

Records and record types in semantic theory*

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I will explore possibilities for formulating linguistic semantics in terms of records and record types of the kind used in recent developments of Martin-Löf type theory (Betarte, 1998, Betarte and Tasistro, 1998, Coquand, Pollock and Takeyama, 2003, Tasistro, 1997). I will suggest that they give us the tools to develop a theory which includes aspects of Montague semantics, using the lambda calculus¹, Discourse Representation Theory (DRT)², situation semantics³ and Head-Driven Phrase Structure Grammar (HPSG)⁴ in a single theory. I will also argue that formulating these theories in terms of record types may provide us not only with a unified approach but also with certain improvements over the individual theories.

The ingredients from Martin-Löf type theory that I will use, in addition to records and record types can be summarised as:

- dependent types (including dependent function types)
- the notion of “propositions” as types of proofs
- the first class status of types as objects

The approach I am advocating has the following features:

- compositionality using the λ -calculus (from Montague semantics)
- dynamic binding (from DRT)

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¹Montague (1974) is the classic reference.

²Kamp and Reyle (1993), van Eijck and Kamp (1997) and much other literature.

³Barwise and Perry (1983) and subsequent literature.

⁴For a recent account see Ginzburg and Sag (2000).

- a treatment of intensionality including perception complements and intensional verbs like *seek* (from situation semantics)
- a treatment of context dependence including resource situations (from situation semantics)
- a sign-based approach to the relation between syntax and semantics (from HPSG)

Some of these features have been combined in other approaches, but to my knowledge they have not all been combined before.

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