Gestural Cosuppositions within the Transparency Theory*

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Abstract: It has been argued that the sentence *None of these 10 guys LIFT_helped his son* (where *LIFT* is a lifting gesture co-occurring with the verb) triggers a presupposition that *for each of these 10 guys, if he had helped his son, lifting would have been involved* (Schlenker 2015, to appear a,b). We argue that the conditional nature of this presupposition might be derived within an extension of the Transparency Theory (Schlenker 2008), one in which the target sentence competes with an 'articulated' competitor of the form: *None of these 10 guys helped his son like LIFT_this*.

Schlenker 2015, to appear a,b argues that in (1)a and (2)a, the lifting co-speech gesture (which we will write as *LIFT*) co-occurring with the verb triggers a presupposition of the form *if x helped, x lifted.* This presupposition, which is conditionalized on the at-issue contribution of the modified expression, is called a 'cosupposition'. No cosuppositional inference is triggered by the at-issue modifier controls in (1)b and (2)b, an inferential contrast which is established with experimental means in Tieu et al. 2017 (with universal projection under *none*, as in the results of Chemla 2009[1]).

Notation: the gesture co-occurs with the expression that immediately follows the picture (or the capitalized transcription *LIFT*), and is connected to it by _. (Pictures are taken from Schlenker, to appear a.)

(1) a. Will John _help his son?
   => **if John were to helps his son**, lifting would be involved.

   b. Will John help his son like _this / by lifiting him?
   ≠> **if John were to help his son**, lifting would be involved

(2) a. None of these 10 guys will _help his son.
   => for each of these 10 guys, **if he were to help his son**, lifting would have been involved

   b. None of these 10 guys will help his son like _this / by lifting him.
   ≠> for each of these 10 guys, **if he were to help his son**, lifting would have been involved

But why is the presupposition conditionalized on the content of the VP? Schlenker to appear a, b considers two options. One is that the co-speech gesture contributes a presupposed conjunct processed after the expression it co-occurs with (let us call this Theory I). Simplifying somewhat, *help his son* with the co-speech gesture would thus contribute a representation of the form *Help & Lift*, where *Help* has the meaning *help his son*, and the underlined *Lift* contributes a presupposition akin to *lift his son.* The fact that *Lift* comes after *Help* ensures, in standard theories of presupposition projection (e.g. Heim 1983), that the final presupposition is conditionalized on *Help*, as the presupposition of the conjunction can be satified by content that appears in the first conjunct. But it is a complete mystery why a gesture

[1] By contrast, the non-inferential, truth-value-judgment based method used in Tieu et al. to appear only finds existential projection in examples such as (2)a.

that *co*-occurs with the verb is processed as it if were postposed. An alternative possibility (Theory II) is that the mode of composition co-speech gestures guarantees that, relative to its local context, the value of the VP should entail the content of the gesture – but it is unclear where *this* requirement comes from. We propose instead that the conditionalized nature of cosuppositions might be made to follow from an extension of the Transparency theory (Schlenker 2008).

Schlenker 2008 argues that the presupposition *d* of a (predicative/propositional) trigger *dd'* is a normal entailment that 'wants' to be articulated as a separate conjunct, as stated in (3), where we continue to underline presuppositions.

(3) **Be Articulate**
In any syntactic environment, express …*dd'*… as: …*(d and dd')*… (unless independent pragmatic principles rule out the full conjunction).

If possible, then, one should say … *it's raining and John knows it*… rather than …*John knows that it's raining*…. *Be Articulate* is controlled by a Gricean principle of manner, *Be Brief*, which prohibits unnecessary prolixity, *and takes precedence over Be Articulate* – thus ruling out *If it is raining, it is raining and John knows it:*

(4) **Be Brief - Incremental Version**
Given a context set C, a predicative/propositional occurrence of *d* is infelicitous in a sentence that begins with *a (d and* if for any expression *g* of the same type as *d* and for any sentence completion *b'*, **C |= a (d and g) b' ⇔ a d b'**.

In the end, *dd'* is acceptable in a sentence *a dd' b* just in case the attempt to be 'articulate' satisfies the boldfaced equivalence in (4), thus violating *Be Brief.* Schlenker 2007 proves that this 'Transparency theory' derives the results of Heim 1983 for a fragment with generalized quantifiers, *modulo* technical assumptions.

