## Discourse-level implicature: A case for QUD

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## **Abstract**

This paper argues that multi-sentence discourses give rise to Gricean quantity implicatures that go beyond the mere sum of the implicatures of the sentences they consist of. We formulate two theories of discourse-level implicature: the null theory, which only has a mechanism for sentence-level implicature and not even any notion of discourse structure; and a theory that assumes that discourse is hierarchically structured by questions under discussion (QUD) and that questions under discussion can guide the derivation of quantity implicatures at all levels of discourse structure. In two experiments using the inference task paradigm and focusing on sequences of sentences with contrastive topic, the QUD-based theory is shown to make more accurate predictions than the null theory. This finding provides additional motivation for the QUD-based approach to discourse structure.

## 1 Introduction

The goal of this paper is to show how the notion of Question under Discussion (QUD) can be employed to describe the phenomenon of *discourse-level implicatures*. In the classical picture of pragmatics going back to Paul Grice (1975), implicatures are defeasible inferences that result from reasoning about what the speaker has said, has not said, could have said, and what he or she must have meant, on the assumption that he or she behaves cooperatively and observes the Maxims of Conversation (Quality, Quantity, Manner). The input to this reasoning process is *the speech act*, and the usual tacit assumption is that a speech act has roughly the size of one sentence. As a result, the bulk of work on implicatures talks about implicatures of individual sentences.

There is ongoing vivid debate on whether implicatures are generated only at the level of whole sentences, or also at subsentential level, also known as the localist-globalist debate (Chierchia, 2004; Geurts and Pouscoulous, 2009; Geurts, 2010; Sauerland, 2010; Chemla and Spector, 2011, and others). The question that by comparison has received much less attention is whether implicatures also exist *above* the sentence level—for larger discourse units and whole discourses. It is a common view in discourse semantics that a discourse is itself a complex speech act that consists of simple speech acts (see e.g. Asher and Lascarides, 2003). On this view, one should expect Gricean reasoning to apply to single-sentence speech acts and multisentence speech acts alike, so discourse-level implicatures should be generated in much the same way as sentence-level implicatures.

Bart Geurts has recently advocated this position (Geurts, 2007, 2010). He gives examples of the following kind:

(1) Tony: Which places did you see on your trip to Italy?