

# Unconditionals and free choice unified<sup>1</sup>

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Comments are appreciated

**Abstract** Rawlins (2013: 160) observes that both unconditionals and more classical free choice can be meta-characterized using orthogonality, but does not actually unify the two. One reason may be that in English, different expressions serve in these roles. By contrast, in Hungarian, AKÁR expressions serve as NPIs, FCIs, and unconditional adjuncts, but not as interrogatives or free relatives. This paper offers a unified account of the Hungarian data, extending Chierchia 2013 and Dayal 2013. The account produces the same unconditional meanings that Rawlins derives from an interrogative basis. This result highlights the fact that sets of alternatives arise from different morpho-syntactic sources and are utilized by the grammar in different ways, but the results may fully converge.

## 1 Introduction

Rawlins's (2013) seminal analysis of the English unconditional is based on the insight that the adjunct in the construction is a question, which presents a set of alternatives and feeds each alternative as an antecedent to a conditional, whose consequent is the main clause. A silent universal quantifier that tops off the logical form ensures that each <antecedent, consequent> pair is true.

- (1) a. Whoever shows up, the party will be fun.
- b. Whether Alonso or Josephine shows up, the party will be fun.

Rawlins's work inspired the investigation of unconditionals in a number of languages in which the adjunct has a somewhat different morpho-syntax than in English.<sup>2</sup> The Hungarian pattern differs from all of them in that the adjuncts in (2) are neither questions, nor free relatives. Outside unconditionals, AKÁR expressions are dedicated universal free choice (3) and negative polarity items (4). They are unacceptable in non-licensing contexts, e.g. (5).

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<sup>2</sup> Quer & Vicente 2009, Rubinstein & Doron 2014, Balusu 2017b, Caponigro & Fălăuș 2018, Lohiniva 2018, and so on. Some of the authors adopted and others modified Rawlins's analysis.

- (2) a. Akárki telefonált, elbeszélgettünk. UNC.ADJ  
 AKÁR-who called chatted.we  
 'Whoever called, we chatted'
- b. Akár Kati (telefonált), akár Mari telefonált, elbeszélgettünk.  
 AKÁR K called AKÁR M called chatted.we  
 'Whether K or M called, we chatted'
- (3) a. Akárki telefonálhat.  $\forall$ -FCI  
 AKÁR-who call.may  
 'Anyone may call'
- b. Akár Kati (telefonálhat), akár Mari telefonálhat.  
 AKÁR K call.may AKÁR M call.may  
 'Either K or M may call'
- (4) a. Nem hiszem, hogy akárki telefonált.<sup>3</sup> NPI  
 not think-I that AKÁR-who called  
 'I don't think that anyone called'
- b. Nem hiszem, hogy akár K (telefonált), akár M telefonált.  
 not think-I that AKÁR K called AKÁR M called  
 'I don't think that either K or M called'
- (5) a. \* Akárki telefonált.  
 AKÁR-who called
- b. \* Akár Kati, akár Mari telefonált.  
 AKÁR K AKÁR M called

Our fundamental assumption is that a compositional analysis must take into account the fullest possible distribution of the expressions involved.<sup>4</sup> In that spirit, the AKÁR paradigm above calls for an approach that can place NPIs, FCIs, and UNC.ADJs under the same umbrella. First, we need a theory that brings negative polarity and free choice together. Next, we extend the treatment of universal free choice to unconditionals with minimal modifications; most crucially, by swapping the modal in the former for a conditional in the latter. Universal force and existential presupposition will carry over. Additional elements of the analysis are supplied by independent properties of the language, e.g. identificational focus.

<sup>3</sup> AKÁR expressions are positive polarity items: they are anti-licensed by clause-mate negation. Their role as NPIs is optionally disambiguated by the particle *is* 'too/even' (not included here).

<sup>4</sup> But we must set aside scalar *akár*, as in *akár (csak) Kati is* 'even Kate, NPI or  $\exists$ -FCI' that does not occur in unconditionals; see Abrusán 2007 and Szabolcsi 2017.

The following derivation of (2a,b) anticipates the main aspects of our analysis.

