

Towards an Implicature-Based Account of Disjoint Reference Effects

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Over the last decade, accounts of Scalar Implicatures (SIs) have been enriched in two noticeable ways. It has been proposed that (a) the set of alternatives entering the computation of SIs includes not just stronger alternatives, but more generally non-weaker ones (a.o., Fox, 2007; Chemla and Spector, 2011), and that (b) the generation of mismatching/misleading SIs gives rise to oddity effects (a.o., Magri, 2009, 2011; Schlenker, 2012; Marty, 2017). Current theories of SIs featuring (a) and (b) end up with something along the lines of (1) as a theorem:

- (1) **Odd Sentences:** A sentence S is perceived as odd at a given context C if there is an alternative S' to S such that S' is logically non-weaker than S and S' is contextually equivalent to S at C .

In this work, I explore the implications of (1) for the use and interpretation of co-referential and bound expressions. I show that, once supplemented with appropriate mechanisms for substituting and interpreting variables in alternatives, theories of SIs provide an explanatory account of a wide range of disjoint reference phenomena, subsuming under (1) three familiar ideas in the literature on binding and co-reference: (I) semantic binding is preferred over co-reference (aka Rule I; Grodzinsky and Reinhart, 1993), (II) pronoun binding seeks the closest antecedent (aka Rule H; Fox, 2000), and (III) reference to the same individual via distinct but presupposedly coreferential descriptions is dispreferred (Heim, 1982; Aloni, 2001).

Background A. Binding vs. Co-reference Following Reinhart (1983, 2006), I will assume that the only anaphoric relation represented in the grammar proper is the well-understood relation of variable-binding, encoded as usual by indexing, (2-a). On this view, LFs cannot contain free indices. The reference of referring expressions (e.g, definite descriptions, free pronouns) is restricted by their lexical content and/or ϕ -features specifications, but is ultimately determined by contextual assumptions and pragmatic principles outside the core grammar, e.g. (2-b).

- (2) The boy_{*i*} criticized his_{*i*} mother/the boy_{*i*}'s mother.
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|----|--|--|
| a. | SS: [the boy] ¹ [_{<i>vP</i>} t ₁ criticized his ₁ mother] | Variable-binding |
| b. | SS: [the boy] ¹ [_{<i>vP</i>} t ₁ criticized his mother] | <i>his</i> = _{<i>c</i>} <i>the boy</i> , Co-reference |
| c. | SS: [the boy] ¹ [_{<i>vP</i>} t ₁ criticized the boy's mother] | Co-reference |

B. Indices in Alternatives Building upon Katzir (2007)'s theory of alternatives, I assume that (a) an index i is in the substitution source of a sentence ϕ only if i already occurs in ϕ , and that (b) for structural reasons, a bound pronoun (i.e., an index) can only be replaced with another bound pronoun (i.e., another index). On this proposal, (2-a) is a formal alternative to (2-b) and (2-c) since the index 1 is in their substitution source; however, neither (2-b), nor (2-c) qualifies as an alternative to (2-a) since their derivation would require to substitute a bound pronoun with a structurally richer free expression. Second, I propose that the set of excludable alternatives be defined as in (3-a). This definition generalizes the notion of logically non-weaker alternatives to make it applicable to propositions involving free individual variables at embedded levels. The conceptualization of the exhaustivity operator (EXH) I adopt is similar in essence to Magri's, (3-b), encompassing Fox (2007)'s notion of innocent exclusion, (3-c).

