Multidominance and semantic interpretation:
a novel perspective on composition and the semantics of ECM and extraposition

This talk focuses on two cases that appear to present a challenge to the notion of strict compositionality. Pre-theoretically, in these cases the meaning of a complex expression seems to contain the semantic contribution of elements that are not syntactically contained within it. We will consider the interpretation of the verb phrase in Adjunct Extraposition (AE) and Exceptional Case Marking infinitival constructions (ECM) (1,2). In the case of AE the meaning of the object NP includes the contribution of the VP external modifier. In the case of ECM, the verb syntactically combines with an NP but semantically composes with a proposition (whose subject is that NP). We propose to analyze these two structures as cases of multidominance. We provide a novel predicate abstraction rule that generalizes the semantic analysis of movement (Heim and Kratzer 1998, H&K) to multidominance. Finally, we argue that our proposal offers a straightforward, semantic derivation of Williams generalizations.

It is now commonly assumed that movement is a specific case of *Merge* where one of the merged sisters is also dominated by its sister (*internal merge*, Engdahl 1986; Chomsky 2001; Starke 2001). We suggest to analyze both AE and ECM as cases of *parallel merge* (a.k.a multidominance, McCawley 1982; Citko 2005) of the NP, an extension of *internal merge*. In AE the NP is shared between the VP and a VP-adjunct quantifier (that contains the relative clause, 3). In ECM, it is shared between the VP and a VP-adjunct Infinitival clause (5). The absence of condition C violations inside the modifier in AE (6) indicates that the relative clause does not have a source position inside the VP (Fox and Nissenbaum 1999, F&N). The structure in (3) solves this puzzle (formalizing F&N's *late merge*). The syntactic analysis of ECM in (5) captures the hybrid status of the NP, which exhibits properties both of infinitival subject (e.g. the availability of expletive subjects) and of matrix object (e.g. case, accessibility to passivization). Multidominance analysis fares better then a movement analysis (Lasnik, 1995) for prepositional ECM cases (7). The analysis of the infinitival clause as an adjunct to a transitive VP captures the otherwise surprising syntactic generalization that all ECM verbs in English have also a transitive frame. This generalization is not trivially accounted for in the standard analysis that assumes ECM to be a distinct verbal frame.

H&K's predicate abstraction rule (even when adapted to the *internal Merge* framework, 8b) cannot be applied in the case of AE and ECM or multidominance more generally. In these configurations there is no c-command relation (or scope) between the distinct occurrences of the shared element. However, a straightforward weakening of (8b) would. In the revised rule (8c), the c-command requirement is replaced by a sister containment requirement that is formally weaker. Informally, when we apply (8c) to multidominance structures (as in 5 or 3) the shared element will be interpreted lexically in one of the sisters and as a variable inside the other sister. The variable will be bound (via abstraction) *at the height of the merger point* of the constituents containing the shared node, turning one of the sisters into a function that can then take its sister as an argument (or be taken as an argument by its sister). The semantic type of the variable is determined contextually according the the selectional requirements of the local sister of the shared element (9). (8c) has the same effect of (8b) in cases of *internal Merge*.

