bilinguals:
Significant translation and cross-language semantic priming effects
This would be evidence of a shared lexicon at the semantic level of representation

Late bilinguals and adult learners (AoA: 7+):
Weak or no translation and cross-language semantic priming effects
Significant cross-language orthographic priming effects
This would be evidence for a shared lexicon at the word-form level

Low vs. high frequency items:
This will hopefully uncover graded effects linked to proficiency and AoA, particularly within the later bilingual group

Future Directions for Research

- Create stimuli with French target words in order to investigate bidirectional masked priming effects
- Develop a novel cross-modal priming paradigm which allows for simultaneous presentation of prime (auditory) and target (visual) in order to gain further insight into automatic and unconscious lexical processing
- Include different combinations of languages to see whether results can be generalized to other languages

Contact Information:

Email: nho057@uottawa.ca