Exclusive Free Choice in Turkish

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Abstract. In this paper, we will be concerned with a type of interpretation associated with *ya…ya…* disjunction in Turkish where the Free-Choice inference is obligatorily accompanied with the Prohibition inference. We claim that such a reading arises as a consequence of the fact that each disjunct inside *ya…ya…* disjunction is parsed with *only* (overt or covert). We show that the scalar nature of *only*, which we model as a restriction on alternatives, is crucial in accounting for the exclusive Free-Choice readings. We finally discuss some differences between *only* and the *Exh* operator.

Keywords. free choice; exclusive free choice; disjunction; semantics; Turkish

1. Introduction. This paper is concerned with various interpretations of disjoined modal sentences in Turkish.

(1) Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin.
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG
'Either you can have knafeh or you can have baklava.'

The first observation to be made about (1) is that that it can be used to convey ignorance about what is permitted. Under one reading, the sentence in (1) implies that the hearer is allowed to have one of the desserts but that the speaker is in no position to tell which one. To highlight this **Ignorance Inference** associated with this sentence, we can append a continuation like *Hangisi hatırlamıyorum.* 'I forget which.' to it as in (2).

(2) Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin. Hangisi hatırlamıyorum.
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG 'I forget which.'
'Either you can have knafeh or you can have baklava. I forget which.'

Crucially, (2) also informs the hearer that they cannot have both knafeh and baklava. That is, even though the speaker is ignorant as to which desert the hearer is allowed to have, the speaker is confident that the hearer cannot have both of the desserts together. The obligatoriness of this **Prohibition Inference** is evidenced by the fact that appending the sentence *Hatta ikisini de yiyebilirsin.* 'In fact, you can even have both.' to (2) leads to an infelicitous continuation.

(3) #Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin. Hatta ikisini de yiyebilirsin.
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG 'In fact, you can even have both'
'Either you can have knafeh or you can have baklava. In fact, you can even have both.'

This *Ignorance + Prohibition* reading is one of the readings that we will be concerned with in this paper. Interestingly, a sentence like (1), when uttered by someone who is an authority over permissions, can also be used to convey Free Choice. Under this interpretation, the hearer is understood to be allowed to have knafeh and the hearer is understood to be allowed to have baklava. That is, the hearer is free to choose between knafeh and baklava. This interpretation can be made salient with the help of the continuation *İstediğini seç.* 'Pick whichever one you like.' after (1).

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(4) Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin. 'İstediğini seç.'
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG 'Pick whichever one you like'
'Either you can have knafeh or you can have baklava. Pick whichever one you like.'

Note that the Prohibition Reading we have seen in (2) is still obligatory in the context of the Free-Choice interpretation. That is, the sentence in (2) is understood to convey both that the hearer is free to choose between the two options and that the hearer is not allowed to have both knafeh and baklava. The evidence for the obligatoriness of the Prohibition reading in the context of the Free-Choice interpretation comes from the observation that the continuation *Hatta ikisini de yiyebilirsin istersen.* 'In fact, you can even have both if you want.' is infelicitous after the sentence in (4).

(5) Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin. İstediğini seç.
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG 'Pick whichever one you like.'
'Either you can have knafeh or you can have baklava. Pick whichever one you like.
#Hatta ikisini de yiyebilirsin istersen
'In fact, you can even have both if you want.'

This *Free-Choice + Prohibition* reading of (1) is the second interpretation that we will be interested in in this paper. In what follows, we shall develop an analysis that accounts for both the Ignorance reading and the Free-Choice reading associated with (1). Our main claim will be that the presence of a scalar (and sometimes silent) exclusive particle *only* inside each disjunct in (1) plays a crucial role in explaining both of the readings that we have described above.

2. The Free-Choice Puzzle. The Free-Choice puzzle is the observation that some existential modal sentences seem to have an interpretation that is stronger than what their logical form (more precisely, our hypothesis about their logical form) entails (Kamp 1973, Zimmermann 2000, a.o.). In the typical case, a sentence in which the existential modal operator scopes over disjunction has a denotation that is stronger than its logical form. Consider (6):

(6) Künefe veya baklava yi-yebil.ir-sin.
knafeh or baklava eat-POSS-2SG
'You can have knafeh or baklava.'

The interpretation associated with (6), which is given in (7b), does not follow from what appears to be its logical form, which is given in (7a).

(7) a. $\Diamond(k \vee b)$
b. $\Diamond k \wedge \Diamond b$ (Free-Choice)
c. $\Diamond(k \vee b) \nRightarrow \Diamond k \wedge \Diamond b$

The Free-Choice puzzle arises not only when disjunction is in the scope of a modal operator but also when existential modal sentences are disjoined as in (8).

