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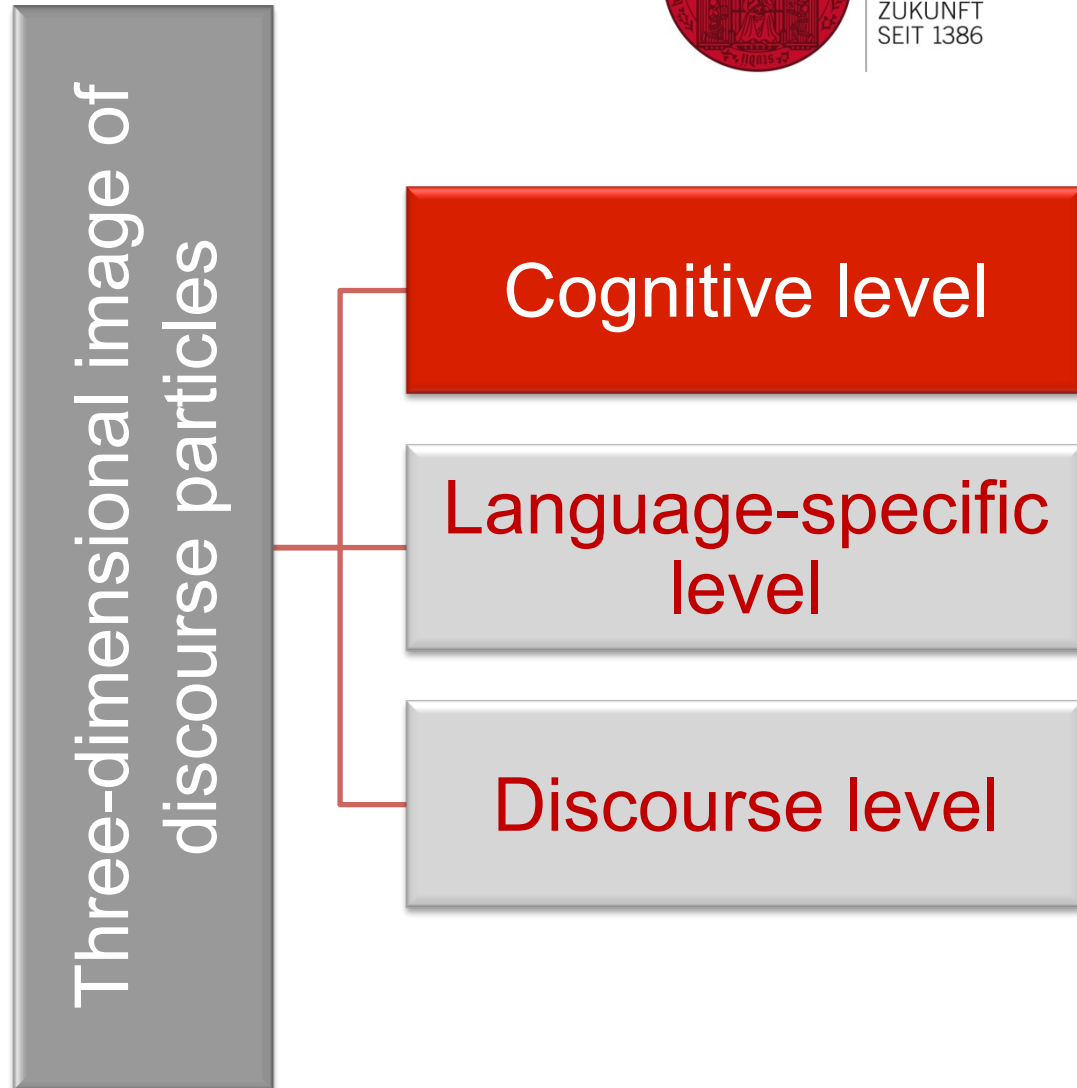
# **(SPANISH) DISCOURSE PARTICLES AND COGNITION: AN EXPERIMENTAL APPROACH**

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# Our aims

- Complement theoretical and descriptive studies on discourse particles with a cognitive approach **based on an experimental methodology.**
- Check for correlations between morphosyntactic, semantic and pragmatic properties of discourse particles and the brain activity they prompt both in production and processing.



# Hypothesis for an experimental approach



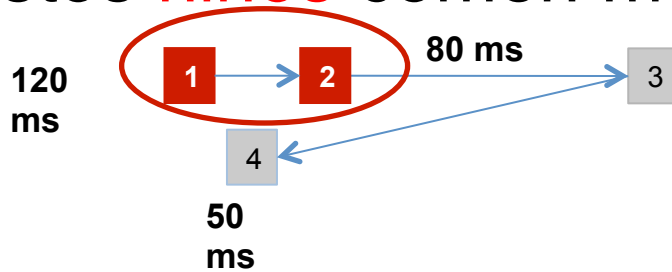
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- Discourse particles are not irrelevant units in communication
- Discourse particles have an essentially procedural meaning
- The different processing patterns originated by discourse particles depend on the interaction of two factors: a) the properties of a discourse particle and b) the properties of the utterance in which it is inserted.