- (6) { Akárki / akár K akár M } telefonált, elbeszélgettünk.  
 `Whoever / Whether K or M} called, we chatted'

$$\forall w,e [\text{call}(k)(w,e)] [\text{chat}(w,e)] \wedge \forall w,e [\text{call}(m)(w,e)] [\text{chat}(w,e)]$$

strengthening |

$$\lambda P[P(\lambda w,e. \text{call}(k)(w,e)) \vee P(\lambda w,e. \text{call}(m)(w,e))] (\lambda r[\forall w,e[r(w,e)] [\text{chat}(w,e)]]) \\ = \forall w,e [\text{call}(k)(w,e)] [\text{chat}(w,e)] \vee \forall w,e [\text{call}(m)(w,e)] [\text{chat}(w,e)]$$

quantifying-in

$$\lambda P[P(\lambda w,e. \text{call}(k)(w,e)) \vee P(\lambda w,e. \text{call}(m)(w,e))] \quad \lambda r[\text{if } (r) (\lambda w,e. \text{chat}(w,e))] = \\ \lambda r[\forall w,e[r(w,e)] [\text{chat}(w,e)]]$$

∃-lift |

**{ akárki telefonált / akár K akár M telefonált }**  
 $\lambda p[p=\lambda w,e. \text{call}(k)(w,e) \vee p=\lambda w,e. \text{call}(m)(w,e)]$

Fluctuation presupposition

$$\forall q [q \in \lambda p[p=\lambda w,e. \text{call}(k)(w,e) \vee p=\lambda w,e. \text{call}(m)(w,e)]] \\ [\exists w,e. q(w,e) \wedge \exists w,e. \neg q(w,e)]$$

lift to consequent |

**elbeszélgettünk**  
 $\lambda w,e. \text{chat}(w,e)$

The structure of the discussion will be as follows.

Section 2 takes a closer look at clauses with the particle *akár*, including morpho-syntactic composition, interpretation, and scope taking in overt syntax.

Section 3 briefly recaps Chierchia's (2013) theory of negative polarity and universal free choice that serves as the background for our analysis.

Section 4 introduces Dayal's (2013) Viability condition and modifies it somewhat (i) in view of an exhaustification problem caused by symmetrical predicates, and (ii) in anticipation of the needs of unconditionals.

Section 5 applies the free choice analysis to the unconditional case. It comments on some technical details of (6), and compares them with Rawlins 2013.

Sections 6-7 discuss speaker ignorance and the role of identificational focus.

Section 8 asks why English uses *wh-ever* and *whether\_or* in unconditionals and offers some cross-linguistic comparisons.

## 2 The composition and scope behavior of AKÁR expressions

Hungarian interrogatives employ bare indeterminate pronouns (*ki* ‘who,’ *mi* ‘what,’ etc.). Relative pronouns have a prefixed definite marker (*aki* ‘who, rel.’ and *ami* ‘what, relative’). The particle *akár* cannot be added to either of these.

This section provides some background on the morpho-syntactic and semantic composition of AKÁR expressions, based on Szabolcsi 2018, that the rest of the paper will assume.

*Akár* belongs to a family of particles that build quantifier words from indeterminate pronoun bases or, alternatively, reiterate at the left edge of each proposition in a Junction Phrase (den Dikken 2006). Besides *akár*, the members of the family are *mind* ‘all,’ *vala/vagy* ‘some/or,’ and *sem* ‘n-or,’ a strict NCI.<sup>5</sup> E.g.

- (7) a. Mindenki telefonált.  
all-who called  
‘Everyone called’
- b. Mind Kati (telefonált), mind Mari telefonált.  
all K called all M called  
‘Each of K and M called’
- c. Mind a nap kisütött, mind a szél elállt.  
all the sun came.out all the wind stopped  
‘Each of {the sun came out, the wind stopped} is true’

Junction Phrase, JP may contain two or more propositions. It is possible to elide a segment under identity (2b, 3b, 4b, 7b). The propositions may also be fully distinct, as in (7c); the same holds for JPs with *akár* and the other particles.