(8) Künefe yi-yebil.ir-sin veya baklava yi-yebil.ir-sin.
knafeh eat- POSS-2SG or baklava eat-POSS-2SG
'You can have knafeh or baklava.'

Similar to what we have seen in (7), the interpretation associated with (8), which is given in (9b), does not follow from its logical form in (9a).

(9) a. $\Diamond k \vee \Diamond b$
b. $\Diamond k \wedge \Diamond b$ (Free-Choice)
c. $\Diamond k \vee \Diamond b \not\Rightarrow \Diamond k \wedge \Diamond b$

There have been attempts to reduce the puzzle of Free Choice with wide scope disjunction to the puzzle of Free Choice with narrow scope disjunction (Simons 2005, Meyer & Sauerland 2017). The main strategy has been to claim that there is Across-the-Board (ATB) movement of the modal operator in (8), as a result of which disjunction ends up taking wide scope at the level of Logical Form. That is to say, despite surface appearances, the semantically relevant representation of (8) is not as in (10a) but it is as in (10c), which is made possible by the movement of the modal operator (10b).

(10) a. [[can [you have knafeh]] or [can [you have baklava]]]
b. [can [[~~can~~ [you have knafeh]] or [~~can~~ [you have baklava]]]]
c. [can [[you have knafeh] or [you have baklava]]]

There is reason to believe that such a reductionist approach is not on the right track. Hoeks, Lisowki, Pesetsky & Cremers (2017) observe that Free-Choice readings are available in English even in the context of wide scope *either…or…* disjunction. Since the position of *either* is taken to be a reliable indicator of scope relations (Larson 1985), such examples seem to suggest that Free Choice is available with wide scope disjunction, too.

(11) Either you can have knafeh or you can have baklava. (Free Choice available)

This suggests that it is not possible to reduce the puzzle of Free-Choice with wide scope disjunction to the puzzle of Free Choice with narrow scope disjunction. In the rest of this paper, we take it for granted that modal sentences in the scope of disjunction may give rise to Free-Choice readings (See Zimmermann, 2000 and Geurts, 2005 for analyses of Free Choice that rely on wide scope disjunction. See Kamp 1973, Simons 2005, Aloni 2007, Fox 2007, Klinedinst 2007 for analyses of Free Choice that rely on narrow scope disjunction. In this paper, we assume that both options are valid routes to Free Choice; see Meyer, 2020 for an excellent overview of the approaches to Free Choice).

3. Deriving Free Choice. An observed property of Free-Choice inferences is that they are cancelled in Downward Entailing environments (Alonso-Ovalle, 2006, Fox, 2007). For instance, the conjunctive inferences associated with Free Choice becomes unavailable in the scope of the negation operator:

(12) Hiçkimse künefe veya baklava yi-ye-me-z.
$\exists_{[uNEG]}$ knafeh or baklava eat-POSS-NEG-AOR.3SG
'No one is allowed to have knafeh and no one is allowed to have baklava.'

Observe that, for the wide-scope conjunctive reading we have in (12) to be possible, the sentence must be understood as negation of disjunction and not as negation of conjunction. That is to say, the logical form of (12) should be as in (13a) and not as in (13b).

(13) a. $\neg\exists x(\Diamond(K(x) \vee B(x)))$
b. $\neg\exists x(\Diamond K(x) \wedge \Diamond B(x))$

This suggests that Free-Choice inferences must be analyzed in the manner of other implicatures, which are known to be cancelled in Downward Entailing environments (Gazdar, 1979) or, at least, strongly dispreferred (Chierchia, Fox & Spector 2012).

Within the grammatical approach to Free Choice, it is the exhaustivity operator (i.e. *Exh*) that is responsible for the strengthening of meaning we find in (6) and (8). When a modal sentence with narrow scope disjunction is parsed with an *Exh* operator, we obtain a denotation that entails Free Choice. This is shown in (14).

(14) $Exh(\Diamond(k \lor b)) \Rightarrow \Diamond k \land \Diamond b$

We shall adopt a version of the *Exh* operator, to be called $Exh_{IE\text{-}II}$ for short, recently proposed in Bar-Lev & Fox (2020, see Fox 2007 for an analysis of Free Choice based on the recursive application of the Exh_{IE} operator). $Exh_{IE\text{-}II}$ acts on the set of alternatives of the sentence to which it is appended. The alternatives of a sentence of the form $\Diamond(k \lor b)$ contain each disjunct (Sauerland, 2004) as well as the conjunctive alternative:

(15) $ALT(\Diamond(k \lor b)) = \{\Diamond k, \Diamond b, \Diamond(k \land b)\}$

What $Exh_{IE\text{-}II}$ does is to negate some of the alternatives and assert others. Let us start with the alternatives that are to be negated. Suppose that we require that all the alternatives that are stronger than the prejacent (i.e. the sentence to which $Exh_{IE\text{-}II}$ is appended) be negated. Since $\Diamond k \Rightarrow \Diamond(k \lor b)$ and $\Diamond b \Rightarrow \Diamond(k \lor b)$, we would end up negating both $\Diamond k$ and $\Diamond b$, in which case, given the prejacent, we would obtain a contradictory set of propositions: $\{\Diamond(k \lor b), \neg\Diamond k, \neg\Diamond b\}$. This means that we cannot simply negate all the stronger alternatives. We assume, following Fox (2007), that the procedure for deciding which alternatives to negate is more involved than just finding out the stronger alternatives. The procedure involves finding the maximal subsets of the set of alternatives whose exclusion is compatible with the prejacent. Let us call the alternatives that happen to be in every such maximal set Innocently Excludable alternatives (*IE*-alternatives) and negate them all (for a complete exposition, see Fox, 2007 and Bar-Lev and Fox, 2020). Considering the set of alternatives in (15), we see that the maximal subset of (15) would be (15) itself. The result of taking the union of the prejacent and the negation of every member of this set results in a contradictory set: $\{\Diamond(k \lor b)\} \cup \{\neg\Diamond k, \neg\Diamond b, \neg\Diamond(k \land b)\}$. This means that we now need to look at two-membered subsets of (15), whose exclusion is compatible with the prejacent. We find that both $\{\Diamond(k \lor b)\} \cup \{\neg\Diamond b, \neg\Diamond(k \land b)\}$ and $\{\Diamond(k \lor b)\} \cup \{\neg\Diamond k, \neg\Diamond(k \land b)\}$ are consistent sets. Since $\Diamond(k \land b)$ is the only member of every such maximal set, we have:

(16) $IE(\Diamond(k \lor b), ALT(\Diamond(k \lor b))) = \{\Diamond k, \Diamond(k \land b)\} \cap \{\Diamond b, \Diamond(k \land b)\} = \{\Diamond(k \land b)\}$

Finding out which of the alternatives to assert requires a similar procedure. We find every maximal subset of the set of the alternatives whose inclusion is consistent with the prejacent and with the negation of the innocently excludable alternatives. Going back to our example in (15), we ask whether the three-membered subset of (15), which is (15) itself, can be included/asserted. The answer is negative since we have already found, in the procedure for deciding the innocently excludable alternatives, that $\Diamond(k \land b)$ is to be negated. We then look at two-membered subsets of (15), whose inclusion is compatible with the prejacent and the negated alternatives. There is only one such set: $\{\Diamond k, \Diamond b\}$. This is the set of the Innocently Includable alternatives (*II*-alternatives).

(17) $II(\Diamond(k \lor b), ALT(\Diamond(k \lor b))) = \{\Diamond k, \Diamond b\}$

Following Bar-Lev and Fox (2020), we assume that $Exh_{IE\text{-}II}$ negates the innocently excludable alternatives and asserts the innocently includable alternatives.

(18) $Exh_{IE\text{-}II}(\mathrm{ALT}(p))(p)(w) \Leftrightarrow p(w) \wedge \forall\varphi \in \mathrm{IE}, \neg\, \varphi(w) \wedge \forall\psi \in \mathrm{II}, \psi(w)$

Applying this operator to $\Diamond(k \vee b)$, we obtain a denotation that entails Free Choice.

(19) $$\begin{aligned} Exh_{IE\text{-}II}(\Diamond(k \vee b)) &\Leftrightarrow \Diamond(k \vee b) \wedge \Diamond k \wedge \Diamond b \wedge \neg\Diamond(k \wedge b) \\ &\Leftrightarrow \Diamond k \wedge \Diamond b \wedge \neg\Diamond(k \wedge b) \end{aligned}$$

It is important to note that the procedure associated with $Exh_{IE\text{-}II}$ that we have described above does not predict Free-Choice interpretations to be available in the context of wide scope disjunction. To see why, let us first observe that the set of alternatives to $\Diamond k \vee \Diamond b$ is as follows:

(20) $\mathrm{ALT}(\Diamond k \vee \Diamond b) = \{\Diamond k, \Diamond b, \Diamond k \wedge \Diamond b)\}$

Given what we have in (20), the set of innocent excludable alternatives is the singleton containing $\Diamond k \wedge \Diamond b$.