# Dependent variables

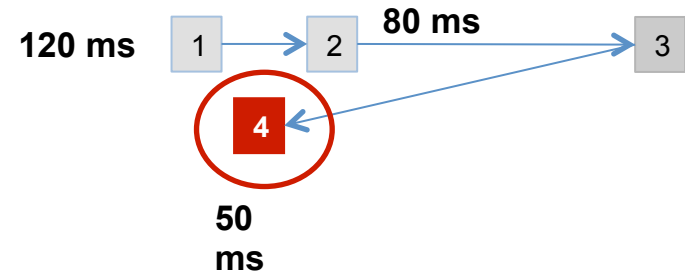
Estos **niños** comen mucho



First pass reading time

- Low-level cognitive processes

Estos **niños** comen mucho



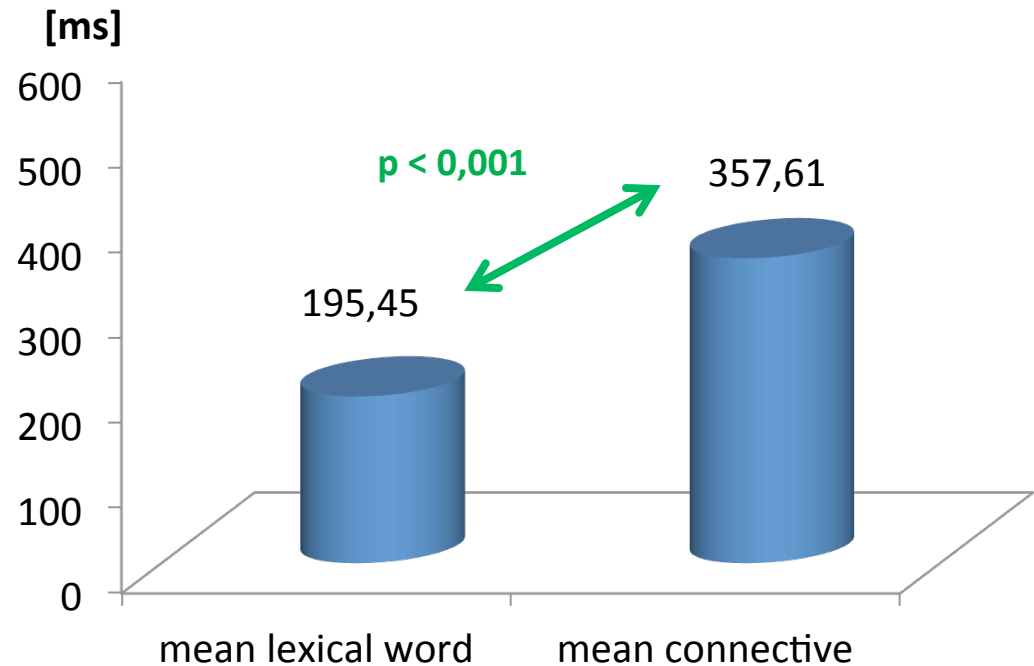
Second pass reading time

- High-level cognitive processes

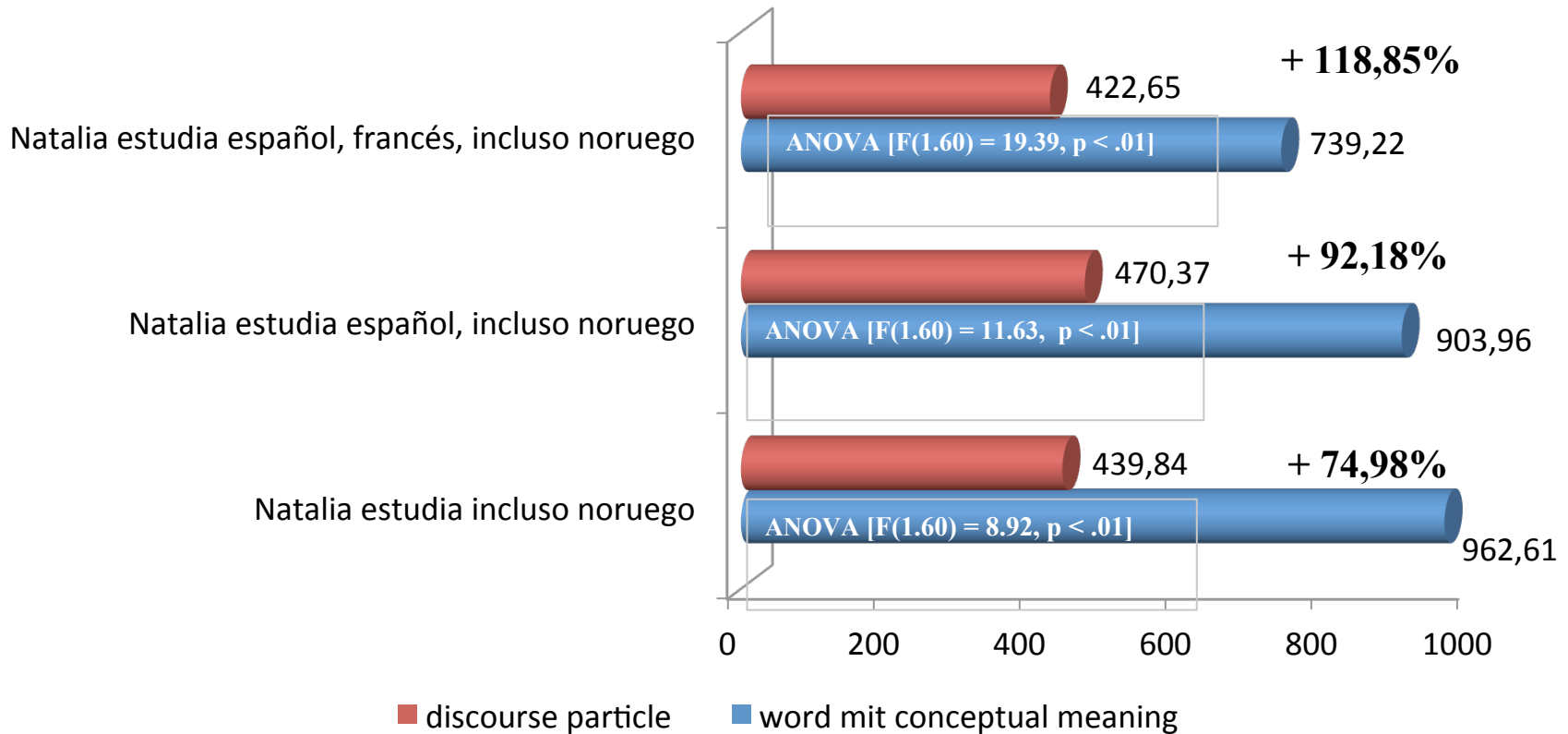
# Discourse particles are not linguistic units “without a value” or units with a residual value (quantitative approach)



