Ordering is not ranking: A study of ordinals vs. degree modifiers in nested definites

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ELM 3 · University of Pennsylvania · June 12-14, 2024

Relative readings

Relative readings of nested definites (Haddock, 1987):

the rabbit in the hat
Relative reading: ‘the rabbit in the hat with the rabbit in it’

... with superlatives (Bumford, 2017, i.a.):

the rabbit in the biggest hat
Relative reading: ‘the rabbit in the biggest hat with a rabbit in it’

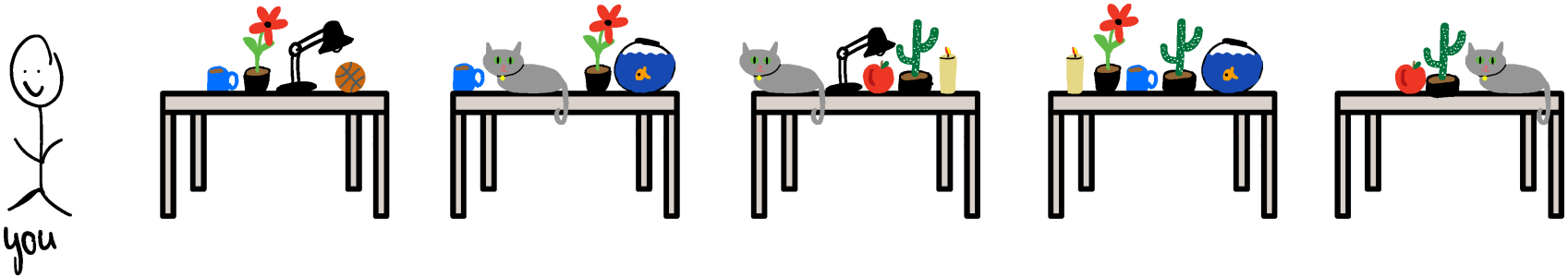
.. with ordinals?

the rabbit in the first hat
Relative reading: ‘the rabbit in the first hat with the rabbit in it’

Our main finding: Relative readings are absent in nested descriptions with ordinal modifiers.

Sample stimulus for Experiment 1 (with **superlative**)

*What's next to the cat on the **closest** table?*



_____

(Write "doesn't make sense" if the question does not make sense.)

All target trials were set up so that a relative reading would be the only one available, given the display. Rejection ("doesn't make sense") thus signalled the absence of a relative reading.

Display for Experiment 2 (with **ordinal**)

What's next to the cat on the **third** stair?

_____

(Write "doesn't make sense" if the question does not make sense.)

In Experiment 2, we ensured that there would be no absolute reading available for the ordinal constructions, whether one counts the stairs from bottom to top (the intended direction) or top to bottom (the "wrong" one).

Design for both experiments

number of objects described by the noun (e.g *cat*): 2 or 3.
type of modifier: ORDINAL (e.g. *first*) or DEGREE (comparative like *closer* or superlative like *closest*).

- In the DEGREE condition, the modifier was comparative with two objects, and superlative with three objects.

construction: modifier in EMBEDDED noun phrase, as in *What's next to the cat on the closest table?* or in the MATRIX position as in *What's on the closest table with a cat on it?*

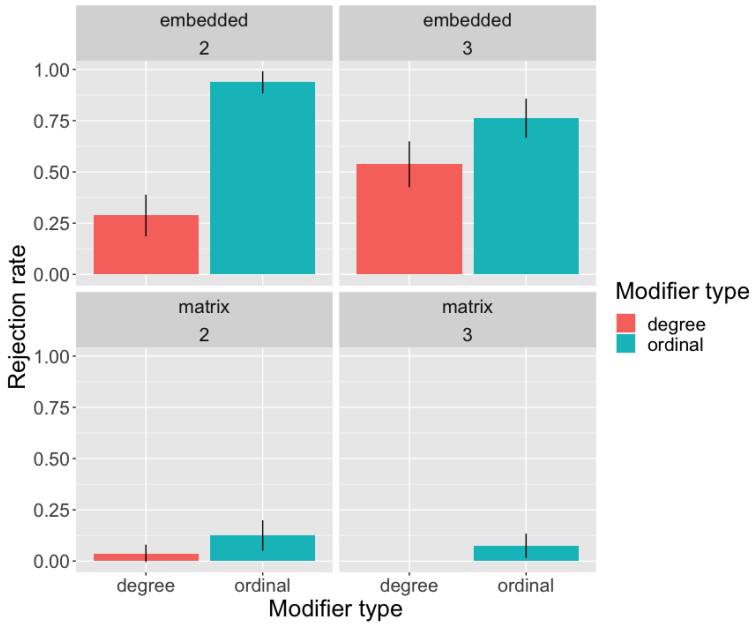
Two items were constructed for each of the 8 conditions, and participants saw all 16 items.