(21) $\mathrm{IE}(\Diamond k \vee \Diamond b, \mathrm{ALT}(\Diamond k \vee \Diamond b)) = \{\Diamond k, \Diamond k \wedge \Diamond b\} \cap \{\Diamond b, \Diamond k \wedge \Diamond b\} = \{\Diamond k \wedge \Diamond b\}$

The crucial observation to be made here is that the negation of this innocently excludable alternative contradicts Free Choice. That is, the set $\{\Diamond k, \Diamond b, \neg(\Diamond k \wedge \Diamond b)\}$ is a contradictory set. This means that there are no two-membered subsets of (20) whose inclusion is compatible with the prejacent and the negated alternative. There are only one-membered such sets: $\{\Diamond k\}$ and $\{\Diamond b\}$. The intersection of these sets is simply the empty set.

(22) $\mathrm{II}(\Diamond k \vee \Diamond b, \mathrm{ALT}(\Diamond k \vee \Diamond b)) = \{\Diamond k\} \cap \{\Diamond b\} = \emptyset$

If there is no alternative to include, then there is no Free-Choice interpretation. The result of applying $Exh_{IE\text{-}II}$ to $\Diamond k \vee \Diamond b$ is a denotation that contradicts Free Choice.

(23) $Exh_{IE\text{-}II}(\Diamond k \vee \Diamond b) \Leftrightarrow (\Diamond k \vee \Diamond b) \wedge \neg(\Diamond k \wedge \Diamond b)$

This is an empirically problematic prediction. We have already seen in (11), repeated here as (24), that Free Choice is available with wide scope disjunction.

(24) Either you can have knafeh or you can have baklava. (Free Choice available)

In order to avoid this problem, we may assume, following Meyer (2016) on *or-else* disjunction in English, that a disjunction of modal sentences does not have a conjunctive alternative.

(25) a. $\Diamond k \wedge \Diamond b \notin \mathrm{ALT}(\Diamond k \vee \Diamond b)$
b. $\mathrm{ALT}(\Diamond k \vee \Diamond b) = \{\Diamond k, \Diamond b\}$

Given this assumption, we find that there are no two-membered subsets of (25b) whose exclusion is compatible with the prejacent: $\{\Diamond k \vee \Diamond b, \neg\Diamond k, \neg\Diamond b\}$ is a contradictory set. There are only one-membered sets whose exclusion does not contradict the prejacent: $\{\Diamond k\}$ and $\{\Diamond b\}$. Crucially, the intersection of these two sets is empty, which means $\Diamond k \vee \Diamond b$ does not have any innocently excludable alternative.

(26) $\mathrm{IE}(\Diamond k \vee \Diamond b, \mathrm{ALT}(\Diamond k \vee \Diamond b)) = \{\Diamond k\} \cap \{\Diamond b\} = \emptyset$

When we look at the maximal subsets of $ALT(\Diamond k \vee \Diamond b)$ that can be innocently included, we find that the inclusion of $ALT(\Diamond k \vee \Diamond b)$ itself is compatible with the prejacent. That is, every alternative to $\Diamond k \vee \Diamond b$ is innocently includable.

(27) $\mathrm{II}(\Diamond k \vee \Diamond b, \mathrm{ALT}(\Diamond k \vee \Diamond b)) = \{\Diamond k, \Diamond b\}$

Therefore, by applying the $Exh_{IE\text{-}II}$ operator to $\Diamond k \vee \Diamond b$, we obtain a denotation that is equivalent to Free Choice.

(28) $Exh_{IE\text{-}II}(\Diamond k \vee \Diamond b) \Leftrightarrow (\Diamond k \vee \Diamond b) \wedge \Diamond k \wedge \Diamond b \Leftrightarrow \Diamond k \wedge \Diamond b$

The question that arises at this point is whether the analysis that we have just sketched can account for the *Free-Choice + Prohibition* inference that we have seen with *ya…ya…* disjunction in Turkish. Recall from our earlier discussion that (29) conveys both that the hearer is free to choose between knafeh and baklava and that the hearer is not allowed to have both knafeh and baklava.

(29) Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin. 'İstediğini seç.'
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG 'Pick whichever one you like'
'Either you can have knafeh or you can have baklava. Pick whichever one you like.'

The analysis we have for Free Choice with matrix disjunction relies on the assumption that matrix disjunction does not have a conjunctive alternative: $\Diamond k \wedge \Diamond b \notin ALT(\Diamond k \vee \Diamond b)$. However, once we eliminate $\Diamond k \wedge \Diamond b$ from the set of alternatives, we are unable to express the obligatoriness of the Prohibition inference in (29). We might wish to add $\Diamond k \wedge \Diamond b$ to the set of alternatives to account for the Prohibition inference. We, then, lose the Free-Choice interpretation, however. That is because, when we let $\Diamond k \wedge \Diamond b$ in the set of alternatives, we realize that $\Diamond k \wedge \Diamond b$ is innocently excludable and it is, therefore, negated. The inference we obtain by negation this alternative, i.e. $\neg(\Diamond k \wedge \Diamond b)$, contradicts Free Choice.