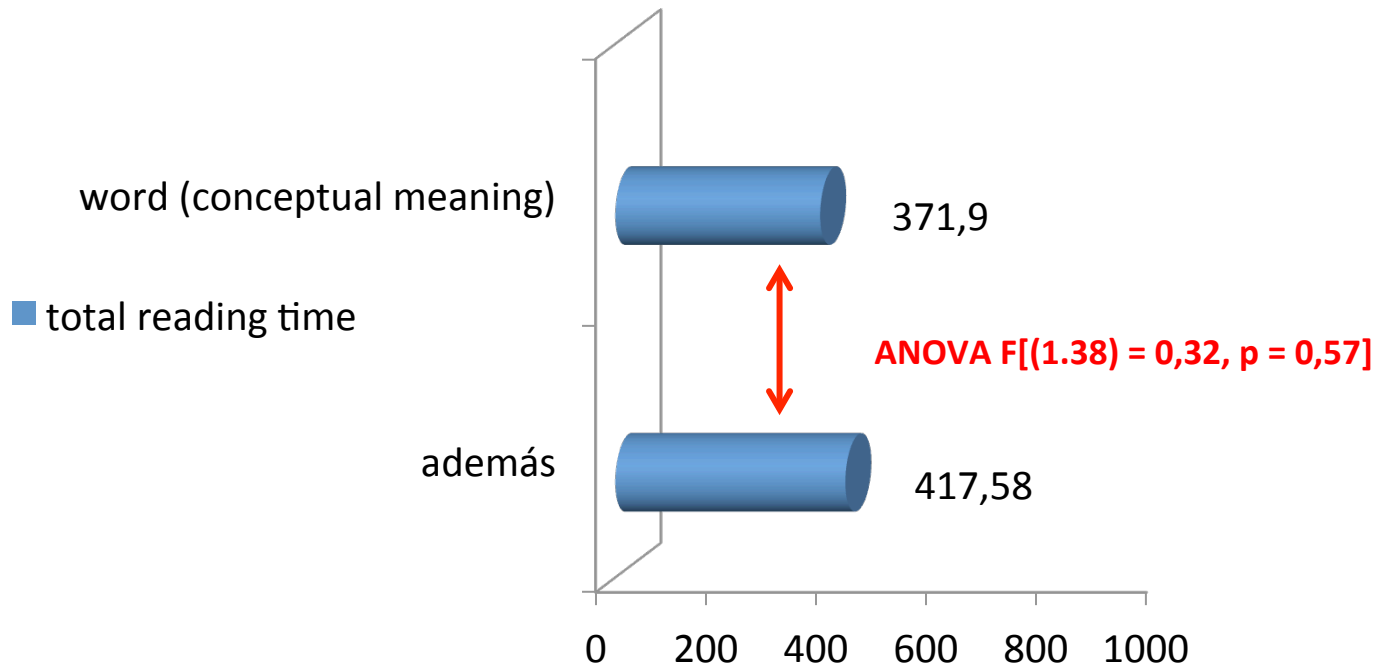
■ Juan y Ana comen mucho dulce.  
Sin embargo, están sanos



# Incluso ('even')



# Además ('furthermore')



# Procedural VS conceptual meaning



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**Asymmetry:** Processing instructions affect conceptual contents (not the other way around) → the adaptability of conceptual meaning to the meaning of discourse particles can be **experimentally tested**.

**Rigidity:** Procedural instructions can impose certain conditions onto the context and trigger the activations of the set of assumptions that adequately match the processing instructions → discourse particles should be able to rearrange the values of the units they affect to satisfy the processing instructions



# The meaning of discourse particles is mainly procedural



(1) *Paula es de Teruel y, **sin embargo**, es habladora.*

‘Paula is from Teruel and, *however*, she is talkative.’

