

Free Choice and Scope*

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Abstract Following [Klinedinst & Rothschild \(2012\)](#), we argue that conjunctive readings of sentences where disjunction takes scope above an existential modal have a different explanation from that needed in the case where the modal has wide scope. When disjunction takes wide scope, we argue, following [Meyer \(2016b\)](#), that the conjunctive reading results from a structure involving an occurrence of the lexical item *else* in the second disjunct (overt, or covert).

Keywords: Free Choice, Disjunction, *Or else*, Scope

1 Introduction

Sentences involving an existential modal and disjunction as in (1) give rise to the Free Choice (FC) inferences in (1a)-(1b) ([von Wright 1968](#); [Kamp 1974](#), and much subsequent work).

- (1) We may eat cake or ice cream.
- a. \leadsto We may eat cake.
 - b. \leadsto We may eat ice cream.

In some theories of FC, the inferences depend on a logical form in which the existential modal takes scope over disjunction (see [Aloni 2007](#); [Fox 2007](#); [Klinedinst 2007](#); [Chemla 2009](#); [Franke 2011](#); [Willer 2017](#), a.o.). In other theories, the inferences require the presence of an existential modal but wide scope relative to disjunction is not necessary (and in some cases not allowed; see [Zimmermann 2000](#); [Geurts 2005](#); [Aloni 2016](#); [Starr 2016](#), a.o.). The goal of this squib is to present evidence in favor of the first class of theories. Specifically, following [Klinedinst & Rothschild \(2012\)](#) we'll argue that there are two routes to conjunctive meanings of disjunctions: one where disjunction takes narrow scope relative to an existential modal, and another where disjunction takes wide scope but is limited to cases where a conjunctive meaning is not dependent on the presence of an existential modal. Our arguments will, thus, support the first class of theories.

* Acknowledgements to be added.

2 Conflicting arguments

The facts about the availability of FC readings for wide scope disjunction turn out to be mixed. Fox (2007) points out the contrast in (2) (Fox’s ex. (91)) as evidence that only narrow scope disjunction allows FC inferences:

- (2) a. We may either eat the cake or the ice cream.
 (i) $\sim\rightarrow$ We may eat the cake and we may eat the ice cream.
 b. Either we may eat the cake or the ice-cream.
 (i) \nearrow We may eat the cake and we may eat the ice cream.

As argued by Larson (1985), dislocated *either* fixes the scope of disjunction. There is thus reason to believe that (2a) has a narrow scope disjunction LF and (2b) has a wide scope disjunction LF. Since only the former allows FC inferences, we may take this as evidence that wide scope disjunction indeed doesn’t give rise to FC readings.¹

On the other hand, some examples where the surface form is $\diamond a \vee \diamond b$ have been shown to have a Free Choice reading:

- (3) a. Detectives may go by bus or they may go by boat. (Zimmermann 2000: ex. (5))
 b. Jane may sing or she may dance. (Simons 2005: ex. (1))
 c. You may go to the beach or you may go to the cinema. (Aloni 2016)

Simons (2005); Meyer & Sauerland (2016) claimed that despite appearances the examples in (3) involve narrow scope construals, by suggesting that disjunction covertly takes narrow scope and across the board movement is involved. Recently, however, Cremers, Hoeks, Lisowski & Pesetsky (2017) have argued that covert across the board movement cannot be the whole story. In examples such as (4) the position of *either* blocks narrow scope disjunction (by Larson’s generalization). Cremers et al., however, provide experimental evidence corroborating the results of introspection, namely that (4) has an FC reading.

- (4) Either Mary can have a pizza or she can have a hamburger.
 (Cremers et al. 2017)

3 Strategy for resolving the conflict—two different methods that derive conjunctive readings

We have then conflicting arguments as to whether FC should be derived when disjunction takes scope over an existential modal. We would like to resolve this

¹ We cite here the judgment reported in Fox, which is shared by several speakers we asked. However, we found two speakers who accepted a conjunctive reading for (2b). See fn. 6.

conflict on the basis of a proposal made in [Klinedinst & Rothschild \(2012\)](#) which is predicated on the assumption that the first class of theories discussed in §1 are correct about FC, i.e., that there is a method that yields FC readings only when disjunction takes narrow scope relative to an existential modal—Method 1. What [Klinedinst & Rothschild](#) add to the first class of theories is an additional method that yields a conjunctive meaning—Method 2—one that does not require wide scope for an existential modal or even the presence of such a modal in the first place. Method 2 is, on their proposal, responsible for the conjunctive meaning of (4).

