

Semantic Underspecification and the Pragmatic Interpretation of *Be*

The copula verb *be* can appear in range of constructions apparently involving complements of different sorts and a wide variety of interpretations. For example, in English we find *be* inducing an interpretation of identity with a noun phrase complement in equatives (1); as doing little more than hosting tense and agreement information with adjective, prepositional and nominal phrases in predicatives (2); giving rise to existential interpretation in construction with *there* (3); as some sort of presentational marker with an expletive subject (1d); as part of a construction determining focus in cleft (5), and pseudo-cleft (6) constructions.

- (1) John is the teacher.
- (2) Kim is happy.
- (3) There is a riot on Princes Street.
- (4) It's me.
- (5) It is John who is the teacher.
- (6) What I want is a good night's sleep.

The variability in the interpretation of *be* in (1-6) has led to a considerable debate within the literature on theoretical syntax and semantics. The issues turn on whether the copula is ambiguous, in particular between equative and predicative constructions and, if not, what the semantic contribution of the verb is.

In recent years, unitary accounts of *be* have tended to find favour. So, for example, Partee (1986) treats the copula as 'essentially' predicative with a single semantic type $(e \rightarrow t) \rightarrow (e \rightarrow t)$ with the semantic structure $\lambda P \lambda x.P(x)$ ¹. Such an analysis, of course, treats the copula as essentially semantically vacuous beyond providing different ways of combining with an argument and a predicate and requires other means of deriving equative readings (such as Partee's type-raising function **Ident** which maps a term, *a*, onto an identity predicate $\lambda x.x = a$).

The distinction between equative and predicative uses of *be* is further compounded by the subtle differences in meaning apparently exhibited by very similar sentences. For example, copular clauses involving a definite noun phrase give rise to slightly different interpretations according to the order in which the noun phrases appear and are often divided into two classes: equative clauses, as in (7) where the post-copular definite appears to be fully referential, and specificational clauses, as in (8) where the initial definite appears to provide a description of an unknown entity, rather than to pick out some specific object.

¹Partee, in fact, allows a variable type and analysis with the arguments of the expression appearing in either order, i.e. $\lambda x \lambda P.P(x) : e \rightarrow ((e \rightarrow t) \rightarrow t)$.

- (7) John is the culprit.
- (8) The culprit is John.

This subtle variation in interpretation, taken with the fact that the distinction between equative and predicative interpretations depend on the properties of the postcopular expression being a term or a predicate naturally leads to a view of copular sentences in which interpretation is dependent on the properties of the expressions with which *be* is combined and the *way* that they are combined. This view in turn raises the question of what part pragmatics plays in the interpretation of such sentences.

In this paper, I explore an approach to the interpretation of *be* in English that treats it as semantically vacuous, but as inducing pragmatic ‘enrichment’ to determine the content of the clause. By means of treating the copula as projecting a semantically underspecified predicate, I show how the interpretation of copular clauses is determined by the properties of collocated expressions, non-local context and the parsing process itself.

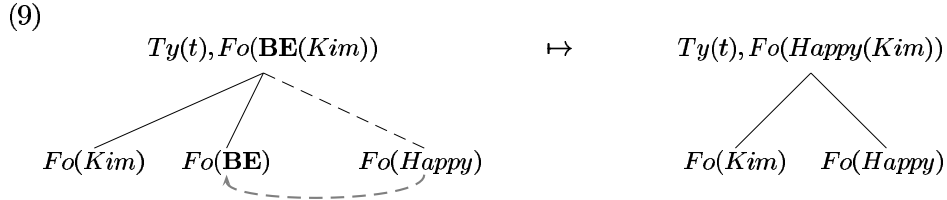
The framework to be used is that of *Dynamic Syntax* (Kempson et al. 2001) according to which the process of natural language understanding is a monotonic tree growth process defined over the left-right sequence of words, with the goal of establishing some propositional formula as interpretation. Intrinsic to this process are concepts of underspecification which provide goals to be achieved in constructing an appropriate interpretation given some string of words in context. Thus, driven by the universal requirement to construct a representation of propositional content, $?Ty(t)$, the words of a string are parsed in strictly time-linear fashion to derive progressively more specified tree structures, representing content. Such content may be provided by the semantics of the individual lexical items, but may also be derived from the interaction of pragmatic processes with the parsing process itself. It is on this sort of interaction that the analysis in this paper is built.

In Dynamic Syntax, certain expressions project formula values that act as placeholders for contentful values to be found in context. Thus, pronouns project METAVARIABLES with an associated requirement to find a contentful substitute for this placeholder during the course of a parse. For example, in a sentence *John upset her* in the context induced by *Who upset Mary?*, the pronoun is analysed as projecting a metavariable, $Fo(\mathbf{U})$ (Fo being the formula label) which in the context given is (and must be) substituted by the content of the proper name *Mary*, to yield the propositional content $Fo(Upset(Mary)(John))$. The substitution process is system external and constrained only through item specific conditions (such as analogues of the Binding Principles) and pragmatic conditions, construed here in terms of Relevance Theory (Sperber and Wilson 1995). A similar account is given of definites within this framework, where the definite article is treated as a pronominal form that projects a metavariable while the content provided by the common noun phrase provides a further ‘presuppositional’ constraint on substitution.