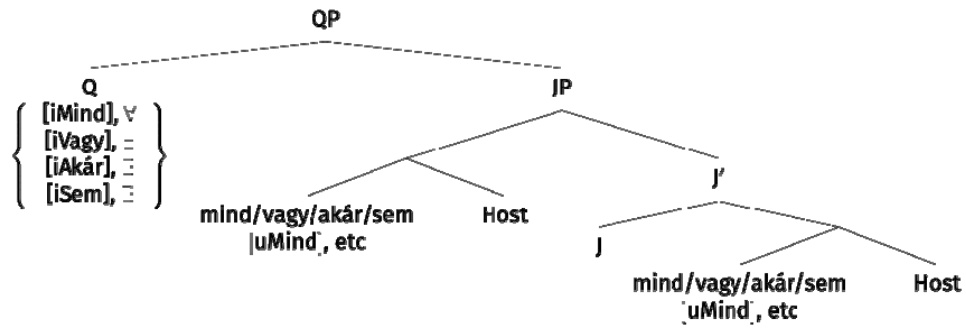
In the spirit of Beghelli & Stowell 1997 and Kratzer & Shimoyama 2002, the overt particles are taken to be meaningless and to merely check features with a higher, silent propositional quantifier,  $\exists$  (*akár*, *vala/vagy*, *sem*) or  $\forall$  (*mind*).

B&S and K&S do not discuss reiterations such as (2b, 3b, 4b) and (7b,c), but the proposed analysis suits reiterations particularly well. The “hosts” are full propositions, and the identical particles at the left edges cannot all be true quantifiers with the same meaning, so it is natural to attribute the semantic action to a higher, silent quantifier.

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<sup>5</sup> All Hungarian quantifier words are built in this way. The concessive particle *bár* also builds universal free choice items (*bárki*, etc.). Unlike the other particles mentioned in the text, *bár* does not reiterate but has a life as a connective. *Bár* will not be discussed in this paper, but see Halm 2016. Halm analyzes free choice in terms of Giannakidou 2001, and also makes important observations about what we call unconditionals.

(8)



(9)  $\exists(\wp) =$  the proposition that is true when some  $p \in \wp$  is true

(10)  $\forall(\wp) =$  the proposition that is true when all  $p \in \wp$  are true

The sets of propositions  $\wp$  that  $\exists$  and  $\forall$  quantify over are defined with the help of the indeterminate pronoun, or by enumeration. JP is understood to do nothing more than enumerate the members of such a set (Winter 1995, Szabolcsi 2015).

- (11) a.  $\wp = \{ p: \exists x[\text{human}(x) \wedge p = \lambda w.\text{called}(w)(x)] \}$   
b.  $\wp = \{ \lambda w.\text{called}(k)(w), \lambda w.\text{called}(m)(w) \}$   
c.  $\wp = \{ \lambda w.\text{out}(\text{sun})(w), \lambda w.\text{stopped}(\text{wind})(w) \}$

It may be good to underscore that (11a,b,c) are not “question meanings,” although they would figure in the interpretation of questions. They are just sets of propositions, waiting to be used in one way or another. In the case of negative polarity, free choice, and unconditionals, they will serve as sets of alternatives that undergo exhaustification.

K&S use Hamblin semantics to define the set in (11a) projecting alternatives from indeterminate pronouns. Instead, we assume that (11a) is defined as in Karttunen 1977, by shifting a single proposition to a set of propositions and quantifying the indeterminate pronoun into that set using function composition. Beyond being free of the binding problems of Hamblin semantics, the Karttunen-style treatment is especially appropriate for our data. In Hungarian, the scopes of both wh-phrases and QPs are largely encoded by overt movement, clause-internal or external. Hungarian is not a wh-in-situ or quantifier-in-situ language.<sup>6</sup> Consider:

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<sup>6</sup> See Szabolcsi 2010: 121-129; 180-185 for brief overviews of quantification à la Beghelli & Stowell and of overt scope in Hungarian. On the other hand, Charlow 2018 shows how the island-free scope of in-situ indefinites that often motivated the use of Hamblin semantics can be replicated employing type-shifters with a Karttunen-style semantics.

