Many-valued semantics of generalised quantifiers for natural language with bialgebras

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Categorical compositional distributional semantics [3] is a model of natural language. It combines the statistical distributional models of language with the compositional models of grammar. The generalised quantifier theory of natural language, due to Barwise and Cooper [1], can be formalised in this model. The underying setting is a compact closed category with bialgebras. When instantiated to the (compact closed) category of sets and relations, we obtain the truth-theoretic semantics of generalised quantifiers. Moreover, the framework of [3] allows for instantiation in the category of sets and *many-valued* relations, and thus for the introduction of many-valued semantics for a fragment of natural language containing generalised quantifiers [2]. We present this approach and show some examples of sentences and their (many-valued) semantics.

References

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