We seem to have reached an *impasse*. In one of the analyses sketched above, we can account for the Free-Choice inference but not the Prohibition inference and in the other analysis we can account for the Prohibition inference but not the Free Choice inference; however, we are unable to account for the Free-Choice + Prohibition inference.

There is a second problem with the analysis of Free Choice with wide scope disjunction we have discussed above. We observe that Free Choice is available even when we add the adverb *yalnızca* 'only' to each disjunct.

(30) Ya yalnızca künefe yi-yebil.ir-sin ya yalnızca baklava yi-yebil.ir-sin.
Either only knafeh eat-POSS-2SG or only baklava eat-POSS-2SG
'Either you can only have knafeh or you can only have baklava.

Focusing on each disjunct in (30) and assuming that each disjunct is an alternative to the other, we have the following denotations (we underline the presupposed content, which will not play any role in our discussion):

(31) a. $\|$ [only [you can eat knafeh$_{+F}$]] $\|$ $\Leftrightarrow \underline{\Diamond k} \wedge \neg\Diamond b$
b. $\|$ [only [you can eat baklava$_{+F}$]] $\|$ $\Leftrightarrow \underline{\Diamond b} \wedge \neg\Diamond k$

The denotation of (30) is obtained by disjoining (31a) and (31b). The crucial observation to be made here is that this disjunction entails $\neg\Diamond k \vee \neg\Diamond b$, which already contradicts Free Choice.

What this means is that we are unable to account for the Free-Choice inferences associated with (30)

(32) a. $\|30\| \Leftrightarrow (\Diamond k \wedge \neg\Diamond b) \vee (\Diamond b \wedge \neg\Diamond k) \Leftrightarrow (\Diamond k \vee \Diamond b) \wedge (\neg\Diamond k \vee \neg\Diamond b) \Rightarrow \neg\Diamond k \vee \neg\Diamond b$
b. $\neg\Diamond b \vee \neg\Diamond k \Leftrightarrow \neg(\Diamond b \wedge \Diamond k)$ (contradicts Free Choice)

We now have two puzzles: (1) how to account for the Free-Choice + Prohibition readings associated with (29) and (2) how to account for the survival of Free Choice in (30). In what follows, we argue that both of these puzzle can be solved once we change our assumptions about the set of alternatives to a sentence of the form *only(S).*

4. Scalarity and restrictions on alternatives. Beaver & Clark (2008) suggest that the discourse function of an exclusive such as *only* is to challenge a strong expectation for an answer by (possibly updating and) answering the current question in the discourse. This is only possible if the prejacent of a sentence of the form *only(S),* i.e. *S,* is weaker than an expected answer. That is, the prejacent places a lower bound on the strength of the alternatives that are relevant for consideration (for similar scalar analyses of *only,* see Roberts 2011, Alxatib 2013, Coppock & Beaver, 2014, Greenberg, 2019). In this paper, we implement this intuition by assuming that the set of alternatives of a sentence of the form *only(S)* is more restricted than what we might have thought. More specifically, we shall assume that for a sentence *S'* to be an alternative to the prejacent *S, S'* must entail *S*.

(33) Restricted Alternatives of Exclusive Particles
Given a sentence of the form only(S), S' $\in$ ALT(S) only if S' $\Rightarrow$ S.

In (31a), we have assumed that $\Diamond b$ is in the set $ALT(\Diamond k)$. The restriction in (33) suggests that this is an erroneous assumption. Given a sentence of the form $only(\Diamond k)$, $\Diamond b$ is not in the set $ALT(\Diamond k)$ since $\Diamond b \not\Rightarrow \Diamond k$. This raises the question of what the alternatives should be. We shall assume that the coordination $\alpha \wedge \beta$ is an alternative to both α and to β since $\alpha \wedge \beta$, α and β are linguistic elements of the same type (Rooth, 1992). Given a sentence of the form $only(\Diamond k)$ and $only(\Diamond b)$, we obtain the alternatives in (34).

(34) a. [you can have knafeh and baklava] $\in$ ALT([you can have knafeh$_{+\mathbf{F}}$])
i.e. $ALT(\Diamond k) = \{\Diamond(k \wedge b)\}$
b. [you can eat knafeh and baklava] $\in$ ALT([you can eat baklava$_{+\mathbf{F}}$])
i.e. $ALT(\Diamond b) = \{\Diamond(k \wedge b)\}$

Given the set of the alternatives in (34), the denotations of (31a) and (31b) turn out to be as in (35a) and (35b). Disjoining these two sentences, we obtain the denotation in (35c).