Our arguments for this proposal (and hence for the first class of theories of FC) will be based on ways of distinguishing between Method 1 and Method 2. Specifically, we will attempt to identify environments where Method 2 cannot apply. This identification will yield a set of new predictions. On the one hand, when Method 2 is blocked, a conjunctive reading is predicted to be impossible for wide scope disjunction. On the other hand, blocking Method 2 is predicted to have no consequences for the distribution of conjunctive readings when disjunction takes narrow scope relative to the existential modal. Corroborating these two predictions will argue for the reality of the two methods and for their distinctness (hence for the first class of theories of FC).

What are the two methods? As far as Method 1 is concerned, we can remain completely neutral. The only thing that will matter is that it yields a conjunctive meaning only when disjunction takes narrow scope relative to an existential modal, i.e., it can be anyone of the methods proposed in the first class of theories. We will have to say a bit more about Method 2 because some of our arguments depend on a specific assumption about its nature.

To understand what Method 2 is supposed to deliver, consider the sentence in (5a) ([Klinedinst & Rothschild's](#) ex. (2)), which does not contain an existential modal, and nevertheless has a conjunctive paraphrase, (5b).

- (5) a. John has no friends, or he would throw a party.
 b. John has no friends, and, if he did have friends, he would throw a party.

(5a) shows us that disjunctive sentences can, under certain circumstances, be paraphrased as the conjunction of the first disjunct and a conditional sentence. As mentioned, [Klinedinst & Rothschild](#) assume this is done by a distinct method from that which delivers ordinary FC readings, which we have called Method 2. They suggest, further, that Method 2 delivers apparent FC readings in the case of (4). Specifically, (4) is interpreted as the conjunction of the first disjunct and a conditional as in (6).

- (6) Mary can have a pizza, and, if she doesn't have a pizza, she can have a hamburger.

One argument we would like to put forward in favor of this perspective comes from Hebrew. The simple disjunction *o* in Hebrew can give rise to conjunctive meanings similar to English disjunction, as is evident by the acceptability of (7a). The complex disjunction *o...o* however cannot, as is evident by the unacceptability of (7b):

- (7) a. yosi ašir o še lo hayta lo mexonit kazot.
 Yosi rich or that NEG was to-him car like-that.
 ‘Yossi is rich or he wouldn’t own such a car.’
 Conjunctive paraphrase: ‘Yossi is rich, and, if he wasn’t rich, he wouldn’t own such a car.’
- b. #o še yosi ašir o še lo hayta lo mexonit kazot.
 or that Yosi rich or that NEG was to-him car like-that.

We can characterize the difference in terms of the applicability of Method 2 for deriving a conjunctive meaning for disjunction: while Hebrew simple disjunction is compatible with it, Hebrew complex disjunction is not.² As expected on [Klinedinst & Rothschild](#)’s view, this difference correlates with the availability of FC-like readings with wide scope disjunction: the simple disjunction example in (8a) allows a conjunctive FC-like reading, but the complex variant in (8b) only allows an ignorance reading and cannot be understood as having an FC meaning.

- (8) a. mutar le-yosi leexol uga o še mutar lo leexol glida.
 allowed to-Yossi eat cake or that allowed to-him eat ice-cream.
 Can mean: ‘Yossi is allowed to eat cake and he is allowed to eat ice cream’.
- b. o še mutar le-yosi leexol uga o še mutar lo leexol
 or that allowed to-Yossi eat cake or that allowed to-him eat
 glida.
 ice-cream.
 Cannot mean: ‘Yossi is allowed to eat cake and he is allowed to eat ice cream.’

The observed correlation between the availability of conjunctive meanings with wide scope disjunction and the availability of conjunctive meanings when an existential modal is absent presents initial evidence that Method 2 is involved. The rest of our arguments for [Klinedinst & Rothschild](#)’s perspective will be based on a way of distinguishing Method 1 and Method 2 that comes from a particular perspective on

² We set aside the question of what’s behind this difference. On [Meyer](#)’s view, which we will shortly discuss, this difference could be interpreted in terms of compatibility with a covert *else* in the second disjunct, or with the anaphora resolution required for the conjunctive meaning (where the antecedent of the conditional does not contain the existential modal, as in (6)). See fn. 5.

Method 2, namely that of Meyer (2016b).