Methods, continued

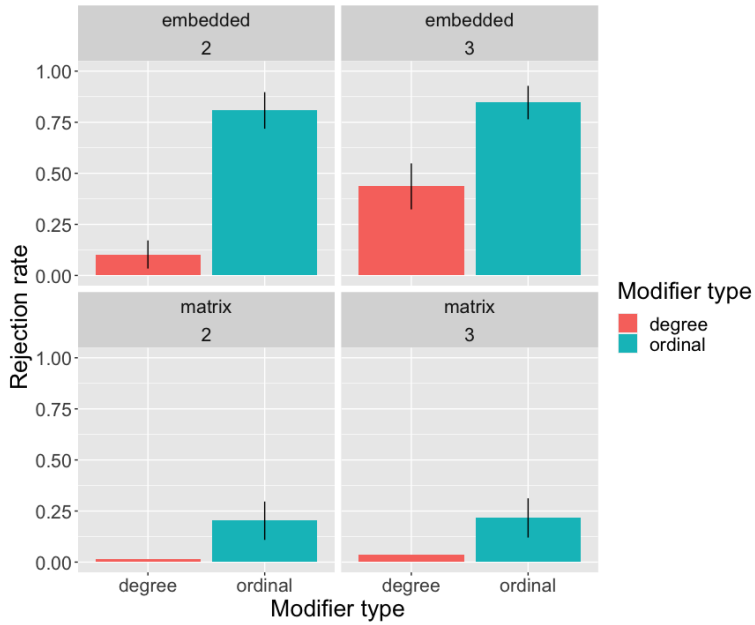
In both experiments, order w.r.t. both modifier type and sentence type was counterbalanced across lists, and fillers were evenly interspersed with target trials.

For both experiments, 40 native speakers of English were recruited via Prolific (different groups of 40).

Results of Experiments 1 and 2



Experiment 1



Experiment 2

Results of Experiments 1 and 2

We found the same pattern in both experiments.

- With the modifier in MATRIX position (*first table with a cat*), there was almost no rejection.
- A strong majority of respondents rejected relative readings for nested descriptions with ORDINAL modifiers in the EMBEDDED position (*cat on the first table*).
- Relative readings for nested descriptions containing DEGREE modifiers were sometimes rejected, but significantly less often than with ORDINALs.
- Surprisingly, rejection was significantly more common with superlatives than with comparatives. (This may be due to the absence of a competing absolute reading with comparatives.)

Conclusion

Ordinals are substantially less susceptible to relative readings than degree modifiers, in nested descriptions.

Discussion (I)

Why? Bylinina et al. (2014): ordinals cannot undergo scope movement.

- They make this assumption in order to explain the absence of 'upstairs *de dicto*' readings with ordinals.
- Does not suffice to block relative readings, though.
  - In order to generate focus-related relative readings of ordinals as in Bhatt's (2006) *John$_F$ gave the first telescope to Mary*, Bylinina et al. assume that ordinals expect an implicit comparison class.
  - So one would need a theory of why the comparison class argument of *first* in *the cat on the first table* cannot be set to 'with a cat on it'.

Discussion (II)

Our explanation:

- An ordinal expects an ordering that can be provided by context.
- The ordering is a function f from a 'basis' to satisfiers of the modified predicate. The basis is a linearly ordered set like a sequence of times (as in *second train*) or locations (*second stair*).
- The *nth table* is the nth object in a sequence $\langle f(i_1), f(i_2), f(i_3), \ldots \rangle$.

Discussion (III)

Our explanation, continued:

- The more iconic a sequence is to the natural numbers, the more accessible it is as a basis for the ordering.
- The more evenly spread out a sequence is, as measured by a perceptually salient distance metric, the more iconic it is to the natural numbers.

Discussion (IV)

Our explanation, continued:

- In our experiments, the sequence of locations corresponding to the full set of tables is more iconic to the natural numbers than the sequence over the subset containing cats.
- The highly iconic basis fixes the reading of an embedded ordinal to be absolute (low scope), even on pain of global reference failure.
- Superlatives do not rely on a linear ordering and therefore have a more flexible range of scope options.

Discussion (V)

- The differences we observe are in line with prior work showing differences between ordinals and superlatives (Bylinina et al., 2014).
- However, the results present difficulties for accounts of the semantics of ordinals on which they are entirely parallel to (Bhatt, 2006) or contain superlatives (Alstott, 2023).
- Such accounts would predict relative readings with both ordinals and superlatives in nested descriptions, *contra* what we found in the experiments.
- Ordering is different from ranking.

References

Alstott, Johanna. 2023. Ordinal numbers: Not superlatives, but modifiers of superlatives. Paper presented at SALT 33.

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