Maximizing Parallelism in Gapping: The Case of Argument Structure Mismatches Jiayi Lu Nayoun Kim

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Introduction

The Gapping Construction:

e.g. Some bring roses and others bring lilies.

Parallelism in Gapping:

Merchant (2013):

- Conjuncts with voice mismatch do not permit gapping: *Some bring roses and lilies by others
- This is because gapping involves ellipsis of a category > vP

Carlson (2001), Kim, Carlson, Dickey and Yoshida (2010):

- The parser assumes the most parallel analysis of the conjoined structure when gapping is present.
- Attested: argument animacy, position of adverbs, etc.

This study aims to provide experimental evidence for the argument structure mismatch penalty in gapping.

Experiment 1a (n=53)

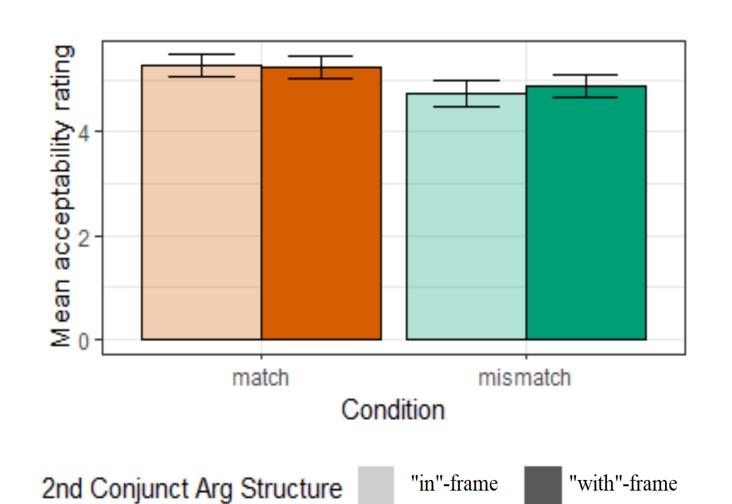
| Argument Structure | Second Conjunct | |
|--------------------|--------------------|---|
| Matching | Argument Structure | Example Stimuli |
| Match | "with"-frame | William loaded the boat with the cargo, and Lauren the truck with the sack. |
| Match | "in"-frame | William loaded the cargo onto the boat, and Lauren the sack onto the truck. |
| Mismatch | "with"-frame | William loaded the cargo onto the boat, and Lauren the truck with the sack. |
| Mismatch | "in"-frame | William loaded the boat with the cargo, and Lauren the sack onto the truck. |

Prediction:

A significant Argument Structure Matching main effect should follow from the Parallelism Hypothesis.

Results:

- No significant 2^{nd} Conjunct Argument Structure main effect (t=-0.24): both frames are equally compatible with gapping
- Significant *Argument Structure Matching* main effect (t=-2.92): Mismatch in argument structure is penalized in gapping
- No significant interaction (t=0.64);



Experiment 1b (n=140)

| Argument Structure | | | |
|--------------------|---------|--|--|
| Matching | Gapping | Example Stimuli | |
| Match | + | William loaded the cargo onto the boat, and Lauren the sack onto the truck. | |
| Match | - | William loaded the cargo onto the boat, and Lauren loaded the sack onto the truck. | |
| Mismatch | + | William loaded the cargo onto the boat, and Lauren the truck with the sack. | |
| Mismatch | _ | William loaded the cargo onto the boat, and Lauren loaded the truck with the sack. | |

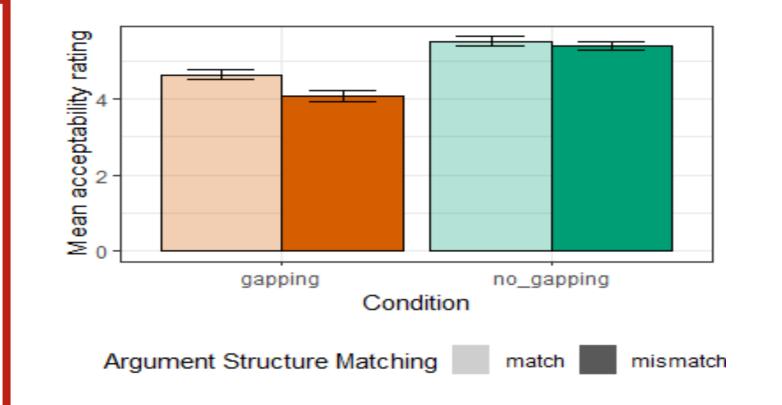
Prediction:

Significant Gapping*Matching interaction: the ArgStr matching penalty is gapping-specific.

Results:

- Significant Gapping (t=3.79) and Matching (t=-3.64) main effects
- Significant Gapping*Matching interaction (t=2.27):

 The argument structure matching requirement is only present in gapping construction.