4 Meyer's perspective on Method 2

We will not go over Meyer's theory of Method 2, but only over a necessary condition on its application, namely the requirement that there be an overt or covert lexical item *else* at the beginning of the second disjunct. Specifically, Meyer—in contrast to Klinedinst & Rothschild—develops a theoretical proposal under which Method 2 requires a conditional parse for the second disjunct, one with an anaphoric antecedent that denies the first disjunct (or one of its subcomponents). This anaphoric antecedent is sometimes present overtly, with the overt lexical item *else*, but can also be covert (at least in English).³

In other words, Method 2 for Meyer requires the lexical item *else* (or its covert counterpart) to be present in the second disjunct. She presents a few arguments for this claim, among them is the observation that in some languages (Italian) the conjunctive interpretation (in domains that do not involve existential modals) is only possible when (the relevant counterpart of) *else* is overt.

5 Further arguments that Method 2 is needed for wide scope disjunction

We would now like to present further arguments that Method 2 is needed when disjunction takes wide scope over the modal on top of the argument from Hebrew presented in §3. These arguments are all based on a generalization we will try to establish, namely that wide scope disjunction allows for a conjunctive reading only if an overt occurrence of *else* is acceptable in the relevant construction. This generalization is predicted by Meyer's perspective on Method 2 (in conjunction with Klinedinst & Rothschild's conjecture about FC), if the distribution of overt and covert *else* are identical. In other words, if the distribution of overt and covert

³ With such a conditional parse, Meyer proposes that disjunction is strengthened to conjunction, given the ungrammaticality of a conjunctive alternative and the logic of Fox (2007) (cf. Bowler 2014; Singh, Wexler, Astle-Rahim, Kamawar & Fox 2016). In other words, for Meyer, Method 1 and Method 2 are almost identical. This, however, does not affect the argument that there are two different routes to FC. If Meyer is right, one route to FC requires the presence of an existential modal and narrow scope disjunction, for the reasons outlined in Fox (2007): narrow scope disjunction yields a set of alternatives that is not closed under conjunction and a conjunctive reading is derived by exhaustification (as in Fox 2007; Bar-Lev & Fox 2017). Another route for a conjunctive meaning does not require the presence of an existential modal, but requires the presence of *else* in the second disjunct. *Else* in the second disjunct yields a set of alternatives that is not closed under conjunction but for different reasons (conjunction is not grammatical in the presence of *else*). Here too exhaustification yields a conjunctive meaning. So our proposal that combines Klinedinst & Rothschild's distinction between the two methods and Meyer's theory of Method 2 predicts indeed that conjunctive readings with wide scope disjunction (Method 2) are dependent on the presence of *else* in the second disjunct.

else are identical, whenever overt *else* is not licensed, we can say that Method 2 is blocked. Blocking Method 2, in turn, is predicted to block a conjunctive meaning for wide scope disjunction, if this Method is required for such a meaning (Klinedinst & Rothschild's conjecture). The corroboration of the generalization will, thus, provide joint support for Method 2 and for Meyer's perspective on this method.⁴

First, note that all the cases in (3) where wide scope disjunction allows for a conjunctive reading seem equivalent on that reading to their counterparts with an overt *else* in (9):

- (9) a. Detectives may go by bus or else they may go by boat.
 b. Jane may sing or else she may dance.
 c. You may go to the beach or else you may go to the cinema.

This perspective on the apparent availability of FC readings for wide scope disjunction constructions obviates the need for an analysis along the lines of Simons (2005); Meyer & Sauerland (2016) in which there are mismatches between the surface scope of the logical operators and their scope at LF in the examples in (3). Furthermore, cases which cannot be explained by such mismatches, like (4), can be seamlessly explained if a covert *else* is responsible for a conjunctive meaning, given that the same sentence with overt *else* has a conjunctive meaning:

- (10) Either Mary can have a pizza or else she can have a hamburger. (cf. (4))

A second argument comes from the fact that conjunctive readings are impossible when the existential quantifier in the structure is not a modal but a quantifier over (pluralities) of individuals (Klinedinst 2007; Fox 2007). While (11a) with a narrow scope disjunction structure can be read conjunctively, (11b) cannot ((11) is Fox's ex. (93)).

