

Revisiting Selectional Preferences for Coreference Resolution

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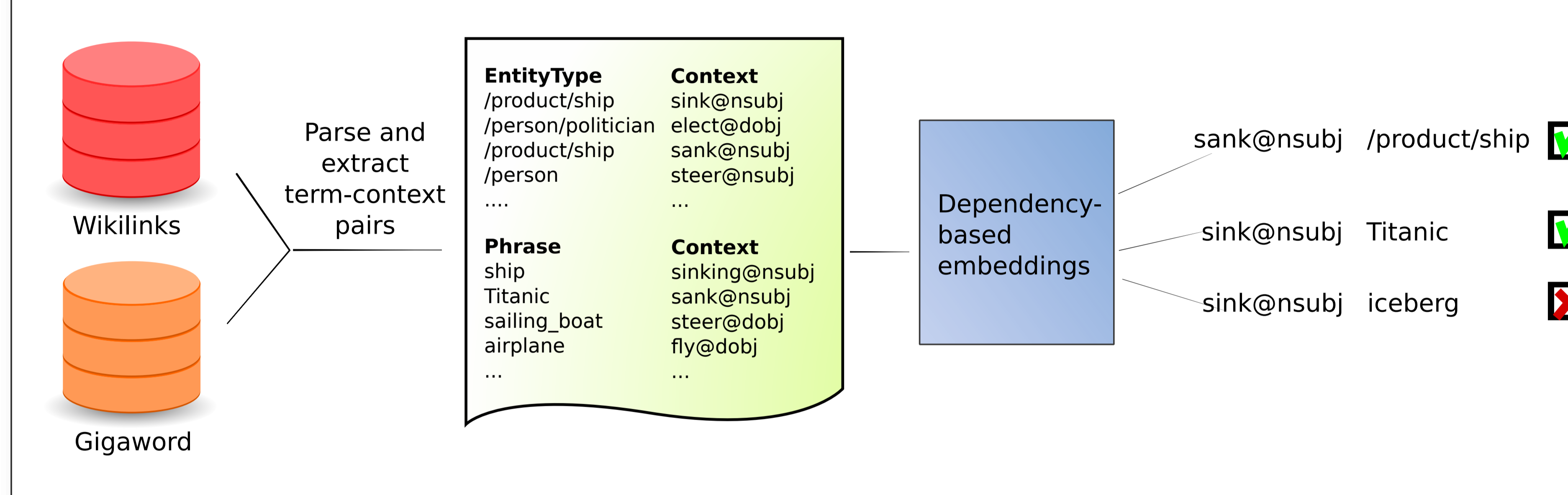
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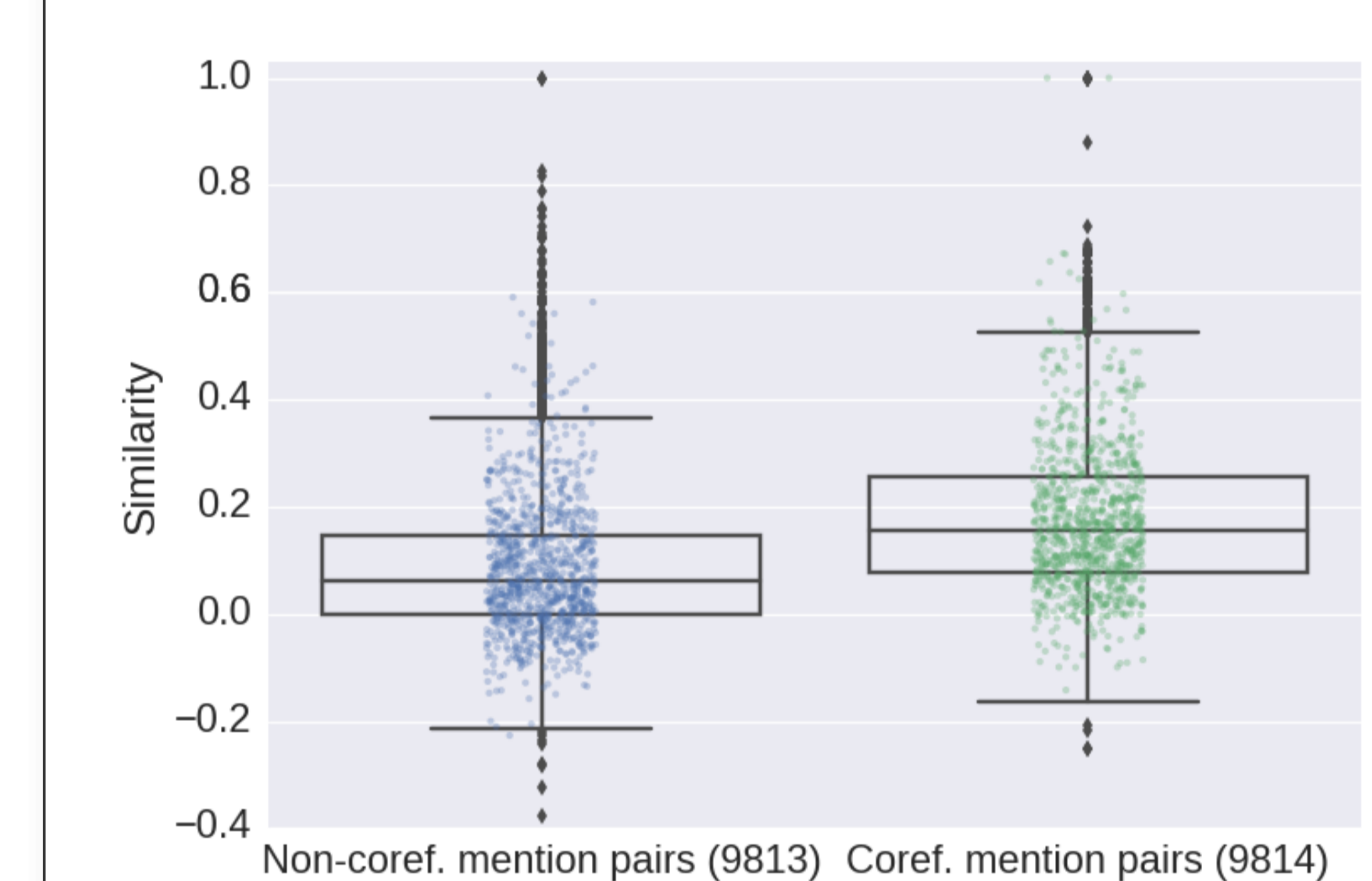
In a Nutshell