(35) a. $\|$ [only [you can eat knafeh$_{+\mathbf{F}}$]] $\|$ $\Leftrightarrow \Diamond k \wedge \neg\Diamond(k \wedge b)$
b. $\|$ [only [you can eat baklava$_{+\mathbf{F}}$]] $\|$ $\Leftrightarrow \Diamond b \wedge \neg\Diamond(k \wedge b)$
c. $\|$ [only [you can eat knafeh$_{+\mathbf{F}}$]] or [only [you can eat baklava$_{+\mathbf{F}}$]] $\|$
$\Leftrightarrow (\Diamond k \wedge \neg\Diamond(k \wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k \wedge b)) \Leftrightarrow (\Diamond k \vee \Diamond b) \wedge \neg\Diamond(k \wedge b)$

The denotation we have in (35c) does not entail Free Choice. Crucially, it is compatible with it. Assuming that (30) was uttered by someone who is an authority over permissions, we parse this sentence with an *Exh* operator. Following our earlier discussion, we take each disjunct to be an alternative to disjunction (Sauerland, 2004). Following Meyer (2016), we assume that the disjunction of modal sentences does not have a conjunctive alternative.

(36) a. $\text{Exh}_{IE\text{-}II}((\Diamond k \wedge \neg\Diamond(k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b)))$
b. $\text{ALT}((\Diamond k \wedge \neg\Diamond(k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b))) = \{\Diamond k \wedge \neg\Diamond(k\wedge b), \Diamond b \wedge \neg\Diamond(k\wedge b)\}$

We first try to find the maximal subsets of the set of the alternatives whose exclusion is compatible with the prejacent. We observe that the union of the prejacent and the negation of all alternatives is a contradictory set for the simple reason that any set containing a disjunction and the negation of its disjuncts (i.e. $\{\varphi \vee \psi, \neg\varphi, \neg\psi\}$) is a contradiction, as shown in (37).

(37) $\{(\Diamond k \wedge \neg\Diamond(k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b)), \neg(\Diamond k \wedge \neg\Diamond(k\wedge b)), \neg(\Diamond b \wedge \neg\Diamond(k\wedge b))\}$

We now look at one-membered subsets of the set of the alternatives and find that the negation of each disjunct is compatible with the prejacent. Since the intersection of these one-membered sets of alternatives is the empty set, there are no innocently excludable alternatives.

(38) $\text{IE}((\Diamond k \wedge \neg\Diamond(k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b)), \text{ALT}) = \emptyset$

We now try to find the maximal subsets of the set of alternatives whose inclusion is compatible with the prejacent. We realize that the set of innocently includable alternatives is equivalent to the set of all alternatives.

(39) $\text{II}((\Diamond k \wedge \neg\Diamond((k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b)), \text{ALT})$
$= \{(\Diamond k \wedge \neg\Diamond(k\wedge b)), (\Diamond b \wedge \neg\Diamond(k\wedge b))\}$

These observations about the innocently excludable and innocently includable alternatives suggest that (36a) has the denotation in (40). As the reader can verify, this is the Free Choice + Prohibition reading that we are interested in.

(40) a. $Exh_{IE\text{-}II}((\Diamond k \wedge \neg\Diamond(k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b)))$
$\Leftrightarrow (\Diamond k \wedge \neg\Diamond(k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b)) \wedge (\Diamond k \wedge \neg\Diamond(k\wedge b)) \wedge (\Diamond b \wedge \neg\Diamond(k\wedge b))$
$\Leftrightarrow \Diamond k \wedge \Diamond b \wedge \neg\Diamond(k\wedge b)$

In this way, we are in a position to explain the Free Choice + Prohibition reading associated with (41), repeated from (30).

(41) Ya yalnızca künefe yi-yebil.ir-sin ya yalnızca baklava yi-yebil.ir-sin.
Either only knafeh eat-POSS-2SG or only baklava eat-POSS-2SG
'Either you can only have knafeh or you can only have baklava.

We have also seen that, when uttered by someone who is not an authority over permissions, (41) can be used to express Prohibition without Free Choice. We suggest that this reading arises when (41) is parsed without an *Exh* operator, in which case the denotation of (41) is as in (42). Observe that this denotation entails the Prohibition Inference but not the Free-Choice inference.

(42) $(\Diamond k \wedge \neg\Diamond(k\wedge b)) \vee (\Diamond b \wedge \neg\Diamond(k\wedge b))) \Leftrightarrow (\Diamond k \vee \Diamond b) \wedge \neg\Diamond(k\wedge b)$

We now have an account of the Free-Choice + Prohibition inference associated with disjunctive sentences in which each disjunct contains the exclusive *only*. However, this is not the only construction in which we observe this reading. We have already seen that a sentence like (43), which differs from (41) only in the absence of the exclusive particle *only*, allows for the Free-Choice + Prohibition inference.