- (12) Mindenkitől<sub>i</sub> más-más zsűritag akarta,  
 everyone-from other-other juror wanted  
 hogy levonjunk egy pontot \_\_<sub>i</sub>.  
 that deduct.subj.1pl one point-acc  
 'For everyone x, a different juror wanted that we deduct a point from x'

In (12), *mindenkitől* overtly moves to a high position in the matrix clause, next to the silent  $\forall$  that performs quantification. The scope of the Karttunen-style existential quantifier over humans corresponds to the landing site of *mindenkitől*.

Similarly, AKÁR expressions have the ability to acquire the desired scope by overtly moving out of their own clause, next to a silent  $\exists$ .

- (13) Akárkivel<sub>i</sub> kértem, hogy táncolj \_\_<sub>i</sub>, nemet mondtál.  
 AKÁR-who-with asked.1sg that dance.imp.2sg no-acc said.2sg  
 'Whoever I asked that you dance with, you said no'
- (14) Akármelyik pohárba<sub>i</sub> lehet, hogy mérget tettek \_\_<sub>i</sub>.  
 AKÁR-which glass-into possible that poison-acc put.past.3pl  
 'Any of the glasses can be such that they put poison into it'  
 (Lit. into any of the glasses it is possible that they put poison)
- (15) Nem hiszem, hogy akárkivel<sub>i</sub> kérték, hogy táncolj \_\_<sub>i</sub>.  
 not think.1sg that AKÁR-who-with asked.3pl that dance.imp.2sg  
 'I don't think that anyone is such that they asked that you dance with him'

The same holds for reiterations, with a more complex syntax including across-the-board movement and ellipsis; not illustrated.

The fact that AKÁR expressions take scope overtly has some significance in comparison with English. Why is it that *anyone* is an NPI and a  $\forall$ -FCI, but in unconditional adjuncts, it gives way to *whoever*? We conjecture that in unconditionals, the critical particle must take scope over "if" – something that *any*-items standardly do not do. We return to this issue in Section 8.

### 3 Recap: Chierchia 2013 on negative polarity and universal free choice

Our goal is to unify Hungarian unconditionals, universal free choice and negative polarity, as demanded by the identity of AKÁR expressions in these roles. Unconditionals and free choice could be unified in various attractive ways, but not all of them offer a natural connection to polarity. English *any* and Hungarian *akár* are rather common in serving both in free choice and in (some subset of) polarity items. Chierchia 2013 is a theory that brings them together. Presupposing famili-

arity with it, this section merely recaps some of the assumptions without arguing for them.

Chierchia 2013 proposes that negative polarity items and free choice items are existentials/disjunctions with grammaticized, active alternatives that must be exhausted. The alternatives may be sub-domain or scalar alternatives. The exhaustifier relevant to us is the silent operator  $\mathbf{O}[\text{nly}]$ , which negates alternatives not entailed by the literal assertion.

Let a proposition with an NPI schematically assert  $p \vee q$ ; its sub-domain alternatives are  $p$  and  $q$ . Exhaustification yields a contradiction:  $\mathbf{O}(p \vee q) = p \vee q \wedge \neg p \wedge \neg q$ . Contradiction is averted if  $p \vee q$  is originally within the immediate scope a decreasing operator  $\downarrow$ . In that case  $\downarrow(p \vee q)$  entails the sub-domain alternatives  $\downarrow p$  and  $\downarrow q$ , and so  $\mathbf{O}$  does not get to negate them:  $\mathbf{O}\downarrow(p \vee q) = \downarrow(p \vee q)$ . See Chierchia 2013: Ch 1 for details.

Existential and universal FCIs both come with pre-exhaustified sub-domain alternatives, so an application of  $\mathbf{O}$  to the whole proposition will amount to recursive exhaustification in the sense of Fox 2007.

$\exists$ -FCIs (*irgendein NP* and *un NP qualsiasi*) occur within the scope of a modal:  $\diamond > \exists$ , so the assertion is  $\diamond(p \vee q)$ . Now  $\mathbf{O}\diamond(p \vee q)$  negates both the pre-exhaustified subdomain alternatives and the scalar alternative, and yields  $\diamond p \wedge \diamond q \wedge \neg(\diamond(p \wedge q))$ . See Chierchia 2013: Ch 5.