(3)-(4) are tailored to the case of 'articulated' competitors of the form *...(d and dd')….* But we propose that a further option (not explored in Schlenker 2008) explains the conditionalized status of cosuppositions. As already suggested by (1)b and (2)b, the content of a co-speech gesture *G* modifying *d'* in … *G_d'*... is naturally 'articulated' as *...d' g...,* where *g* is a post-verbal modifier with the same content as *G*. For instance, *John LIFT will help his son* can naturally be articulated as: *John will help his son like LIFT_ this*. If *d' g* is conjunctively interpreted, dynamic semantics predicts that *g,* the post-posed modifier, is trivial in its local context (and violates *Be Brief*) just in case the local context c' of *d'* guarantees that c'[d'] (= the update of c' with *d'*) entails *g*, i.e. c' |= d'⇒g. This derives the conditionalized presupposition we observe. (While *like this* is a particularly simple means of 'articulation', all that matters to derive the desired result is that the at-issue gestural content should come right after the VP *d'*.)

Within the Transparency theory, the post-posed nature of the modifier explains why the gestural presupposition is conditional, *modulo* the extension of (3)-(4) sketched in (5)a-b. (5)b rules out the articulated competitor *... helped his son like LIFT_this…* just in case no matter which further modifier is added, no matter how the sentence ends, the *like*-phrase can be eliminated without affecting the truth conditions. This means that the post-verbal modifier must be trivial *after* the verbal meaning has been computed.

(5) Consider a sentence *a G_d' b*, where *G* is a gesture co-occurring with a (modifier-compatible) expression *d'*.
a. **Modified *Be Articulate***: Say *a (d' g) b* rather than *a G_d' b*, unless this is in violation of (b).
b. **Modified *Be Brief* – Incremental Version:** Given a context set C, do not say *a (d' g) b* if *g* is incrementally trivial, in the sense that for any modifier *g'*, for any sentence completion *b'*, C |= a ((d' g) c') b' ⇔ a (d' c') b'.

Assuming that the modifiers are intersective, (5)b is equivalent to the acceptability conditions predicted by (3)-(4) for *a (d' and gd*) b*, where *d** may be any at-issue component, as illustrated in (6). In particular, these are the very conditions that are predicted for   *(d' and g),* where *g* is a purely presuppositional conjunct appearing after *d'*. This is precisely what Theory I above needed to stipulate,

but now the result is derived from the fact that the articulated competitor has a modifier that comes after the modified expression.

(6) Predictions of (3)-(4) for the acceptability of *a (d' and gd*) b*

For any g of the same type as d', for any sentence completion b', C ⊨ a (d' and (g and c')) b' ⇔ a (d' and c') b'.

(As shown in Schlenker to appear a (Appendix I), (6) predicts the same result as a conditional presupposition $d' \Rightarrow g$ in the propositional case and under *[No NP]* – but slightly weaker inferences in other cases.)

While we have followed Schlenker 2007,2008 in framing the discussion in terms of linear order, this is now known to be incorrect in the general case, although the 'right' notion of order is still debated. For our purposes, the predicted generalization should be that *gestural cosuppositions are triggered whenever the full modifier that 'articulates' the gestural content is processed after the modified words*. Whether a modifier is processed 'after' an expression (with a notion of order that *need not* be linear) can be assessed on the basis of intuitive redundancy effects that yield violations of *Be Brief*. Thus Ingason 2016 argues that in some cases a notion of hierarchical order is called for. The contrast in (7) could be explained by either a linear or hierarchical order, since the noun is both hierarchically higher and to the left of the modifier. Things are different in the Japanese examples in (8), which suggest that the hierarchical rather than the linear order is the right one for the computation of redundancy effects.

(7) a. John met [a woman [who is a widow]].
   b. # John met [a widow [who is a woman]]. (Ingason 2016)

(8) a. Taro-ga   [[yamome-dearu]   zyosei-ni]   atta.
        Taro-Nom   [[widow-cop]   woman-dat]   met
    'Taro met a woman who is a widow.'
   b. # Taro-ga   [[zyosei-dearu]   yamome-ni]   atta.
        Taro-Nom   [[woman-cop]   widow-dat]   met
    'Taro met a widow who is a woman.' (Ingason 2016)

Since presuppositional inferences predicted by the Transparency theory derive from redundancy effects (through *Be Brief*), application of the theory to further constructions and languages should be conducted in tandem with an assessment of redundancy effects.

One final question could be raised: could there be spoken expressions that trigger cosuppositions because their 'articulated' competitor involves a modifier? For instance, one may ask (following suggestions by Kennedy and Szabolcsi (p.c.)) whether this analysis extends to verbs that encode manner modifications, as in (9)a, which might compete with (9)b (the focus on *None* is intended to avoid focus on the modifier, which might suffice to trigger 'givenness' inferences that look like presuppositions, as discussed in Abrusan 2013).

(9) a. None$_F$ of these 10 guys drove / swam to the bridge.
   b. None$_F$ of these 10 guys got to the bridge by driving / got to the bridge by swimming.

Extending *Be Articulate* to (9)a would predict an inference that *for each of these 10 guys, if he had gone to the bridge, he would have done so by driving / swimming*. As things stand, the data do not seem clear to us, and they would require further investigation.

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