(2) *Paula es de Teruel y, **por tanto**, es habladora.*

‘Paula is from Teruel and, *therefore*, she is talkative.’ (Portolés 2001[1998]:22)

(3) *Su familia es de origen chino y, **sin embargo**, es un torero excelente.*

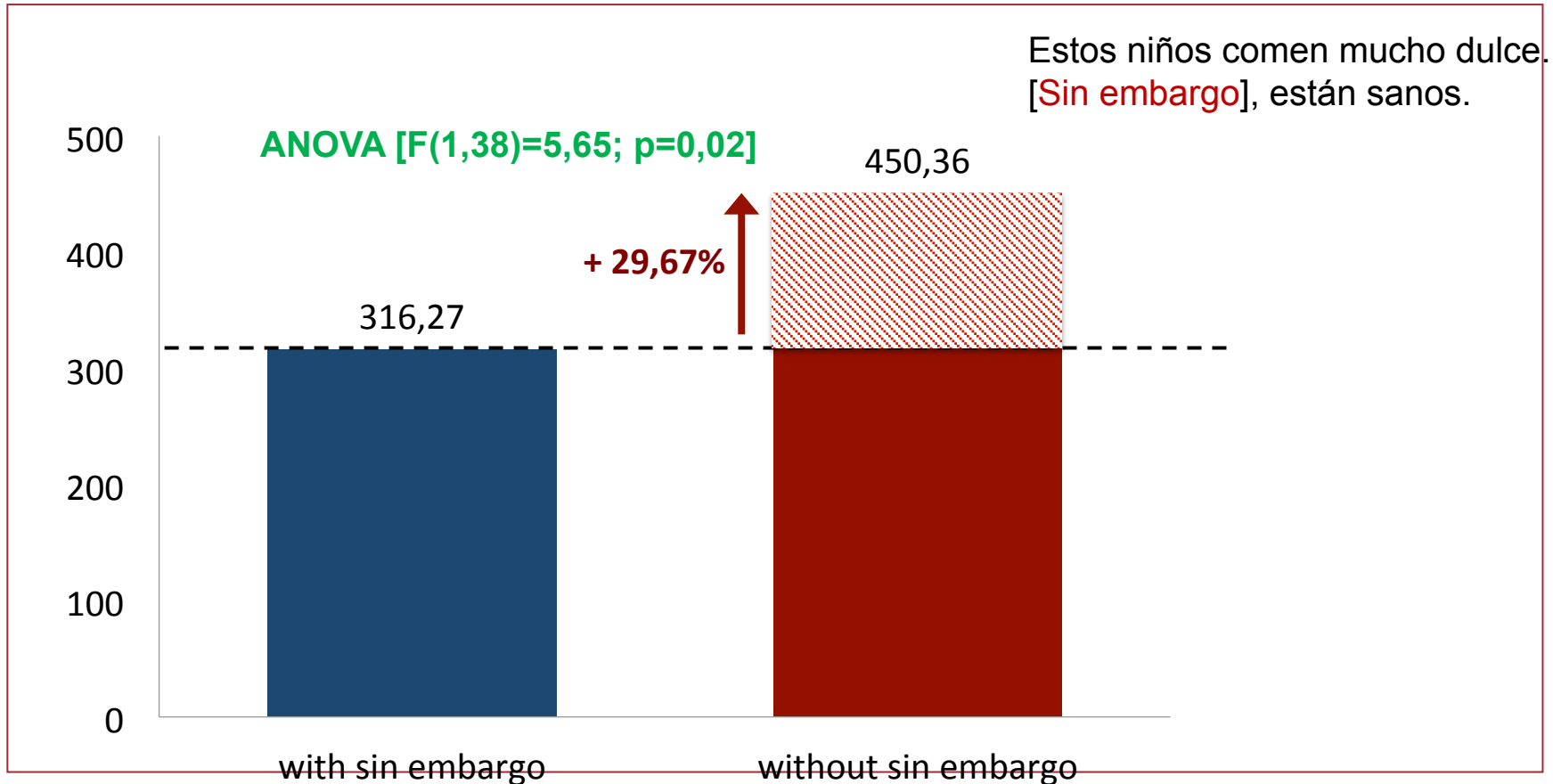
‘His family is from China and, *however*, he is an excellent bullfighter’

(4) *#Su familia es de origen chino y, **por tanto**, es un torero excelente*

‘His family is from China and, *therefore*, he is an excellent bullfighter’ (Montolío 1998: 32-33)



# Discourse particles can correct the processing overload of implicit (argumentative) discourse relations





Ana y Marta hablan chino

*Ana and Marta speaks Chinese*

Ana y Marta hablan incluso chino

*Ana and Marta speaks even Chinese*

Ana y Marta hablan inglés, francés y chino

*Ana and Marta speaks English, French and Chinese*

Ana y Marta hablan inglés, francés e incluso chino

*Ana and Marta speaks English, French and even Chinese*

There is a second experimental argument that makes it possible to claim that discourse particles have a procedural character. They add more conventionalised meaning to the utterance thus increasing the amount of semantic information, but they have the capacity of controlling the access to the context and of preventing the additional semantic load from resulting in an extra processing effort.

