

STRUCTURE-SENSITIVE PRONOUN PROCESSING EVEN IN THE ABSENCE OF PRINCIPLE B EFFECTS

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RESEARCH QUESTION

Do structural constraints guide pronoun resolution similarly across languages?

❖ In this study, we investigate the processing of object pronouns in Vietnamese, and compare it to English.

➤ **MAIN TAKEAWAY:** Even though Vietnamese speakers do not display Principle B effects, they still behave like English speakers in using structural constraints to guide the interpretation of object pronouns in online processing.

WHY VIETNAMESE?

❖ Principle B of Binding Theory **prohibits** coreference between a pronoun and a subject in its local clause (Chomsky, 1981; Reinhart, 1983):

- (1) a. ✗ The employee¹ voted for him₁.
b. ✗ Every employee¹ voted for him₁.

❖ The Vietnamese pronominal system works differently than English (Bui, 2019):

• Unlike English, Vietnamese **allows** pronouns to corefer with local subjects:

- (2) a. ✓ Thăng nhân viên đó¹ bầu cho nó₁. *The employee¹ voted for him₁.*

• However, there is still **Principle B** in Vietnamese:

- b. ✗ Mọi thành nhân viên¹ bầu cho nó₁. *Every employee¹ voted for him₁.*

➤ **QUESTION:** Do Vietnamese speakers deploy similar structural constraints against local subjects in processing, even though those constraints do not categorically rule out local subjects as referents?

STRUCTURAL CONSTRAINTS IN ENGLISH

Badecker & Straub (2002):

Condition	Sentence
MULTIPLE MATCH	John thought that Bill owed him another chance to solve the problem.
NON-LOCAL MATCH	John thought that Beth owed him another chance to solve the problem.
LOCAL MATCH	Jane thought that Bill owed him another chance to solve the problem.
NO MATCH	Jane thought that Beth owed him another chance to solve the problem.

- Immediate sensitivity to feature mismatch**
NO MATCH was read significantly slower than **NON-LOCAL MATCH**.
- Immediate sensitivity to structural constraints**
LOCAL MATCH was read significantly slower than **NON-LOCAL MATCH**.
- Structural constraints do not block local antecedents in the initial retrieval**
MULTIPLE MATCH was read significantly slower than **NON-LOCAL MATCH**.

EXPERIMENTAL DESIGN

Adapting Badecker & Straub (2002) in 3 self-paced reading experiments:

- Each has 80 native Vietnamese speakers and 36 items intermixed with 51 fillers.
- Experiment 1 was conducted online, while Experiments 2 and 3 were administered in person at Ly Tu Trong College in Ho Chi Minh City, Vietnam.
- Honorificity** was used to examine the feature mismatch effect (Kwon & Sturt, 2016), since all pronouns in Vietnamese are marked with honorific status (either HONORIFIC or SUBHONORIFIC), but not with gender.
- All referents had unambiguous classifiers specifying their honorificity.

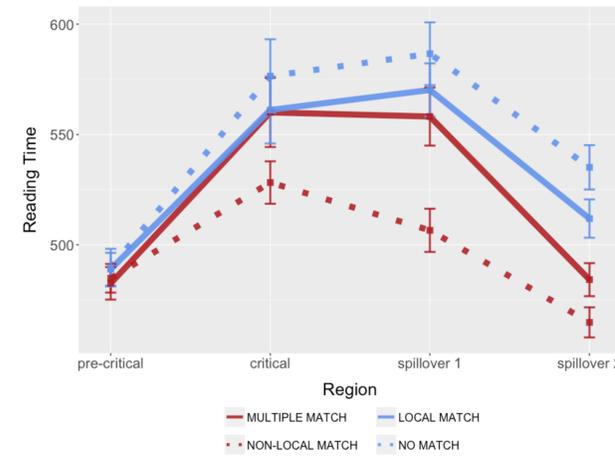
PREDICTIONS

- If structural constraints against local subject are applied:
 - **MULTIPLE MATCH** effect: Competition from multiple matching subjects
 - **LOCAL MATCH** penalty: Difficulty in accessing local subject
- If Vietnamese speakers can access all possible antecedents online:
 - **NO MATCH** slowdown only: Difficulty in accessing mismatching subjects