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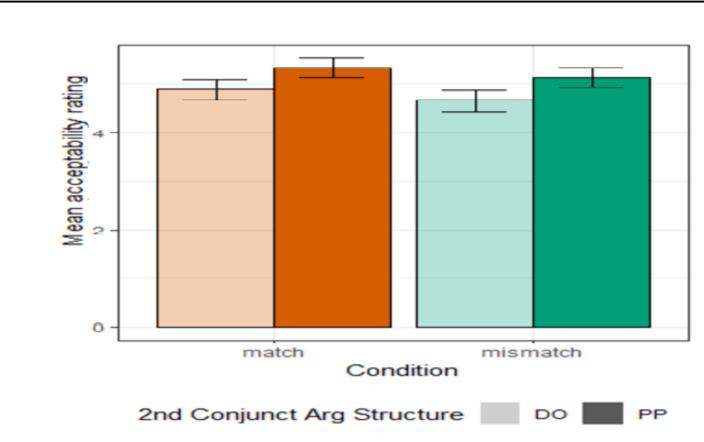
Experiment 2a (n=52)

| | Second Conjunct | |
|-----------------------------|--------------------|--|
| Argument Structure Matching | Argument Structure | Example Stimuli |
| Match | DO | Austin promised the team a banquet, and Sydney the crew a bonus. |
| Match | PP | Austin promised a banquet to the team, and Sydney a bonus to the crew. |
| Mismatch | DO | Austin promised a banquet to the team, and Sydney the crew a bonus. |
| Mismatch | PP | Austin promised the team a banquet, and Sydney a bonus to the crew. |

Prediction: Same as 1a.

Results:

- Significant 2nd Conj ArgStr main effect (t=2.56): DO is less compatible with gapping than PP (not surprising)
- No effect of *Matching* overall (t=-1.30), or in the PP subset analysis (t=-1.54): there is no mismatch penalty.

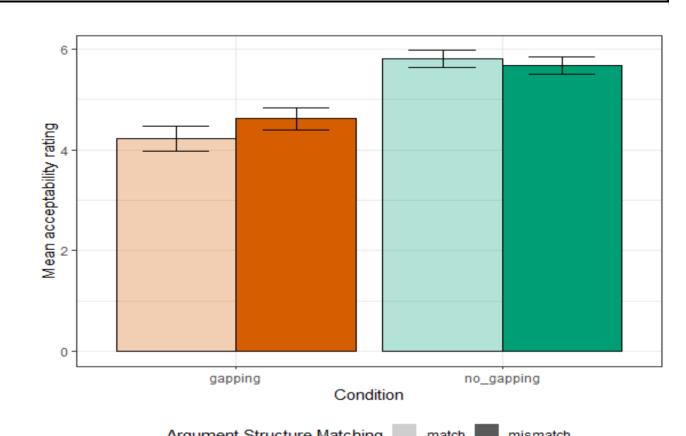


Experiment 2b (n=53)

| Argument Structure Matching | Gapping | Example Stimuli |
|-----------------------------|---------|---|
| Match | + | Austin promised a banquet to the team, and Sydney a bonus to the crew. |
| Match | - | Austin promised a banquet to the team, and Sydney promised a bonus to the crew. |
| Mismatch | + | Austin promised the team a banquet, and Sydney a bonus to the crew. |
| Mismatch | - | Austin promised the team a banquet, and Sydney promised a bonus to the crew. |

Prediction: Same as 1b. **Results**:

Significant interaction of *Gapping* Matching* (t=-2.226) **but in the reversed direction, contra to prediction:** regular coordination is more sensitive to argument structure matching than gapping construction.



Summary and Discussion

Experiments 1a and 1b (locative alternation) supports the parallelism hypothesis:

- The locative "in-frame" and "with-frame" alternation leads to argument structure mismatch penalty in gapping
- The argument structure mismatch penalty is gapping-specific.

However, Experiments 2a and 2b (dative alternation) with the same design challenges the parallelism hypothesis:

- The dative DO/PP alternation does not lead to argument structure mismatch penalty in gapping
- The argument structure mismatch penalty seems to exist in regular coordination but is ameliorated in gapping.

These suggest that either the parallelism hypothesis does not hold for ArgStr mismatch, or that dative alternation does not involve the same type of contrast (voice mismatch) as in active/passive and locative alternation.

References

Carlson, K. (2001). The effects of parallelism and prosody in the processing of gapping structures. Language and Speech, 44(1), 1-26. Kim, N., Carlson, K., Dickey, M., & Yoshida, M. (2020). Processing gapping: Parallelism and grammatical constraints. Quarterly Journal of Experimental Psychology, 73(5), 781-798.

Merchant, J. (2013). Voice and ellipsis. Linguistic Inquiry, 44(1), 77-108.