A Dynamic Approach to Anaphora and Scope

This paper proposes a left-to-right analysis in Discourse Representation Theory, focusing on anaphoric links among noun phrases and scope interactions among quantifiers as well as sentence operators.

This paper examines two different approaches to resolving a theoretical problem which the bottom-up approach version of Discourse Representation Theory of Kamp, Reyle and Genabith (forthcoming) faces in dealing with anaphoric relations between pronouns and their potential antecedents in conditional sentences where consequent clauses precede their corresponding conditional clauses. In one of the approaches, every element is processed in the order of occurrence. And conditional operators which are in a non-sentence-initial position may cause an ongoing DR to split in two with the same index. DRS construction rules and the definition of accessibility are accordingly modified so that the right DR can be accessible from the left DR and that two DRs sharing the same index behave as one with respect to accessibility and application of the Non-identity rule.

In the other approach, a different type of discourse representation structure, $K \not\leftarrow K$, is introduced, which allows us to resolve the target problem without modifying accessibility proposed in Kamp, Reyle and Genabith (forthcoming). Compatibility of these two approaches with the bottom-up version of DRT is evaluated by examining their applicability to the analysis of quantified sentences where pronominal expressions precede generalized quantifiers.

This paper also proposes a dynamic approach to anaphoric resolution in conjunction phrases such as coordinate clauses and when-clauses. Unlike Kamp, Reyle and Genabith(forthcoming)'s analysis, it proposes two different types of discourse representation structures for conjunction phrases; one for coordinate phrases such as and conjunction phrases and the other one for subordination conjunction phrases such as when subordination phrases.

It will be briefly discussed how the analysis proposed here can also be applied to the explanation of anaphoric links in other constructions, such as wh-questions.
Some examples of the data to be discussed

(1) If John loves her, he courts Mary.
(2) He courts Mary if John loves her.
(3) If John\textsubscript{1} loves Mary\textsubscript{2} and he\textsubscript{1} lives with her\textsubscript{2}, then he\textsubscript{1} overprotects her\textsubscript{2}.
(4) *If he\textsubscript{1} loves her\textsubscript{2} and John\textsubscript{1} lives with Mary\textsubscript{2}, then he\textsubscript{1} overprotects her\textsubscript{2}.
(5) A boy who likes her courts every girl with long hair.
(6) Every boy who likes her hates every girl in this class.
(7) Mary is looking for John, who does not exist in this world. (Chung 1992)
(8) No, Santa won't come tonight, because he doesn't exist. (Saul 1993)
(9) Smith\textsubscript{1} did not come to school because he\textsubscript{1} was sick.
(10) *He\textsubscript{1} did not come to school because Smith\textsubscript{1} was sick.
(11) John\textsubscript{1} waved to Mary\textsubscript{2} when he\textsubscript{1} saw her\textsubscript{2}.
(12) *He\textsubscript{1} waved to her\textsubscript{2} when John\textsubscript{1} saw Mary\textsubscript{2}.

Some of the references