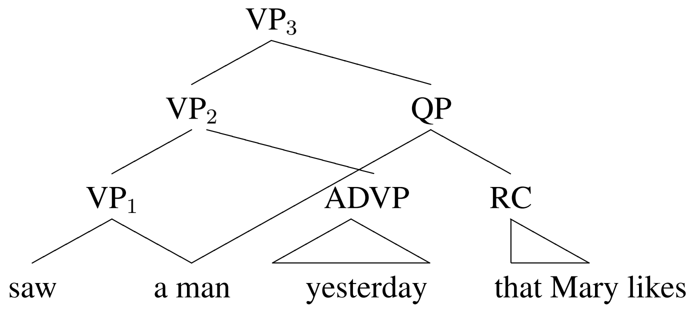
In AE and ECM, by (8c), the shared NP is interpreted lexically within the adjunct and as a variable inside the VP, which is abstracted on at the height of VP_2. In the case of AE, the variable receives a type e interpretation and so VP_2 (originally a function of type $< e, t >$) is turned into a function of type $< e, et >$, identical to a transitive verb, that then standardly combines with the quantifier meaning of the adjunct. Though any semantics for object quantifiers would do, for concreteness we adopt here a Keenan inspired 'in-situ' semantics for object quantifiers (informally sketched in 4). In the case of ECM, the variable receives a propositional meaning (since ECM verbs, in their transitive frames, all S-select for propositional objects). VP_2 is then turned into an $< s, et >$ function that, again, standardly combines with the propositional meaning of the infinitival adjunct.

F&N, following E. Williams, observe that in AE, the scope of the NP must be at least as high as the attachment site of adjunct modifier. In (10, from F&N) AE interferes with the licensing of the free-choice *any* by the verb. This scope effect receives a straightforward explanation in the framework here. Since *any* would be multidominated in (10b), it will be interpreted as a variable of type e inside the VP and lexically as part of the VP adjunct quantifier. By (8c) the VP will be turned into a transitive-verb-like function that will then be combined with the quantifier, itself outside the scope of the lexical verb. In effect, our semantics for multidominance suggests that the scope effects in AE are a special case of a more general relation between multidominance and scope. Time permitting we will briefly present some other such potential cases.

(1) AE: I saw **a man** yesterday that Mary likes

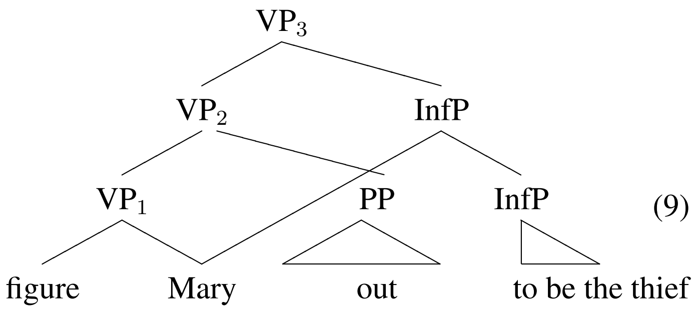
(2) ECM: John figured **Mary** out to be the thief

(3)



(4) ⟦A man that Mary likes⟧ = $\lambda P_{<e,<e,t>>}.\lambda k_e.\exists y.man'(y) \wedge MaryLikes'(y) \wedge P(y)(k)$

(5)



(6) I gave him$_i$ a picture yesterday from John$_i$'s collection

(7) Mary counted on John to do the dishes

(8) a. Some notations:

1. DOM(Y) is the set of nodes reflexively dominated by Y
2. $[\![Y]\!]_{X/z}$ a shorthand standing for the interpretation of Y where X ($X \in DOM(Y)$) was replaced by the variable z
3. Apply: $[\![X]\!]@[\![Y]\!]$ is direction insensitive functional application

b. H&K abstraction rule revised:

1. if $C = \{A, B\}$ & $A \in DOM(B)$, Then :
2. $[\![C]\!] = [\![A]\!]@\lambda z.[\![B]\!]_{A/z}$

c. A generalized abstraction rule:

1. if $C = \{A, B\}$ & $\exists X.X \in DOM(A) \cap DOM(B)$, Then :
2. $[\![C]\!] = [\![A]\!]@\lambda z.[\![B]\!]_{X/z}$

(9) Variable typing rule: if $B = \{P_1, X_2\}$ then Type(z_2) in $[\![P]\!]@z_2 \in [\![B]\!]_{X/z}$ is the lowest type which permits functional application.

(10) a. I looked (very intensely) for anything that would help me with my thesis (very intensely)

b. * I looked for anything very intensely that will/would help me with my thesis