# Discourse particles redistribute processing costs within utterances

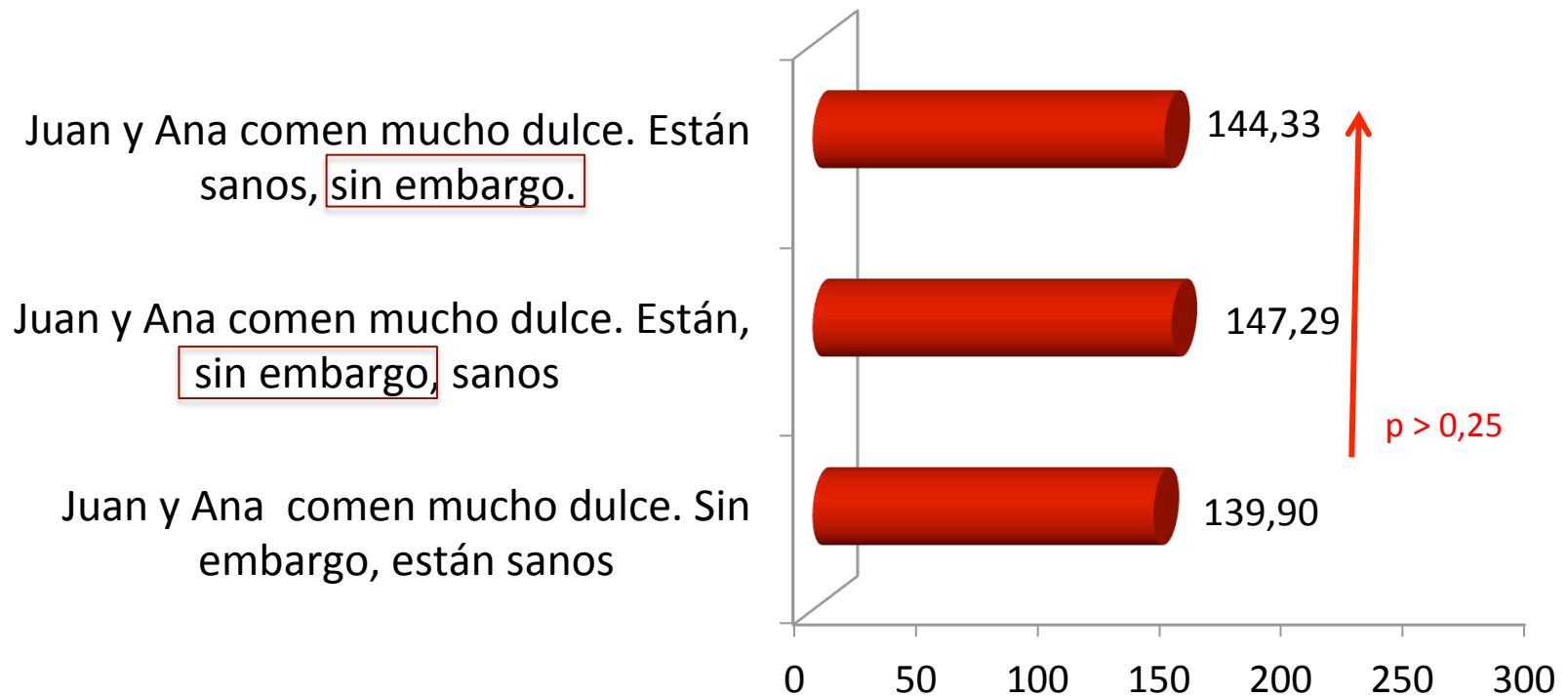


	member 1	member 2
[Estos niños comen mucho dulce] <sub>M1</sub> . [Sin embargo] <sub>connective</sub> , [están sanos] <sub>M2</sub>	296,07 ms	366,78 ms
[Estos niños comen mucho dulce] <sub>M1</sub> . [Están sanos] <sub>M2</sub>	378,04 ms	562,94 ms
ANOVA	M1 vs M1	M2 vs M2
	F[(1.38) = 1,81, p = 0,19] not significant	F[(1.38) = 15,66, p < 0,01] highly significant



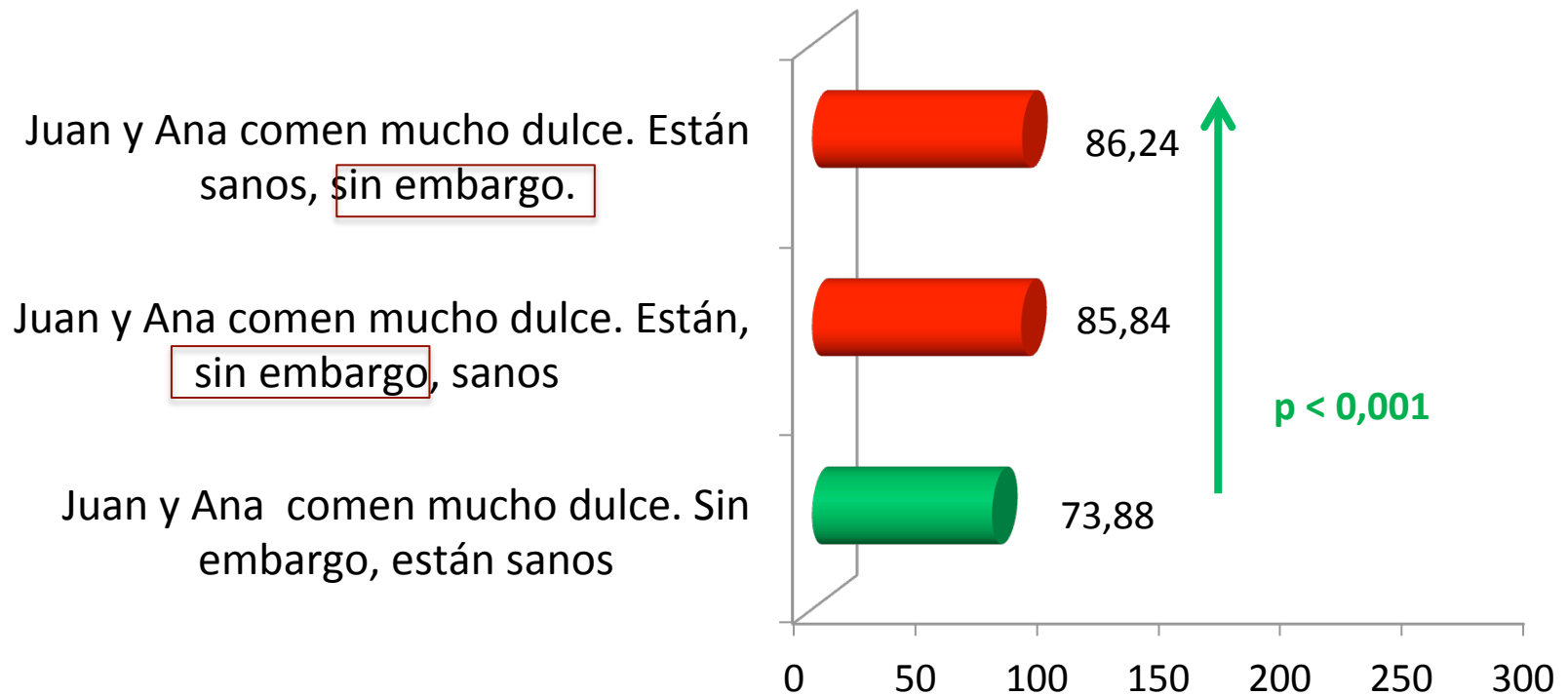
# The processing patterns generated by discourse particles depend on the interaction of their **morphosyntactic properties** and the properties of utterances

