Limits of Natural Logic

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1 Abstract of the Invited Talk

Natural Logic attempts to do formal reasoning in natural language in a proof-theoretic way making use of the syntactic structure and the semantic properties of lexical items and constructions. It goes beyond trying to establish who did what to whom to yield further inferences. Natural Logic contrasts with approaches that involve a translation from a natural into a formal language such as predicate calculus or a higher-order logic that is sometimes deemed a more appropriate basis for reasoning although difficult to implement efficiently. Both approaches have been used in current work on computational semantics.

Natural Logic goes back to the Aristotelian syllogisms; computing meaning representations in an artificial language emerged in more recent times with the advances in logic and model-theoretic approaches to semantics.

This talk will start with a brief history of Natural Logic from its origins to the most recent work on monotonicity, MacCartney's lexical relations and implicatives. This part is a success story. We will then illustrate four areas that seem to fall outside the classical Natural Logic framework: presuppositions, soft inferences, the consonance/dissonance effect of evaluative adjectives, and the double meaning of the *be lucky to VP* in the future tense. These cases are also affected by pragmatic considerations: opinions about the world, assignments of beliefs to people, and even by the perceived communicative intent of the speaker.

Natural Logic needs to be augmented with pragmatics to make it a richer theory of Natural Reasoning.

2 References

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