- ▶ Hobbs (1978): Selectional preferences (SPs) essential for pronoun resolution.
- ▶ Kehler et al. (2004): “(Non)-utility” of SPs for pronoun resolution.
- ▶ Durrett & Klein (2013): Semantics in coreference resolution is an uphill battle.
- ▶ Since 2013: Dramatic improvements in coreference resolution, at least on CoNLL'12.
- ▶ None of these improvements due to semantics.
- ▶ Time to revisit selectional preferences?

Selectional Preference Embeddings



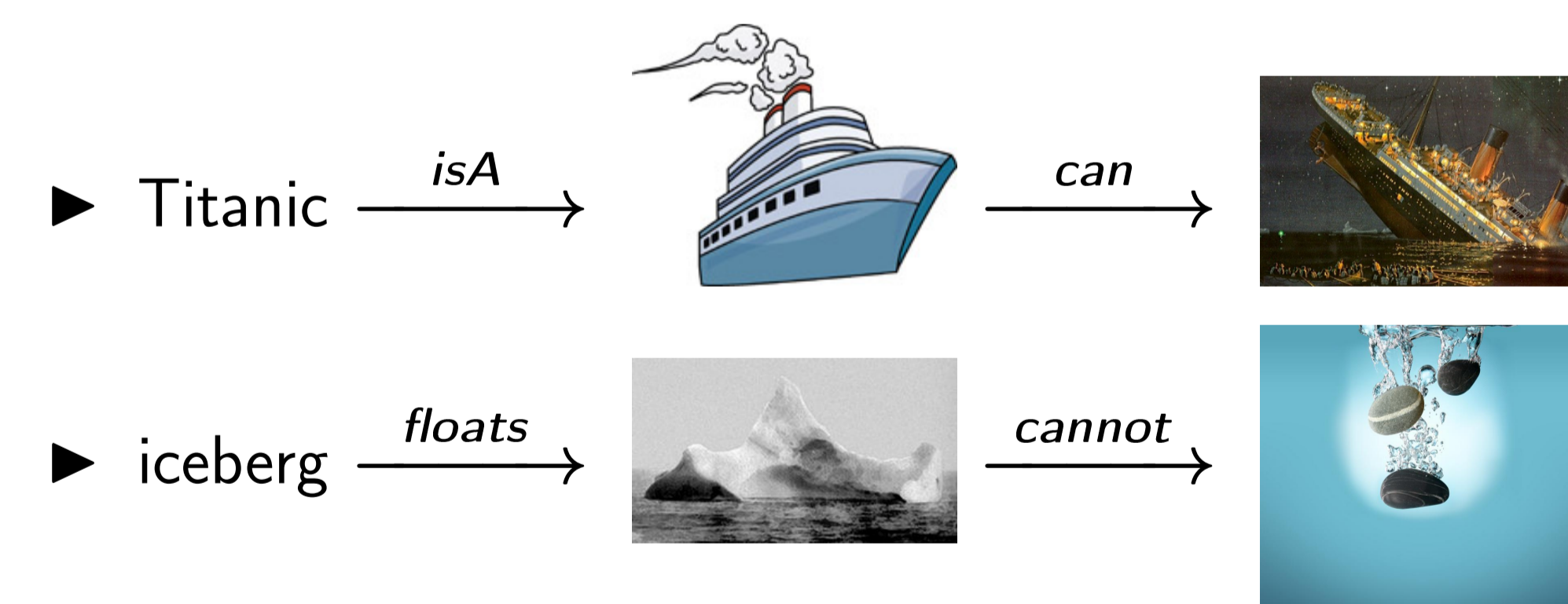
Selectional Preference Similarity



Selectional Preferences in Coreference Resolution

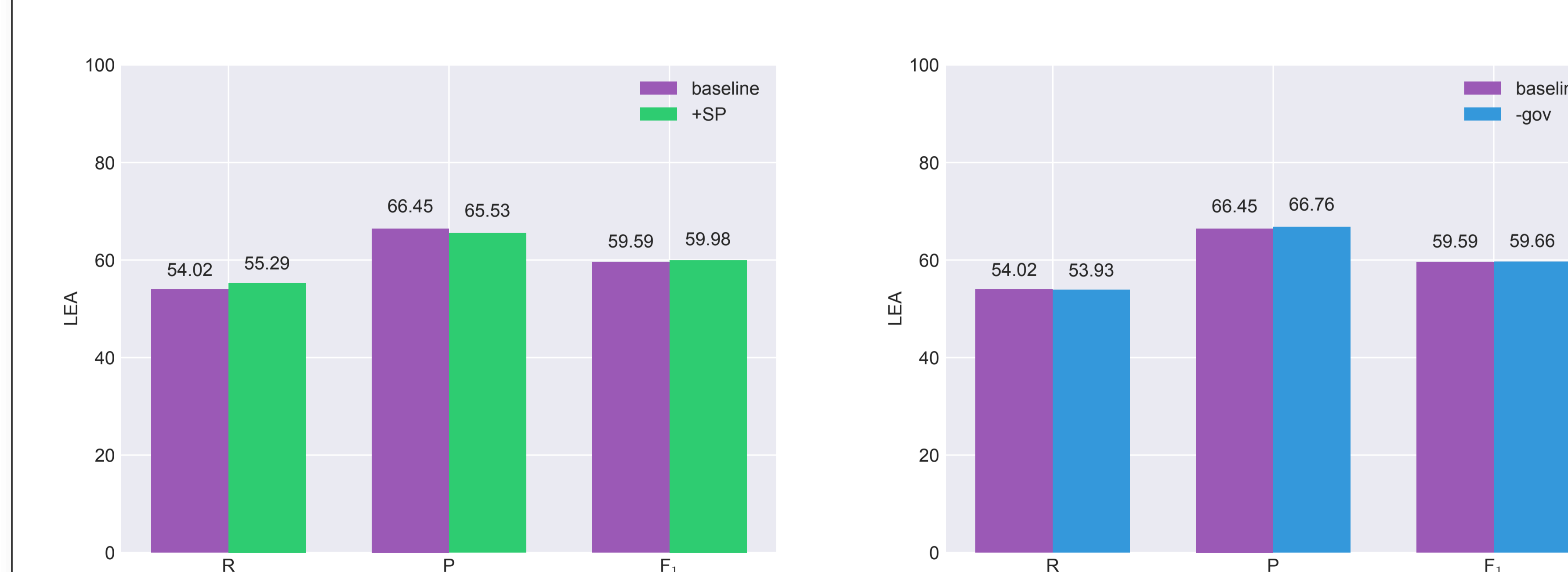
▶ “The Titanic hit an iceberg. It sank quickly.”

▶ It → ?



▶ It → Titanic

Impact of Selectional Preferences



Recall Improvements

does [that] _{ante} really impact the case ... [it] _{ana} just shows	impact@nsubj	shows@nsubj
[it] _{ante} will ask a U.S. bankruptcy court to allow [it] _{ana}	ask@nsubj	allow@dobj
[The country coroner] _{ante} says [he] _{ana} urged	says@nsubj	urged@nsubj
[a strain that hasn't even presented [itself] _{ana}] _{ante}	presented@nsubj	presented@dobj

Syntagmatic vs. Paradigmatic Similarity

captain $\xleftarrow{\text{nsubj}}$ steers $\xrightarrow{\text{dobj}}$ ship
 \cong
 pilot $\xleftarrow{\text{nsubj}}$ steers $\xrightarrow{\text{dobj}}$ airplane

Conclusions

- ▶ Fine-grained model of SPs with high coverage.
- ▶ Negligible impact on state-of-the-art coreference resolver.
- ▶ Are SPs useless for coreference resolution after all?

Data & Contact

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