

A diverse family (of sentences) Projectivity differs across embedding operators—but not like you think

This work investigates the projection of inferences to the truth of an embedded complement clause across different entailment-cancelling operators, for a variety of attitude verbs. We present experimental evidence that projection does vary by operator, and further, that the effect of entailment-cancelling operators differs between various attitude verb triggers. However, our findings about the interaction of operator and trigger do not support ?'s (?) classification of factive vs. semi-factive verbs.

Projection across various entailment-cancelling operators. Attitude verbs can often be associated with an inference that their complement clause is true, even when embedded under an entailment cancelling operator (in which case the inference to the truth of the complement is said to *project*, see e.g. ?). This is illustrated for *'discover'* in (1):

- (1) Projection across various entailment-cancelling operators:
- a. Polar Questions:
'Did Cole discover that Julian dances Salsa?'
 - b. Negation:
'Cole didn't discover that Julian dances Salsa.'
 - c. Modals:
'Perhaps Cole discovered that Julian dances Salsa.'
 - d. Conditionals:
'If Cole discovered that Julian dances Salsa, Logan will be joyful.'

Previous work on projective content showed that whether or not this inference projects is not a categorial property of lexical triggers (?); but a gradient property, which is also affected by various contextual factors (???). In light of this gradience, and the complex interaction of projection with various contextual factors, we may also expect the semantically heterogeneous entailment-cancelling operators in (1) to affect projection in differential ways.

Karttunen: *'discover'* is a semi-factive verb: generalizations

- more projective under negation than questions
- factive + semi-factive: two classes of projective verbs with divergent projection behavior under different embedding operators
- Karttunen's classification of factive/semi-factive verbs is often assumed
- Kajsa Djärv: cognitive vs emotive predicates

Our work presents experimental data from a study addressing the questions: **(i)** Is the projection of content affected by differences in entailment-canceling environments? **(ii)** Do these effects vary for different verbs? In an experimental task designed to assess speaker commitment to the complement clause, we find that the choice of entailment-cancelling operator affects projection, and that there are differences between triggers in their interaction with embedding operators.

Experimental investigation. To investigate differences in projection behavior across various entailment-cancelling operators as in (1), and between various types of attitude verbs, we used a response task which elicited participant judgments about how strongly they thought a speaker would be committed towards the embedded clause. We presented sentences like in (1) as asserted by a named speaker (on screen as **Daniel**: ‘*Did Cole...?*’). Participants were then asked to provide a judgment in response to a prompt like: *Is Daniel certain that Julian dances Salsa?*), by moving a slider on a scale from ‘no’ (coded as 0), to ‘yes’ (coded as 1).

Design and Expectations.

(2) 20 clause-embedding predicates

- a. canonically factive: *be annoyed, discover, know, reveal, see*
- b. nonfactive:
 - (i) nonveridical nonfactive: *pretend, suggest, say, think*
 - (ii) veridical nonfactive: *be right, demonstrate*
- c. optionally factive: *acknowledge, admit, announce, confess, confirm, establish, hear, inform, prove*

- Expectations based on Karttunen:
 - no variation for factive verbs
 - semi-factives (like *discover*) should project more strongly across negation than questions
- expectations based on Djärv:
 - emotive predicates (like *be annoyed*) behave like Karttunen’s factives
 - cognitive predicates (like *discover, see...*) behave like Karttunen’s semi-factives

Method. ...

Results and Analysis.

- pooled data across experiments

Figure 1 shows the mean certainty-ratings by operator and predicate, and 95% bootstrapped confidence intervals.

- The embedding operator affects projection (main effect of embedding operator)
- This effect differs by verb (interaction effects of operator/verb)

Discussion and Conclusion. ...

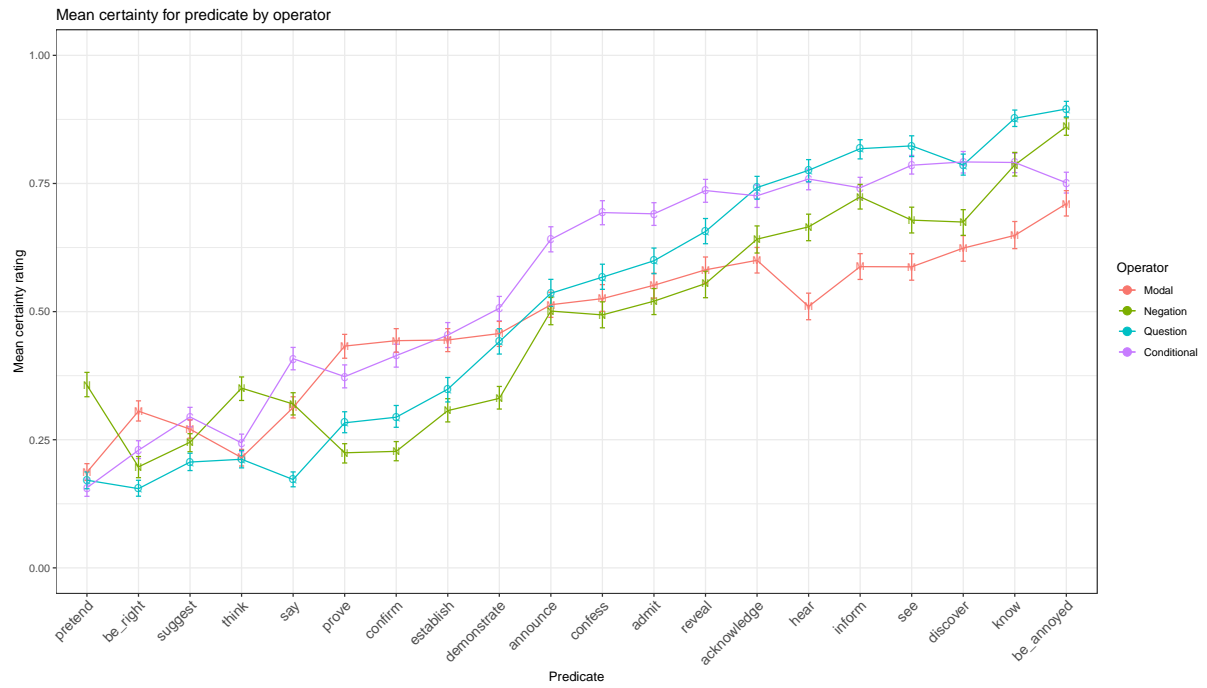


Figure 1: Mean certainty ratings by operator and predicate

References