first pass



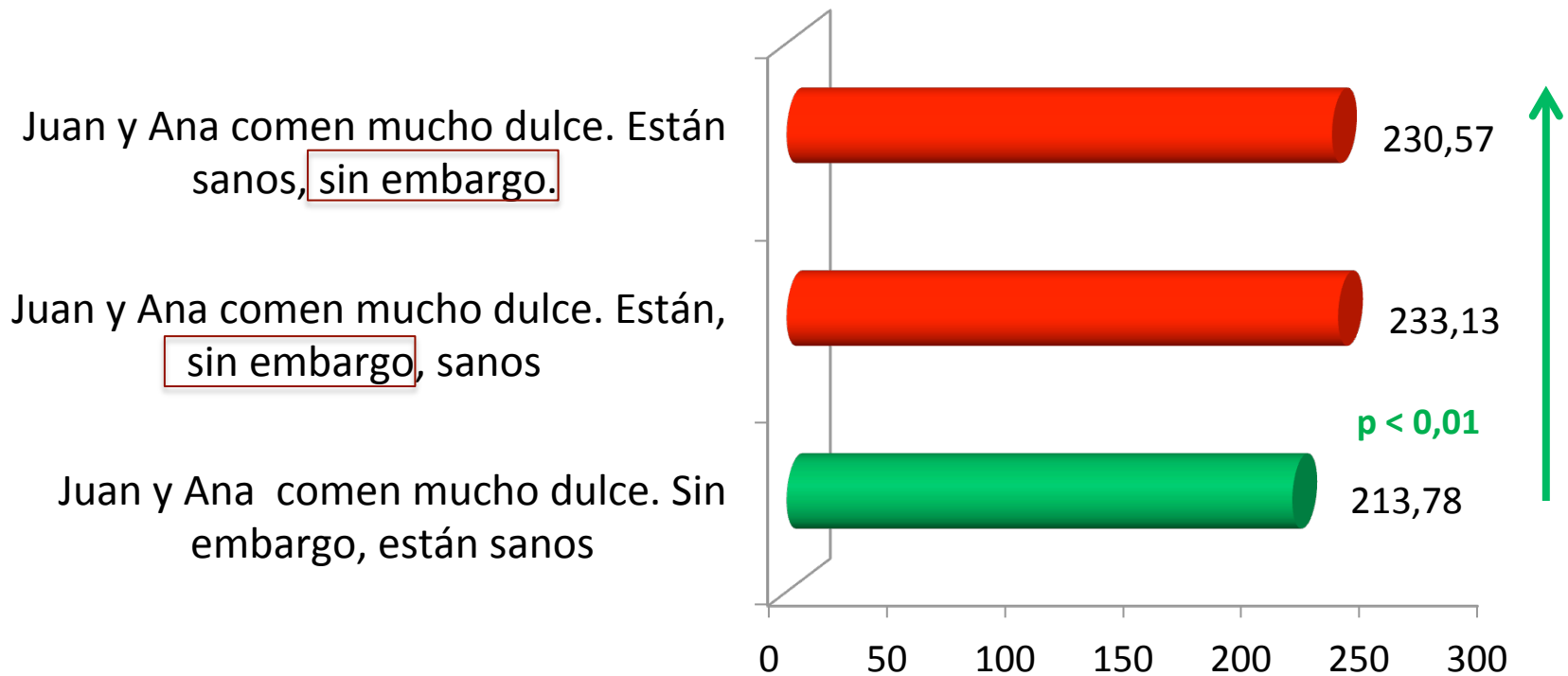


## second pass



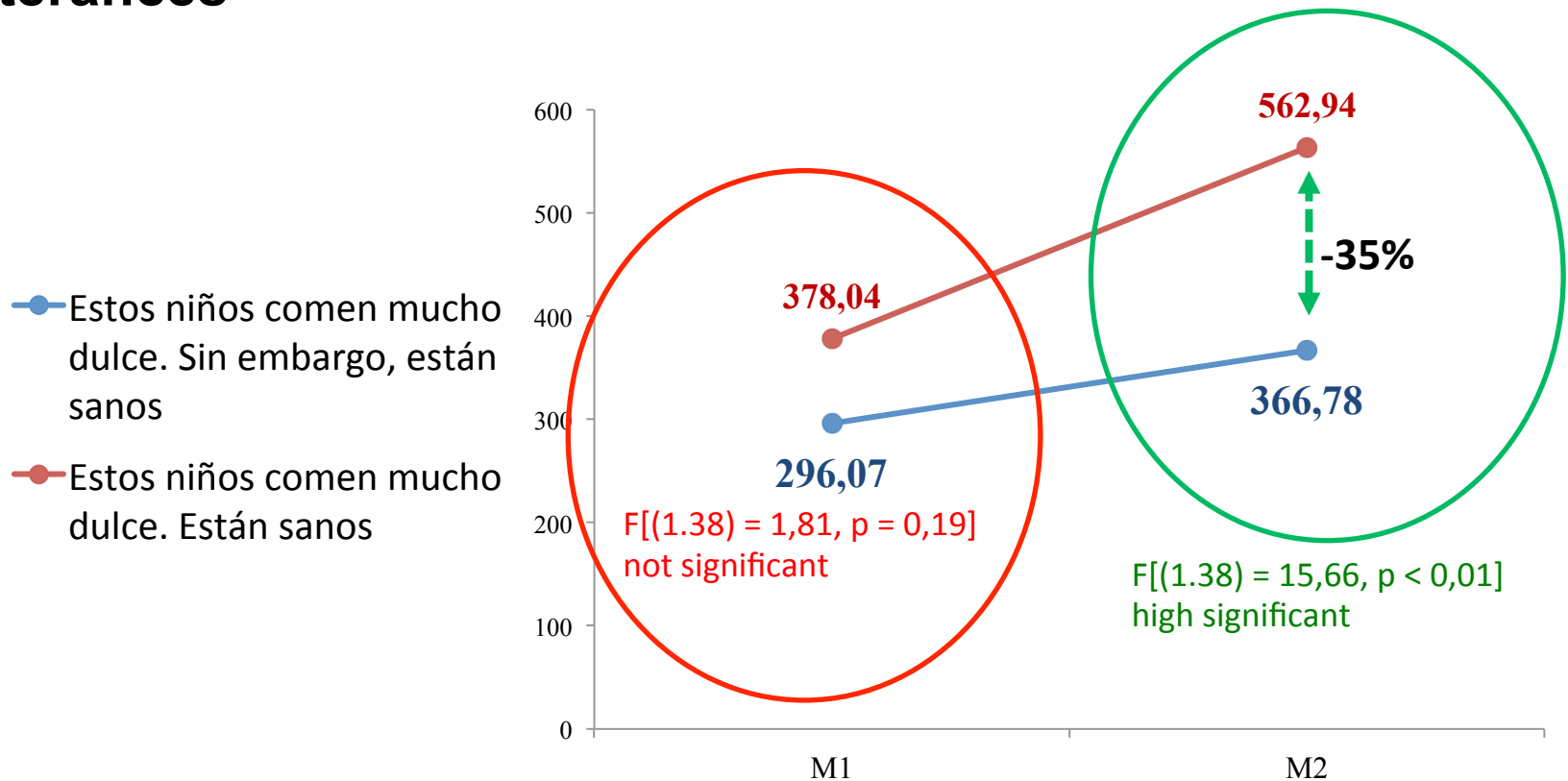


## total reading time

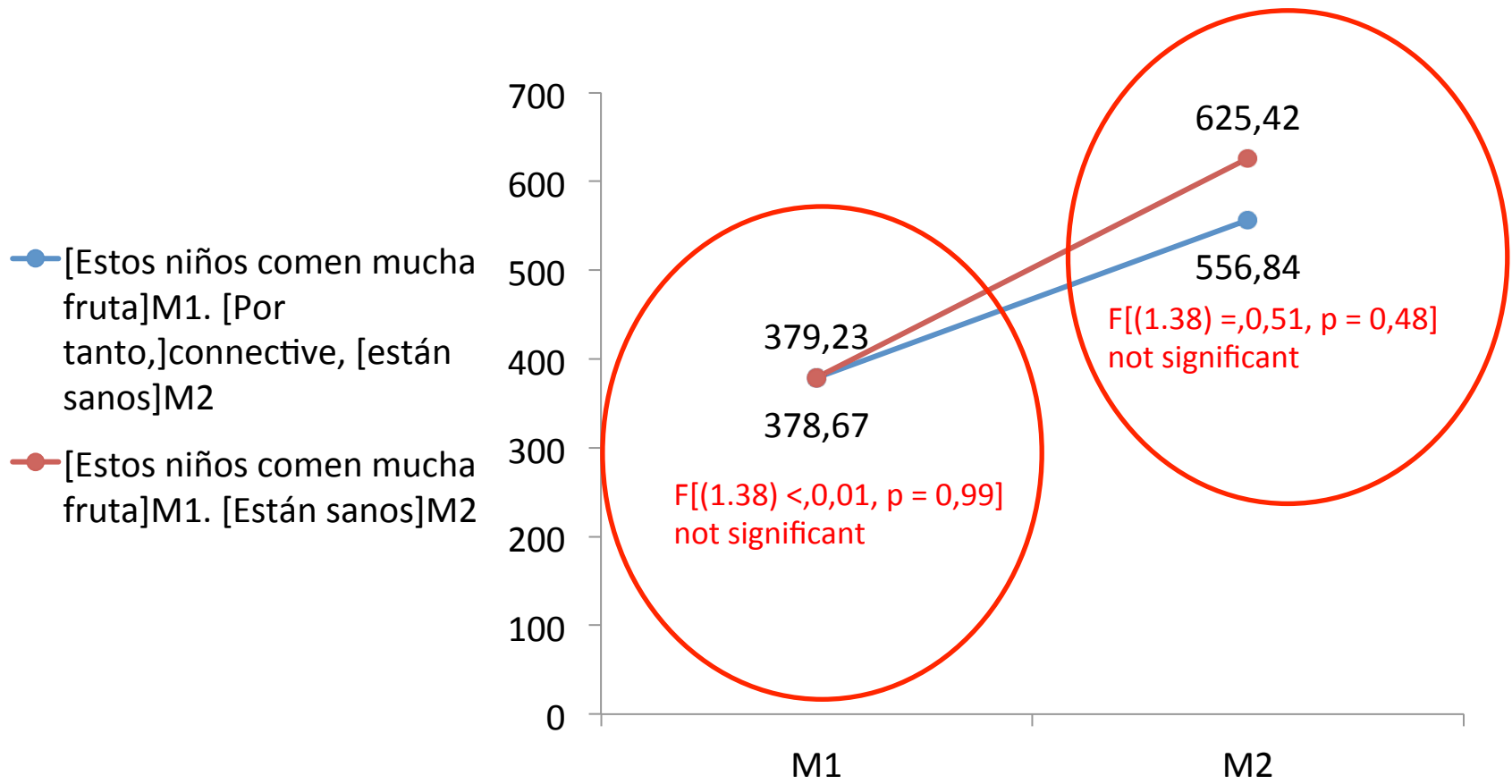