EXPERIMENT 1: LOCAL NP: COREFERENCE ALLOWED

Condition	Sentence
MULTIPLE MATCH	Thăng Tâm nói là thằng nhân viên đó bầu cho nó SUB Tam say that SUB person worker that vote for SUB
NON-LOCAL MATCH	Ông Tâm nói là thằng nhân viên đó bầu cho ông HON Tam say that SUB person worker that vote for HON
LOCAL MATCH	Ông Tâm nói là thằng nhân viên đó bầu cho nó HON Tam say that SUB person worker that vote for SUB
NO MATCH	Thăng Tâm nói là thằng nhân viên đó bầu cho ông SUB Tam say that SUB person worker that vote for HON

Tam-{SUB/HON} said that that employee-SUB voted for him-{SUB/HON} in the meeting this noon.



Fixed Effects	Critical			Spillover 1			Spillover 2		
	β	SE	t	β	SE	t	β	SE	t
NON-LOCAL	-0.02	0.02	-1.23	-0.06	0.01	-4.02	-0.06	0.01	-5.15
LOCAL	0.02	0.02	0.89	0.02	0.02	0.96	0.01	0.01	0.55
NON-LOCAL × LOCAL	0.04	0.03	1.40	0.07	0.03	2.58	0.05	0.03	2.01

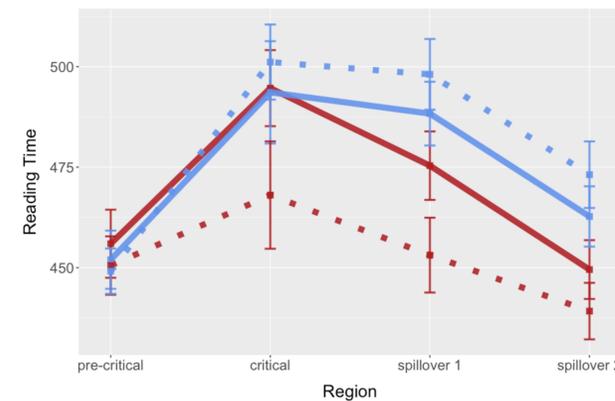
Prediction 1	✓
Prediction 2	✗

- A preference for non-local antecedents:
- A bias against local antecedents
- Competition for multiple matching NPs

EXPERIMENT 2: LOCAL NP: TOPICHOOD CONTROLLED

Condition	Sentence
	Chúng tôi rất vui khi PL 1 very happy when
MULTIPLE MATCH	Tam say that SUB person worker that vote for SUB
NON-LOCAL MATCH	HON Tam say that SUB person worker that vote for HON
LOCAL MATCH	HON Tam say that SUB person worker that vote for SUB
NO MATCH	SUB Tam say that SUB person worker that vote for HON

We were very happy when
Tam-{SUB/HON} said that that employee-SUB voted for him-{SUB/HON} in the meeting this noon.



Fixed Effects	Critical			Spillover 1			Spillover 2		
	β	SE	t	β	SE	t	β	SE	t
NON-LOCAL	-0.02	0.02	-1.00	-0.04	0.02	-2.35	-0.04	0.02	-2.67
LOCAL	0.01	0.02	0.78	0.01	0.01	0.61	0.00	0.01	0.29
NON-LOCAL × LOCAL	0.05	0.03	1.62	0.04	0.03	1.24	0.04	0.03	1.42

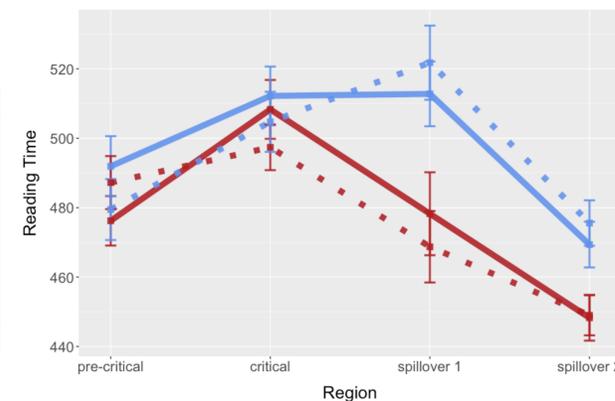
Prediction 1	✓
Prediction 2	✗

- ❖ **Replicating Experiment 1 results:**
 - Although coreference between a pronoun and a local antecedent is possible in Vietnamese, it is still not preferred.