- (11) a. Some students (either) waited 3 semesters to complete this course or never finished it at all. (+conjunctive meaning)
 b. (Either) Some students waited 3 semesters to complete this course or some students never finished it at all. (-conjunctive meaning)

This is expected if conjunctive readings for wide scope disjunction result from covert *else*: (11b) becomes unacceptable once an overt *else* is added:⁵

⁴ While presence of *else* is a necessary condition for the application of method 2, it is not a sufficient condition. The conjunctive meaning depends also on a particular way of resolving anaphora. See footnotes 2 and 5.

⁵ The unacceptability of (12) itself can be explained: assuming that *else* is pronominal whose meaning is *if not p* where *p* refers to a salient antecedent proposition, it is not clear what could serve as an antecedent to *else* in this case and give rise to the desired meaning (it would have to be something

- (12) #*(Either)* Some students waited 3 semesters to complete this course or else some students never finished it at all.

Finally, Meyer (2016a) claimed that conjunctive readings are dispreferred to non-existent in (13). Our generalization is supported by these facts: the unavailability of FC readings in (13) correlates with the unacceptability of their overt *else* variants, seen in (14):

- (13) a. It is ok for John to have ice-cream or it is ok for him to have cake. -FC
b. It is allowed that John has ice-cream or it is allowed that he has cake. -FC
c. John is allowed to have ice-cream or he is allowed to have cake. ?FC
- (14) a. #It is ok for John to have ice-cream or else it is ok for him to have cake.
b. #It is allowed that John has ice-cream or else it is allowed that he has cake.
c. ?John is allowed to have ice-cream or else he is allowed to have cake.

As Meyer (2016a) observes, the availability of conjunctive readings of wide scope disjunction is affected by syntactic factors. Given the view we have argued for here, these syntactic factors might include constraints on what (overt or covert) *else* can pick out as its antecedent (see footnote 5). Providing such constraints is however currently beyond our reach.⁶

containing a free variable, such as *x waited three semesters to complete this course*). This contrasts with (4), where *p* could be *Mary has a pizza*.

⁶ While we don't have an account of the limited availability of a conjunctive reading for (2b), we hope that constraints on available anaphoric relations may eventually shed some light on it. But since we've been gathering inconsistent judgments from our many informants (see fn. 1) we have to leave the status of this sentence for another occasion. Note that a variant of (2b) with overt *else*, as in (i), does not have a conjunctive meaning (for some speakers this sentence is in fact unacceptable). We speculate that the reason for this might be an impossibility of picking out *we eat the cake* as an antecedent for *else*. This would leave only *we may eat the cake* as a possible antecedent (for those speakers for whom this sentence is acceptable). Following Meyer (2016b: § 4.1), in such cases a conjunctive meaning is incoherent unless a covert universal modal is inserted and yields a meaning paraphrasable as *in all closest accessible worlds we may eat the cake, and in all accessible worlds where we may not eat the cake, we may eat the ice cream*. This is of course not the conjunctive meaning we are interested in in this paper.

(i) Either we may eat the cake or else the ice-cream. (cf. (2b))

6 Arguments that Method 2 is not needed for narrow scope disjunction

Given the arguments for the reality of Method 2 in the previous section, one may wonder whether Method 1, the one argued to be responsible for FC with narrow scope disjunction, is at all needed: can covert *else* explain FC with narrow scope disjunction as well? There is a straightforward argument that it cannot: with narrow scope disjunction, in contrast to wide scope disjunction, we get FC even in cases where a covert *else* is blocked, as indicated by the distribution of the overt counterpart:

- (15) a. You are allowed to either have the ice cream or (*else) the cake.
b. You may either solve problem A or (*else) problem B.

Similarly, recall from (7b) and (8b) that the Hebrew complex disjunction *o...o* cannot be interpreted by Method 2. The fact that a conjunctive reading is available in (16) and (17) teaches us that the FC interpretation in the case of narrow scope disjunction does not depend on Method 2.⁷

- (16) ze beseder leexol o uga o glida
it OK eat or cake or ice-cream
Can mean: 'It's OK to eat cake and it's OK to eat ice cream.'
- (17) ze beseder levakeš o še yitnu lanu leexol uga o še
it OK ask or that will-let.3PL to-us eat cake or that
yitnu lanu leexol glida
will-let.3PL us eat ice-cream
Can mean: 'It's OK to ask that they'll let us eat cake and it's OK to ask that they'll let us eat ice cream.'

7 Summary

We claimed that a characterization of FC-like readings with wide scope disjunction as resulting from covert *else* in the structure provides a better description of the facts than considering them genuine FC readings.