(43) Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin.
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG
'Either you can only have knafeh or you can only have baklava.'

It is important to note that the obligatoriness of this reading is parasitic on the presence of a certain type of disjunction in Turkish (i.e. *ya…ya…* disjunction). When a similar sentence is used with *veya* disjunction, the Free-Choice reading is still available but the Prohibition inference is not obligatory.

(44) Künefe yi-yebil.ir-sin veya baklava yi-yebil.ir-sin.
knafeh eat-POSS-2SG or baklava eat-POSS-2SG
'You can have knafeh or you can only have baklava.'

The evidence for the non-obligatoriness of the Prohibition inference in (44) comes from the observation that the continuation *Hatta ikisini de yiyebilirsin.* 'In fact you can even have both.' is feliticious after (44).

(45) Künefe yi-yebil.ir-sin veya baklava yi-yebil.ir-sin. Hatta ikisini de yiyebilirsin.
knafeh eat-POSS-2SG or baklava eat-POSS-2SG 'In fact, you can even have both'
'You can have knafeh or you can have baklava. In fact, you can even have both.'

The reader may recall that such a continuation is not acceptable with *ya…ya…* disjunction as shown in (46), repeated from (3).

(46) #Ya künefe yi-yebil.ir-sin ya baklava yi-yebil.ir-sin. Hatta ikisini de yiyebilirsin.
Either knafeh eat-POSS-2SG or baklava eat-POSS-2SG 'In fact, you can even have both'
'Either you can have knafeh or you can have baklava. In fact, you can even have both.'

These judgments can be explained on the assumption that in the context of *ya…ya…* disjunction, each disjunct must be parsed with the exclusive particle *only*. In cases like (43), where the exclusive particle is not overt, we shall assume that there is a silent *only* embedded inside disjunction.

(47) Condition on *ya…ya…* disjunction
Each disjunct inside *ya … ya …* disjunction is parsed with *only* (silent or overt).

That means that the sentence in (43) has the syntactic analysis in (48), where the presence of a silent *only* is indicated via a horizontal line on ~~*only*~~:

(48) [[~~only~~ [you can eat knafeh$_{+\mathbf{F}}$]] or [~~only~~ [you can eat baklava$_{+\mathbf{F}}$]]]

The sentence in (48), as such, gives us the Ignorance + Prohibition reading. If we parse (48) with an *Exh* operator, we obtain the Free-Choice + Prohibition reading. Note also that when we add *only* to each disjunct inside *veya* disjunction, we can obtain both the Ignorance + Prohibition reading and the Free-Choice + Prohibition reading.

(49) Sadece künefe yi-yebil.ir-sin veya sadece baklava yi-yebil.ir-sin.
only knafeh eat-POSS-2SG or only baklava eat-POSS-2SG
'you can only have knafeh or you can only have baklava.'

These readings are also available in the absence of the overt exclusive particle *only* so long as there is a pitch accent on the objects, which we indicate in (50a) with CAPITAL LETTERS. We assume that the pitch accents signal that the objects in (50a) are focus-marked and that the sentence must be parsed with *only* (which can be silent) in each disjunct. That is, the sentence in (50a) has the representation in (50b).

(50) a. KÜNEFE yi-yebil.ir-sin veya BAKLAVA yi-yebil.ir-sin.
b. [[~~only~~ [you can eat knafeh$_{+\mathbf{F}}$]] or [~~only~~ [you can eat baklava$_{+\mathbf{F}}$]]]

We have shown that it is possible to account for a complex pattern of judgments associated with disjunction in Turkish on the basis of a small set of assumptions about the nature of Free Choice and the distribution of *only*. The reader may realize that we have made an implicit distinction between *only* and the *Exh* operator. The reasons for this distinction will be clear in the next section, where we will discuss an issue raised by the analysis developed in this paper.

5. *Exh$_{IE\text{-}II}$* and *only*. Consider a scenario in which the permission to have knafeh and the permission to eat baklava are the only relevant permissions. In a scenario of this kind, the sentence in (51a) seems to entail the sentence in (51b).

(51) a. Sadece künefe yi-yebil.ir-sin.
only knafeh eat-POSS-2SG
'You can only have knafeh.'
b. Baklava yi-ye-me-z-sin
baklava eat-POSS-NEG-AOR-2SG
'You cannot have baklava.'

The presence of such an entailment is problematic for the analysis of *only* we have adopted in this paper. Note that (51a) can be represented as $only(\Diamond k)$ and (51b) as $\neg\Diamond b$. Assuming that $only(\Diamond k)$ is equivalent to $\Diamond k \wedge \neg\Diamond(k \wedge b)$, we find that there is no logical entailment from (51a) to (51b). This is not the intuition we have reported above.