EXPERIMENT 3: LOCAL QP: BINDING PROHIBITED

Condition	Sentence
MULTIPLE MATCH	Thăng Tâm nói là mọi thành nhân viên bầu cho nó SUB Tam say that every SUB person worker vote for SUB
NON-LOCAL MATCH	Ông Tâm nói là mọi thành nhân viên bầu cho ông HON Tam say that every SUB person worker vote for HON
LOCAL MATCH	Ông Tâm nói là mọi thành nhân viên bầu cho nó HON Tam say that every SUB person worker vote for SUB
NO MATCH	Thăng Tâm nói là mọi thành nhân viên bầu cho ông SUB Tam say that every SUB person worker vote for HON

Tam-{SUB/HON} said that every employee-SUB voted for him-{SUB/HON} in the meeting this noon.



Fixed Effects	Critical			Spillover 1			Spillover 2		
	β	SE	t	β	SE	t	β	SE	t
NON-LOCAL	-0.02	0.02	-1.21	-0.08	0.03	-3.22	-0.06	0.02	-2.86
LOCAL	0.00	0.01	0.29	-0.00	0.02	-0.04	-0.01	0.01	-0.62
NON-LOCAL × LOCAL	0.02	0.03	0.84	0.02	0.03	0.72	0.01	0.02	0.57

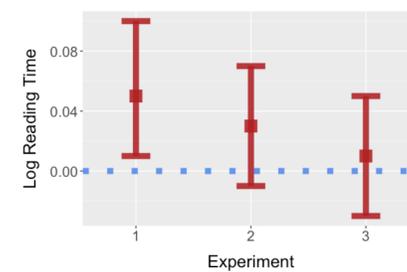
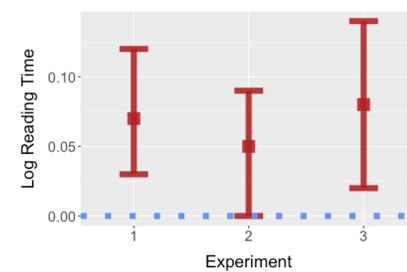
Prediction 1	✓
Prediction 2	✗

- A robust grammaticality effect
- No facilitative interference effect
- No multiple match effect

OFFLINE DATA

Condition	Sentence	Local Subject Selection
Local NP	Tam-SUB said that that employee-SUB voted for him-SUB in the meeting this noon.	21.37% (0.02)
Local QP	Tam-SUB said that every employee-SUB voted for him-SUB in the meeting this noon.	2.56% (0.01)

CROSS-EXPERIMENTAL COMPARISONS



- Significant contrasts between **NON-LOCAL MATCH** and **LOCAL MATCH** across all 3 experiments
- Consistent **LOCAL MATCH** slowdowns
- Significant contrast between **NON-LOCAL MATCH** and **MULTIPLE MATCH** in Experiment 1, but not 2 and 3
- Competition diminishes with local QP

CONCLUSIONS

- We consistently saw **NO MATCH** slowdowns
Vietnamese speakers are sensitive to honor match online.
- We consistently saw **LOCAL MATCH** slowdowns
Vietnamese speakers apply structural constraint against local subject, like English speakers.
- We sometimes saw **MULTIPLE MATCH** slowdowns
This seems to be clearest for NPs, but there is no clear evidence of competition with QPs.

❖ **QUESTION:** Why are Vietnamese speakers biased against reference to the local subject in processing, even though it is grammatically licensed?

➤ **One possibility:**

- Vietnamese speakers initially parse pronouns as bound variables in all cases, and apply Principle B.
- Coreferential interpretation of pronoun is available only at a delay, and with some difficulty.

ACKNOWLEDGMENT

We are extremely grateful to Kyle Johnson, Lyn Frazier, and Rajesh Bhatt for their helpful feedback. Many thanks are also due to Rodica Ivan and Alex Göbel for a great deal of discussion of this work. In addition, we would like to thank the participants of Psycholinguistics Workshop at UMass Amherst as well the audience of LSA 2019 in New York for their interest and questions.