

Semantics for Textual Entailment

General Discussion

Mats Rooth

Entailment pair

T Robert Kennedy was not as tall as his brother John

H If John Kennedy was short then Robert Kennedy was short

Does T entail H, are they contradictory, or neither?

Linguistic Semanticist

That's exactly what I work on!

I have a model-theoretic ontology for comparative and positive adjectives involving degrees.

... and a grammar that interprets T as a lambda term T' and H as a lambda term H' .

Every model and context that makes T' true also makes H' true. Here's a sketch of a model-theoretic proof. T entails H.

RTE implementor

That's exactly what I work on!

Let's try it in my system.

... it says entailment.

Let's try some similar examples/look at the trace/..
to see if you be impressed.

Natural Logician

That's exactly what I work on! And we just added equatives to our grammar!

It interprets T as a formula T' and H as a formula H' .

Let's check the consistency of True T' , False H' in the tableaux system.

Linguistic Semanticist

Should consider using a logic where checking entailment is feasible, rather than requiring an unconstrained mathematical argument.

Maybe this could be done while continuing to address the same questions about the ontology of degrees, logical form of positive graded adjectives, and the syntax/semantics interface for equatives.

RTE implementor

Should make the system more modular, so that a logic of gradable predicates can be plugged in. So far, the only semantic resource that is being usefully re-used is wordnet.

It would be great to have a modular, available systems. Right now very few RTE systems are available.

Natural Logician

Great, we also could use natural logics for other things that come up frequently in RTE.

... a natural logic of light verbs.

... a natural logic of nominalization.

Man of the street entailment

Not logician's entailment or semanticist's entailment

... but a rough and ready man-on-the street notion of entailment.

Classifying galaxies

Astronomers classify galaxies as spiral galaxies, symmetric blob galaxies, irregular.

The classification is significant for the galactic evolution (for instance symmetric blobs come from two galaxies colliding).

Classifying galaxies

Robot telescopes have photographed millions of galaxies (data revolution).

A grad student classified 50,000 by hand, then got tired. He crowd sourced it, and a million galaxies have been classified.

This did not involve switching to a rough-and-ready man-on-the-street notion of galaxy morphology. The crowd can classify better in the Hubble system better than one grad student in astronomy.

Ideas that came up ...

- ❖ Typology of entailment phenomena.
- ❖ Focused datasets for local entailments of a given type.
- ❖ Step by step proof sketches, marked with justifications.
- ❖ Modular architecture where entailment and resource components can be plugged in.
- ❖ Axiom systems for other phenomena that come up frequently.
- ❖ Using models?
- ❖ Distributional notions of word meaning