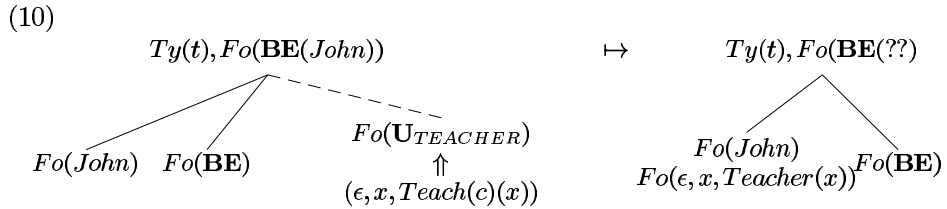
Metavariable projecting expressions need not be restricted to terms, however, and, developing ideas put forward in Cann et al. 2002 for expletive con-

structions, I argue that copular *be* projects a *predicate* metavariable ($Fo(\mathbf{BE})$). Depending on the nature of the collocated expressions the required content may be determined directly by the syntax (as in predicative constructions) or through pragmatic reasoning (as in specificational and equative constructions), yielding different interpretational effects.

In the proposed analysis, the subject plus copular provide an underspecified proposition while postcopular expressions are analysed as ‘unfixed’ with respect to this propositional structure, having to MERGE with the either the subject or the predicate node, depending on type. With predicate constructions, as in (2), the first two words are taken to project a structure which compiles to yield the propositional formula $Fo(\mathbf{BE}(Kim))$. The postcopular predicate expression provides the value of the predicate expression through a Merge process to yield a complete formula value $Happy(Kim)$.

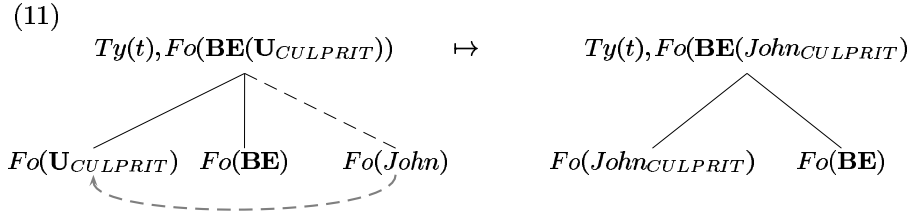


Equative and specificational clauses are analysed similarly, except that the postcopular term, being of type e , merges, not with the predicate node, but with the subject. In the case of equative clauses, such as (1), the content of the subject is established directly through the semantics of the proper noun *John*. The postcopular definite, however, has underspecified content represented by a metavariable with associated presupposition (e.g. $\mathbf{U}_{TEACHER}$). This metavariable induces SUBSTITUTION of some appropriate term in context whose value must have the property expressed by the presupposition. for example, in a context in which it has been established that the speaker is taking a course, an term epsilon term may be constructed that picks out the arbitrary witness for whoever teaches that course, i.e. $Fo(\epsilon, x, Teach(c)(x))$. This *substituted* term then Merges with the subject node to yield a complex node who distinct formula as shown schematically in (10).



The apparently contradictory formula values on the subject node are resolved as a single complex epsilon expression interpreted as picking out a single witness satisfying the semantic properties of both subject and postcopular NP, thus effectively equating their denotata. In an analysis of (1), therefore, the parse gives rise to an underspecified propositional formula $\mathbf{BE}(\epsilon, x, \text{John}(x) \wedge \text{Teach}(c)(x))$ which still requires specification of the predicate to be interpretable. The value for the predicate metavariable must then be determined inferentially from context to provide some proposition meaningful to the hearer. For example, where the focus of the conversation is what John is doing with himself these days, the most relevant substituent may be $\lambda x. \text{Teacher}(x)$. This will yield an interpretation of *John is the teacher* ($\text{Teacher}(\epsilon, x, \text{John}(x) \wedge \text{Teach}(c)(x))$) that entails *John is a teacher* ($\text{Teacher}(\text{John})$). However, alternative contexts may yield different inferential effects where the implication that John is a teacher comes, not directly from the semantic representation, but from the ‘presupposition’ associated with the postcopular definite.

Specificational sentences are analysed analogously, but in this case the value of the metavariable projected by the initial definite is not established by substitution, but receives its content directly through the Merge process. In other words, the subject and predicate combine to project a doubly underspecified proposition, about which the only thing that is known is that the subject must have the property expressed by the subject’s common noun phrase. The output of parsing the first three words in (8) thus give rise to the formula value $\mathbf{BE}(\mathbf{U}_{\text{CULPRIT}})$. To provide the content of the subject, the postcopular term is analysed again as unfixed and as merging directly into the subject position, as shown in (11).



The resulting propositional formula, $\mathbf{BE}(\text{John}_{\text{CULPRIT}})$, is still incomplete, but the value for the predicate metavariable is provided by the presupposition of the definite expression, which has not been used to identify some other term from context and so is an appropriate substituent because informative to the hearer. The resulting proposition expressed by (8) is thus *Culprit(John)*. The difference between the interpretation of the specificational clause in (2) and the truth conditionally equivalent *John is a culprit* is argued to reside in the *process* by which the final propositional content is established. In other words, the process of postulating initially underspecified information that there is some entity who is a culprit who has some property and then establishing the identity of that entity and the appropriate property has different informational effects from merely identifying the entity from some name and then having the relevant predicate stated directly.

The conclusion of the paper is thus that by modelling the process by which an interpretation is established and using semantic underspecification which requires to be satisfied through syntactic, semantic or pragmatic processes, one can provide a uniform characterisation of the copula in a range constructions. Such an analysis necessarily entails that it is the properties of the expressions collocated with the copular and the context in which a copular clause is uttered have an effect on interpretation.

References

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