References

- Aloni, Maria. 2007. Free choice, modals, and imperatives. *Natural Language Semantics* 15(1). 65–94. doi:10.1007/s11050-007-9010-2.

⁷ The examples in (16) and (17) differ in that in the former there's no complementizer (*še*) after either of the disjunctive markers (*o*). This is since *o še...o še* constructions must involve the disjunction of tensed clauses. (17), although somewhat cumbersome, is important, to come closer to the examples in (7) and (8) both of which involve *o še* disjunctions.

- Aloni, Maria. 2016. FC disjunction in state-based semantics. Talk given at Logical Aspects of Computational Linguistics 2016, Nancy, France.
- Bar-Lev, Moshe E. & Danny Fox. 2017. Universal free choice and innocent inclusion. In Dan Burgdorf, Jacob Collard, Sireemas Maspong & Brynhildur Stefánsdóttir (eds.), *Semantics and linguistic theory (SALT)*, vol. 27, 95–115.
- Bowler, Margit. 2014. Conjunction and disjunction in a language without 'and'. *Semantics and Linguistic Theory* 24. 137–155. doi:10.3765/salt.v24i0.2422.
- Chemla, Emmanuel. 2009. Similarity: Towards a unified account of scalar implicatures, free choice permission and presupposition projection. Unpublished manuscript.
- Cremers, Alexandre, Morwenna Hoeks, Grzegorz Lisowski & Jonathan Pesetsky. 2017. Experimental evidence for a semantic account of free choice. Colloque de Syntaxe et Semantique à Paris.
- Fox, Danny. 2007. Free choice and the theory of scalar implicatures. In Uli Sauerland & Penka Stateva (eds.), *Presupposition and implicature in compositional semantics*, 71–120. London: Palgrave Macmillan UK. doi:10.1057/9780230210752_4.
- Franke, Michael. 2011. Quantity implicatures, exhaustive interpretation, and rational conversation. *Semantics and Pragmatics* 4(1). 1–82. doi:10.3765/sp.4.1.
- Geurts, Bart. 2005. Entertaining alternatives: Disjunctions as modals. *Natural language semantics* 13(4). 383–410.
- Kamp, Hans. 1974. Free choice permission. *Proceedings of the Aristotelian Society* 74(1). 57–74. doi:10.1093/aristotelian/74.1.57.
- Klinedinst, Nathan & Daniel Rothschild. 2012. Connectives without truth tables. *Natural Language Semantics* 20(2). 137–175. doi:10.1007/s11050-011-9079-5. <https://doi.org/10.1007/s11050-011-9079-5>.
- Klinedinst, Nathan Winter. 2007. *Plurality and possibility*: University of California, Los Angeles dissertation.
- Larson, Richard K. 1985. On the syntax of disjunction scope. *Natural Language & Linguistic Theory* 3(2). 217–264.
- Meyer, Marie-Christine. 2016a. An apple or a pear. free choice disjunction. Manuscript, Hebrew University / ZAS.
- Meyer, Marie-Christine. 2016b. Generalized free choice and missing alternatives. *Journal of Semantics* 33(4). 703–754. doi:10.1093/jos/ffv010.
- Meyer, Marie-Christine & Uli Sauerland. 2016. Covert across-the-board movement revisited. Talk given at North East Linguistic Society (NELS) 47, University of Massachusetts Amherst.
- Simons, Mandy. 2005. Dividing things up: The semantics of or and the modal/or interaction. *Natural Language Semantics* 13(3). 271–316. doi:10.1007/s11050-004-2900-7.
- Singh, Raj, Ken Wexler, Andrea Astle-Rahim, Deepthi Kamawar & Danny Fox.

2016. Children interpret disjunction as conjunction: Consequences for theories of implicature and child development. *Natural Language Semantics* 24(4). 305–352. doi:10.1007/s11050-016-9126-3.
- Starr, William. 2016. Expressing permission. In *Semantics and linguistic theory*, vol. 26, 325–349. doi:10.3765/salt.v26i0.3832.
- Willer, Malte. 2017. Simplifying with free choice. *Topoi* doi:10.1007/s11245-016-9437-5. <https://doi.org/10.1007/s11245-016-9437-5>.
- von Wright, Georg Henrik. 1968. *An essay in deontic logic and the general theory of action*. Amsterdam: North-Holland.
- Zimmermann, Thomas Ede. 2000. Free choice disjunction and epistemic possibility. *Natural Language Semantics* 8(4). 255–290. doi:10.1023/A:1011255819284.

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