Arabic Sentence: a Syntax-Semantics Interface using an Extended Theory of Referent System

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In this paper, we handle Arabic semantics using an extended version of the theory of referent system. The original version, as proposed by Kees Vermeulen, has provided interface between syntax and semantics through an elegant mechanism to handle variables. However, the renaming process has disregarded the role of morphosyntactic information, and the semantic roles are determined basically by the order of composition. This works well if the arguments have fixed positions with respect to the verb. Arabic is a relatively different case, because it has a flexible word order and a very rich morphology. That is, morphological information plays a crucial role in the assignment of semantic roles. Moreover, agreement has a basic role in the structure of Arabic phrases and clauses. Therefore, we depend on an extended version of referent system to allow semantic roles to be assigned by morphosyntactic information. This modified version, as introduced by Marcus Kracht, is combined with discourse representation structure (DRS) to form the semantic structure. The idea is to deal with names in referent systems as attribute value structures and provide them with morphosyntactic information, such that variables are identified only if this information matches. We show how the proposed calculus provides a powerful compositional mechanism to handling the two types of Arabic sentence and their related phenomena, such as pro-drop, covert copular and reduplicated argument.