

The Problem

Montague Grammar (e.g. Montague 1973) is very productive when it comes to explicating the compositional semantics of *functional morphemes* – e.g. “every”:

$$\llbracket \text{every} \rrbracket = \lambda P_{\langle e,t \rangle} \lambda Q_{\langle e,t \rangle} \forall x_e [P(x) \rightarrow Q(x)]$$

It is not very productive when it comes to similarly explicating the semantics of *lexical morphemes* (i.e. *roots*) – e.g. “cat”:

$$\llbracket \text{cat} \rrbracket = \lambda x_e [\text{cat}'(x)]$$

While some improvements have been made using syntactic decomposition (especially w.r.t. the semantics of verbs), Montague Grammar remains largely unable to compare the semantics of roots cross-linguistically to the same extent that it can compare the semantics of functional morphemes.

Natural Kinds

The present understanding of this treatment of the semantics of roots is based on Kripke’s (1980) notion of *rigid designation*. In this view, roots refer directly to abstract objects which exist in the world – *natural kinds*.

At the time, the status quo in applied model theory was to treat idiosyncratic terms like lexical roots as part of the model’s *signature*: a set of terms which simultaneously lists the primitive objects of the model and the non-logical constants in its metalanguage. This was seen as a problematic approach until Kripke provided a pre-theoretical justification for it by interpreting the content of the model-theoretic signature as corresponding to metaphysically real objects.

However, I argue that this position requires a kind of **prescriptivism** which is inappropriate for scientific research in linguistics into the natural variation that exists within the domain of lexical semantics.

Prescriptivism of Natural Kinds

The prescriptivism in the Kripkean view is most apparent in the following excerpt:

“We need not even assume that the biologist’s denial that whales are fish shows his ‘concept of fishhood’ to be different from that of the layman; he simply corrects the layman” (Kripke 1980: 138).

Kripke posits that there is a universally essential category of *fish’* to which all possible interpretations of $\llbracket \text{fish} \rrbracket$ (and analogous roots in other languages) ultimately converge. It is these essential categories that he calls natural kinds.

This is a prescriptivist approach that is inappropriate for descriptive linguistics. A situation where a biologist “corrects” a layperson’s use of the root “fish” is no different to a situation where a literary expert “corrects” a non-standard pronunciation of a phoneme. By treating linguistic variation in lexical semantics as erroneous, this approach makes cross-linguistic and diachronic comparison of lexical denotations impossible. **We could instead be asking *how* and *why* the layperson’s use of the root “fish” differs from the biologist’s.**

The Kripkean position presupposes that the ultimate enterprise of the referential substratum of natural language is absolute accuracy to external, objective reality. However, natural language is an evolutionary system; a loss in accuracy can be naturally selected if it comes with substantial gains in economy and/or communicative efficiency.

The fact that this view was imported into Montague Grammar and the study of the semantics of natural languages without appropriate critical appraisal is extremely problematic, given that this is a tool used in the documentation of endangered languages. **This approach has the potential to cause erasure of lexical diversity** of the kind that can be observed in even a casual comparison of lay and expert varieties of English.

Beyond Natural Kinds

Moving beyond natural kinds into a descriptively productive model-theoretic paradigm of lexical semantics is a challenging task. **There are three main requirements of any system that aims to fulfil this role:**

- To be a viable *expansion* of Montague Grammar, **such a formal system must be largely compatible with the current research program** w.r.t. functional morphology.
- To be able to model lexical diversity, **it must not treat the interpretations of roots as universal primitives** (i.e. natural kinds), and instead describe a universal algorithm which generates them.
- To be an actual *theory* of lexical semantics, **it must be able to make informative and falsifiable predictions** about the roots in natural language (e.g. use and acquisition).

Building such a system is far beyond the scope of this brief presentation and is thus left for future research.

Summary

To summarize:

- **Autonomous linguistic variation exists in the domain of lexical semantics**, and a prescriptivism presently built into Montague Grammar makes it impossible to model.
- A formal system that can productively model this diversity cannot employ natural kinds, and instead **it must describe a generative system underlying lexical diversity.**

References

Montague, R. (1973). The proper treatment of quantification in ordinary English. In P. Portner & B. H. Partee (Eds.) *Formal semantics: the essential readings* (pp. 17-34). Oxford, UK: Blackwell.

Kripke, S. (1980). *Naming and necessity*. Cambridge, MA: Harvard University Press.