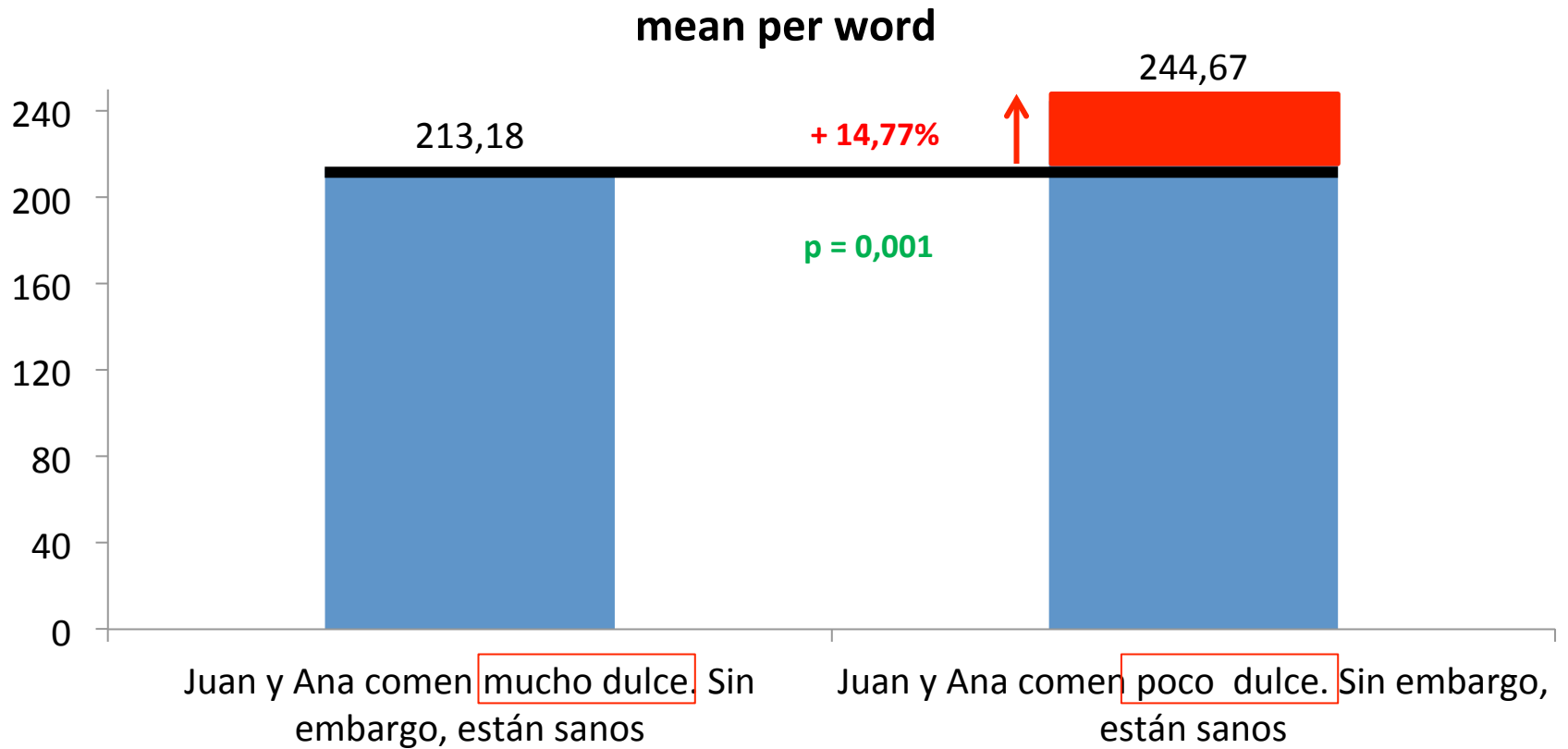


# The processing patterns generated by discourse particles depend on the interaction of their **semantic properties** and the properties of utterances









# Hypothesis for an experimental approach



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**MUCHAS GRACIAS  
POR SU ATENCIÓN**