# Two notes on the disjunct alternatives of disjunction

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Sauerland (2004) observes that the ignorance inferences associated with a disjunction like (1a) can be accounted for as implicatures if the individual disjuncts, (1b) and (1c), are alternatives. To obtain this result, he proposes that *or* forms a Horn scale (Horn 1972) with two unpronounced connectives, L and R, where $A$ L $D$ is semantically equivalent to $A$, and $A$ R $D$ is semantically equivalent to $D$. As he notes, however, the adoption of such a scale is "more of a technical trick, than a real solution".

(1)  a.  Alice (saw a rabbit) or Dinah saw a rabbit.  (:= $A$ or $D$)

   b.  Alice saw a rabbit.  ($\equiv A$ L $D$)

   c.  Dinah saw a rabbit.  ($\equiv A$ R $D$)

Katzir (2007) attempts to improve on Sauerland's idea by proposing that alternatives are structurally defined, (2), the hope being that disjunct alternatives may be obtained by structural simplification (deletion) of the original disjunction.

(2)  The structural alternatives of $S$ are all those structures that can be obtained by applying to $S$ a finite series of deletions, contractions, and replacements of constituents in $S$ with constituents of the same category from the substitution source of $S$.

We note here that this idea actually fails, if we assume that each structural transformation must yield a well-formed structure. Specifically, a disjunction like (1a) has three possible parses, (3). From [$A$ [or $D$], we can obtain $A$ by deleting the constituent [or $D$], but we cannot obtain $D$, since [$A$ or] is not a constituent, and deleting $A$ (or *or*) first, then *or* ($A$) would yield an ill-formed intermediate structure. For [[$A$ or] $D$], the situation is the reverse, and from [$A$ or $D$] we cannot derive either disjunct via deletion.

(3)  a.  [Alice [or Dinah]] [saw a rabbit]                          (:= *A* [or *D*])

    b.  [[Alice or] Dinah] [saw a rabbit]                          (:= [*A* or] *D*)

    c.  [Alice or Dinah] [saw a rabbit]                          (:= [*A* or *D*])

Instead, we must rely on replacements from the substitution source, which must include both the lexicon and the subtrees of the sentence (as Katzir proposes for independent reasons): [*A* [or *D*]] may then be replaced by *A* or by *D*. But an asymmetry remains, since *A* may also be obtained via deletion. If alternatives come with costs (Bergen, Levy, and Goodman 2016), potentially derived from how they were obtained, this might predict that [*A* [or *D*]] could imply 'not *A*' (*A* being cheaper). Moreover, disjuncts are not deletion alternatives, but replacement (almost *ad hoc*) alternatives, which changes the role they might play in the processing (Chemla and Bott 2014) and acquisition (Barner, Brooks, and Bale 2011) literatures.

We also note a more general problem for the simplistic idea that the alternatives of a disjunction are simply its disjuncts *tout court* (and their conjunction), namely when there is a dependency (e.g. co-indexation/binding relation) between them, (4). The alternative *The rabbit chased her$_i$ cat* is presumably ill formed, or uninterpretable, while *The rabbit chased Alice* is not; thus, (4a) should mean 'the rabbit chased Alice or her cat, and the rabbit did not chase Alice', contra fact.

(4)  a.  The rabbit chased Alice$_i$ or her$_i$ cat.

    b.  Every rabbit$_i$ chased [its$_i$ owner]$_j$ or her$_j$ cat.

One might think that the meaning of *her$_i$ cat* is recoverable, since it refers to a specific individual (Alice's cat). However, (4b) reproduces the problem more seriously, since *her$_j$ cat* varies with *its$_i$ owner*, which in turns varies with *rabbit$_i$* (i.e. *her$_j$ cat* does not pick out any specific individual cat).

# References

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