(52) $\Diamond k \wedge \neg\Diamond(k \wedge b) \nRightarrow \neg\Diamond b$

One way we can solve this problem is to assume that a sentence like (51a) is obligatorily parsed with $Exh_{IE\text{-}II}$. First observe that replacing the focused constituent *knafeh* with *baklava* gives us the alternative in (53a). We shall assume that, unlike *only*, $Exh_{IE\text{-}II}$ negates all the innocently excludable alternatives – not just the stronger ones. In this case, by negating the alternative in (53a), we obtain the denotation in (53b) for (51a).[1]

(53) a. [only [you can have baklava]] ∈ ALT([only [you can have knafeh$_{+\mathbf{F}}$]])
b. $Exh_{IE\text{-}II}$(51a) $\Leftrightarrow (\Diamond k \wedge \neg\Diamond(k \wedge b)) \wedge \neg(\Diamond b \wedge \neg\Diamond(k \wedge b))$
$\Leftrightarrow (\Diamond k \wedge \neg\Diamond(k \wedge b)) \wedge (\neg\Diamond b \vee \Diamond(k \wedge b))$
$\Leftrightarrow \Diamond k \wedge \neg\Diamond(k \wedge b) \wedge \neg\Diamond b$
$\Leftrightarrow \Diamond k \wedge \neg\Diamond b$

In this way, we can account for the intuitive entailment relation from (51a) to (51b) as formal entailment. For this analysis to work, we must come up with some independent reason as to why (51a) **must** be parsed with an $Exh_{IE\text{-}II}$ operator. In what follows, we provide some speculations on

[1] Alternatively, it might be claimed that the exclusive particle *only* is ignored by $Exh_{IE\text{-}II}$ and, instead of the alternative *[only [you can have baklava]]*, we have the alternative *[you can have baklava]*, which is a member of the set *ALT([only [you can have knafeh$_{+\mathbf{F}}$]])*. In this scenario, *$Exh_{IE\text{-}II}$(51a)* ends up having the same denotation that it has in (53b) (namely, $\Diamond k \wedge \neg\Diamond b$).

this question. First, observe that (51a) is naturally understood to be answering the following question: *What (among knafeh and baklava) can I have?* Such a question partitions the context set into four cells: (1) the set of worlds in which $\Diamond k \wedge \neg\Diamond b$ holds, (2) the set of worlds in which $\Diamond k \wedge \Diamond b$ holds, (3) the set of worlds in which $\neg\Diamond k \wedge \Diamond b$ holds and (4) the set of worlds in which $\neg\Diamond k \wedge \neg\Diamond b$ holds.

(54)

$\Diamond$k ∧ ¬$\Diamond$b	$\Diamond$k ∧ $\Diamond$b
¬$\Diamond$k ∧ $\Diamond$b	¬$\Diamond$k ∧ ¬$\Diamond$b

Assuming that a complete answer to this question requires that all but one cell be eliminated (Groenendijk & Stokhof, 1984), we see that the denotation of (51a), when interpreted without the $Exh_{IE\text{-}II}$ operator, does not provide a complete answer to this question. That is to say, the denotation of (51a) as such (i.e. $\Diamond k \wedge \neg\Diamond(k \wedge b)$) eliminates the cells in the second row of the table, but it discriminates between the worlds in the cell where $\Diamond k \wedge \Diamond b$ holds and does not eliminate any worlds in the cell where $\Diamond k \wedge \neg\Diamond$b holds. The denotation of $Exh_{IE\text{-}II}(51a)$, on the other hand, eliminates all the cells but one and, thus, provides a complete answer. In (55), we color all the cells eliminated by $Exh_{IE\text{-}II}(51a)$ in dark grey.

(55)

$\Diamond$k ∧ ¬$\Diamond$b	$\Diamond$k ∧$\Diamond$b
¬$\Diamond$k ∧ $\Diamond$b	¬$\Diamond$k ∧ ¬$\Diamond$b

We speculate that $Exh_{IE\text{-}II}$ is rendered obligatory due to the fact that it helps us provide a complete answer to the most natural question that (51a) seems to be addressing. Note that this discussion points towards a fundamental difference between *only* and the *Exh* operator. While *only* operates only on the alternatives that entail the prejacent, the *Exh* operator manipulates all the non-weaker alternatives to the prejacent in an attempt to provide a complete answer. In (53), for instance, the alternative $\Diamond b \wedge \neg\Diamond(k \wedge b)$ is negated even though this alternative does not entail the prejacent. (See the recent paper by Alxatib 2020 for an analysis of presuppositional Free Choice that capitalizes on the distinction between *only* and the *Exh* operator.)

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