- (3)
- | | |
|----|---|
| a. | EXCL(ϕ) = $\{\psi \in \text{ALT}(\phi) : \exists w \exists c \exists g ([\phi]^{w,c,g} \wedge \neg [\psi]^{w,c,g})\}$ |
| b. | $\llbracket \text{EXH}_{\mathcal{R}} \phi \rrbracket^{w,c,g} = \llbracket \phi \rrbracket^{w,c,g} \wedge \forall \psi \in (\mathcal{R} \cap \text{IE}(\phi)) [\neg [\psi]^{w,c,g}]$ |
| c. | $\text{IE}(\phi) = \bigcap \{\text{EXCL}'(\phi) : \text{EXCL}'(\phi) \subseteq \text{EXCL}(\phi) \text{ and } \text{EXCL}'(\phi) \text{ is a max. subset of } \text{EXCL}(\phi)\}$ |

Result I — Have Binding! On this view, the preference for binding follows from the fact that, whenever a variable-binding construal is available, its co-referential variants are doomed to generate mismatching implicatures: at some embedded level (here, vP), sentences like (2-b) or (2-c) have bound-variable alternatives that are (locally) contextually equivalent to them and yet excludable. These sentences are thus predicted to be deviant, consistent with (1).

- (2-b) SS: [the boy]¹ **exh** _{\mathcal{R}} [_{ϕ} t₁ criticized his mother] *his =_c the boy*
(2-c) SS: [the boy]¹ **exh** _{\mathcal{R}} [_{ϕ} t₁ criticized the boy's mother]
EXCL(ϕ) = { [_{ψ} t₁ criticized **his**₁ mother] }
☞ Mismatching implicature: # *the boy didn't criticize the boy's mother*

Result II — Have Local Binding! This proposal predicts that co-binding construals should systematically give rise to mismatching implicatures. In (4-a), the embedded sentence ϕ has the sentence ψ in (4-b) as a formal alternative (i.e., the index 2 is in ϕ 's substitution source). Locally, this alternative is contextually equivalent to ψ and, since it is logically non-weaker than ψ , it is also excludable. The mandatory computation of the implicature associated with this alternative gives rise to a contradictory representation similar to what we have seen above, namely # *the boy said that he criticized and didn't criticize his mother*.

- (4) The boy _{i} said that he _{i} criticized his _{i} mother.
a. SS: [the boy]¹ [t₁ said that [he₁]² **exh** _{\mathcal{R}} [_{ϕ} t₂ criticized his₁ mother]] #Co-binding
b. SS: [the boy]¹ [t₁ said that [he₁]² **exh** _{\mathcal{R}} [_{ψ} t₂ criticized **his**₂ mother]] ✓ Transitive

This line of explanation extends to the Strong Crossover (SCO) effects. The SCO construal, just like the co-binding construal, is one in which a mismatching implicature is predicted to systematically arise (since contextual equivalence always obtains locally), (5). Interestingly, the present account does not extend to WCO construals, which may be treated on a par with sentences like *His _{i} mother criticized John _{i}* (Possible SI: *But she didn't criticize herself*), (6).

- (5) *He _{i} criticized every boy _{i} 's mother. #SCO
SS: [every boy]² [he₂]¹ **exh** _{\mathcal{R}} [_{ϕ} t₁ criticized t₂'s mother]
(6) His _{i} (own) mother criticized every boy _{i} . ✓ WCO
SS: [every boy]² [his₂ mother]¹ **exh** _{\mathcal{R}} [_{ϕ} t₁ criticized t₂'s mother]

Result III — Don't Multiply Guises! This proposal accounts for the disjoint reference effects previously subsumed under the descriptive 'i-within-i' condition. The sentence in (7-a) is contextually equivalent to its logically non-weaker ψ -alternative. Upon exhaustification of its meaning, (7-a) delivers a representation that directly conflicts with the common ground. The example in (7-b) shows that the logic of this proposal correctly applies beyond the restricted area of the 'i-within-i' environment. More generally, this account derives Heim's generalization that reference to the same object via two distinct guises is possible only as long as the speaker(s) treat(s) it as an open question whether the same object is behind these two guises.

- (7) *Context: John is the boss of his friend, Peter.*
a. * [_{ϕ} [the boss of his _{i} /John _{i} 's friend] _{i} arrived] EXCL(ϕ) = { [_{ψ} He/John arrived] }
☞ Mismatching implicature: # *John didn't arrive*
b. * [_{ϕ} [John _{i} 's wife] saw [Peter's boss] _{i}] EXCL(ϕ) = { [_{ψ} John's wife saw John] }
☞ Mismatching implicature: # *John's wife didn't see John*

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