An Argument from Gapping for a Hamblin Semantics for Disjunction

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Several recent accounts of gapping sentences, e.g. (1), argue that the site of conjunction is below tense and modals (Johnson 1996, 2000, 2006; Lin 2000, 2002). These small conjunct structure (SCS) proposals can account for a range of facts that would be puzzling if conjunction were at the TP level. I present data from gapping sentences containing disjunction rather than conjunction that seem to be incompatible with a SCS. I show that by adopting a Hamblin semantics for disjunction, these new gapping facts are compatible with a SCS and make correct predictions for certain interactions of disjunction, modals, and negation in gapping contexts that would be puzzling under a traditional, Boolean semantics for *or*.

Gapping Structure: I will adopt (2) as a shorthand for the SCS, setting aside debates on the actual gapping mechanism; the key points are A) that tense, negation, and modals apparently in the first conjunct (C1) are actually outside the scope of coordination; B) that the subject of C1 takes scope over the second conjunct (C2) (see Johnson 1996, 2006; Lin 2002 for arguments that this does not violate the Coordinate Structure Constraint). I review four arguments in favor of the SCS: I. The subject of C1 takes scope over C2, binding a variable within it (3). II. Sentential negation contained within C1 is interpreted outside the scope of coordination (Siegel 1984,1987; Oerhle 1987). III. The determiner of C1's subject may be shared with the other subject(s) only when gapping has occurred (5), i.e., when there is a single T (6). IV. A modal in C1 has scope over both conjuncts: with no gapping, (7)a states that J and M have separate requirements; with gapping, however, (7)b states that it must be the case that a contradiction occurs, indicating there is only one modal in the structure. A similar point has been made with ability modals (8).

Puzzle: Given the well-supported gapping structure in (2), a modal is predicted to always take wide-scope with respect to the coordination: there is only one modal in the structure, and it originates above the conjunction. This prediction holds for conjoined gapping sentences (CGSs) (7)b,(8)b. However, it does not hold for disjoined gapping sentences (DGSs). Ex. (9) is ambiguous between the wide-(9)b and narrow-scope (9)c readings for the modal (wrt disjunction). The availability of the distributed-scope reading is unexpected if the only structure available for gapping is (2). Ackema & Szendroi (2002) have used a similar gapping fact in a *whether…or* construction to argue that the SCS is not available at all.

Solution: By adopting a Hamblin semantics for disjunction (Aloni 2002, Alonso-Ovalle 2005, Simons 2005), we can account for the distributed reading of the modal in (9)c while maintaining a single modal in the syntax. On such an account, *or* is not a Boolean operator, but rather introduces sets of alternatives. An example derivation is provided in (10). *Or* introduces an alternative set (Alt-set) (10)a. Point-wise functional application (FA) applies over the Alt-set, expanding it (10)b until selected by an operator that closes the set (10)c. Such operators can include ∀, ∃, Neg, Q (Kratzer & Shimoyama 2002) (K&S). To account for (9)c, I adopt a Kratzerian semantics for modals, in which all modals take propositional arguments and assume that *Mary* reconstructs into its VP. FA applies within each VP, with the Hamblin modification that each is a singleton set (11)a. Disjunction takes these two sets and creates an Alt-set (11)b. Point-wise FA applies, distributing the modal over each member of the Alt-set (11)c. Finally, in the absence of an overt operator to close the set, it is closed by existential closure (11)d (Heim 1982). This analysis allows for a distributed modal interpretation for modals in DGSs, while still having a single modal in the syntax, thus maintaining the SCS for gapping. Since conjunction is still viewed as a Boolean operation, a similar maneuver would not allow a distributed modal reading in CGSs, fitting the facts.

Predictions: I.Under the K&S system, negation closes an Alt-set. We predict that negation, unlike modals, cannot distribute over an Alt-set. II.Modals scoping above negation should be unable to distribute over the disjuncts, since the Alt-set would already be closed by negation. On the other hand, modals that scope below negation should allow a distributed reading. III. Finally, the latter but not the former should allow for either a wide- or distributed-scope modal reading, depending on whether existential closure applies before or after FA of the modal (hence, (9) is ambiguous). All of these predictions are shown to be true. The fact that the modal's distributional properties vary with the choice of modal has not been previously noted, to my knowledge, and would be completely puzzling under an account which did not posit Hamblin sets introduced by disjunction, adopt the K&S requirement that negation, when present, close the set, and allow the option of applying existential closure either above or below the modal.

Data

(1) Some will eat nattoo and others — rice. (Ross 1970)

(2) [some$_i$ will [[t$_i$ eat nattoo] and [others ~~eat~~ rice]]] (Johnson 2000)

(3) a. Not every girl$_1$ ate a GREEN banana and her$_1$ mother a RIPE one.
b.*Not every girl$_1$ ate a green banana and her$_1$ mother sold a ripe one. (Johnson 1996)

(4) a. Kim didn't play bingo or Sandy sit at home all evening. neg > *or*
b. Kim didn't play bingo or Sandy didn't sit at home all evening. *or* > neg (Oehrle 1987)

(5) a. Too many Irish setters are named Kelly, — German shepherds Fritz, and — huskies Nanook.
b. *Too many Irish setters are named Kelly, — German shepherds are named Fritz, and — huskies are named Nanook. (McCawley 1993)

(6) a. The girls will drink whiskey, and — boys, drink wine.
b. *The girls will drink whiskey, and — boys will drink wine. (Lin 2000)

(7) a. Mary must outweigh John and John must outweigh Mary by next Thurs.…to win the boxing match.
b. Mary must outweigh John and John, Mary by next Thursday.

(8) a. Ward can't eat caviar and Sue can't eat beans. = (Ward *can't* VP$_1$ & Sue *can't* VP$_2$)
b. Ward can't eat caviar and Sue eat beans. = *can't* (Ward VP$_1$ &/while Sue VP$_2$) (Siegel 1984)

(9) a. Mary must outweigh John or John, Mary by next Thursday.
b. must ((Mary outweigh John) or (John outweigh Mary))
c. (must (Mary outweigh John)) or (must (John outweigh Mary))

(10) John didn't marry Sally or Betty.
a. NEG John married {Sally, Betty}
b. NEG John {λx. x married Sally, λy. y married Betty} → NEG {J married S, J married B}
c. {the proposition true in all worlds in which no proposition in {J married S, J married B} is true}

(11) Mary must outweigh John or John outweigh Mary.
a. Must [$_{ConjP}$[{Mary outweigh John}] [or [{John outweighs Mary}]]]
b. Must {Mary outweigh John, John outweighs Mary}
c. {λw.∃w′: w′ ∈ D$_w$.{ Mary outweighs John} follows from f(w′), *f = modal base*
λw.∃w″: w″ ∈ D$_w$. {John outweighs Mary }follows from f(w″)}
d. = {the proposition that is true in all worlds in which some proposition in {Mary must outweigh John, John must outweigh Mary} is true.}

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