$\forall$ -FCIs (*any NP* and *qualsiasi NP*) scope immediately above a possibility modal:  $\exists > \diamond$ , so the assertion is  $\diamond p \vee \diamond q$ . First consider just exhaustification with respect to the pre-exhaustified sub-domain alternatives  $\mathbf{O}\diamond p$  and  $\mathbf{O}\diamond q$ . The conjunction of  $\diamond p \vee \diamond q$  with  $\neg\mathbf{O}\diamond p = \neg(\diamond p \wedge \neg\diamond q)$  and  $\neg\mathbf{O}\diamond q = \neg(\diamond q \wedge \neg\diamond p)$  yields  $\diamond p \wedge \diamond q$ . See Chierchia 2013: Ch 6.

We just strengthened disjunction to conjunction (an existential to a universal). The result is the Universal Free Choice implicature. It will be referred to as Universal Force below, so as to remain agnostic regarding implicatures.

$\forall$ -FCIs however are not universals, although they have Universal Force. They have another crucial property that Dayal 2009 called Fluctuation: the realized options cannot be kept constant across worlds. Chierchia recasts Fluctuation by utilizing the stronger, scalar alternative, here  $\diamond p \wedge \diamond q$ . The negation of the scalar alternative is conjoined with the result of exhaustifying the domain alternatives (as is done in the case of  $\exists$ -FC). But now the resulting  $\diamond p \wedge \diamond q \wedge \neg(\diamond p \wedge \diamond q)$  is a contradiction – unless, Chierchia points out, the modal bases used in the two computations are different. If modal base  $SC \subset$  modal base  $FC$ , there need not be a contradiction. He refers to this subset relation as Modal Containment,  $MC$ .<sup>7</sup>

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<sup>7</sup> “Since modals are highly context-dependent, we conjecture that there occurs a small context shift between the first and the second formulas; in consequence of it, we wind up with two related but

Hungarian AKÁR expressions are NPIs and  $\forall$ -FCIs, so Chierchia's treatment of English *any NP* can be adopted for them. We add, as a reminder, that while English *either\_or* is not a dedicated NPI or FCI, Hungarian reiterated *akár\_akár* has the same behavior as the combination of *akár* with an indeterminate pronoun, so reiterations are also subsumed.

#### 4 More on Fluctuation

Dayal (2013) proposes to eliminate reference to scalarity and to reinstate the intuition behind Fluctuation. Her new constraint is a presupposition:

- (16) Viability constraint  
 [...FCI...] is felicitous iff there exists a model  $M$ , a world  $w$ , and a conversational background  $g(w)$  such that each exhausted alternative is true at  $w$ , wrto to some subset of  $\cap g(w)$ .

See Dayal 2013 for a discussion of the advantages of using Viability. Furthermore, whereas the motivation Chierchia offers for the two modal bases FC and SC is not intuitively straightforward, the intuition behind Fluctuation seems clear. On the other hand, the formulation of Viability encounters a problem, versions of which had haunted the free choice literature. We add symmetrical predicates to the problem cases. The requirement for each *exhaustified* alternative to be true in some world is analogous to the requirement in certain theories of donkey anaphora for there to be a minimal situation that provides a *unique* antecedent for the donkey pronoun. It is known that such a requirement may fail to be satisfiable.

- (17) If a bishop meets a bishop, he blesses him.  
 ☞ 'Every minimal situation with a bishop meeting a bishop extends to one where the unique bishop in the situation ...' (Elbourne 2005)
- (18) Any bishop may meet a bishop.  
 ☞ presupp. 'There exists a world in which only bishop A meets a bishop'

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(minimally) different modal bases and we conjecture/stipulate that this difference is regulated by MC. One way of unpacking MC further might be, in the case of epistemic modalities, in terms of evidence. The broader set of modality (denoted as FC) may indicate something like the worlds that constitute live possibilities according to the intersubjective evidence available to the illocutionary agents. This would be the evidence that agents are willing to mutually accept. On the other hand, the smaller set of worlds (SC) might be those compatible with the subjective, "private" evidential source of the speaker. I.e. the speaker has access to evidence that casts some doubt on what is commonly maintained." (Chierchia 2013: 316-317)



The  $\wp$  affixed to an interpretation expresses that the linguistic example is perfect, but the proposed interpretation is not satisfiable, and so it cannot be correct. Elbourne's (2005) solution to the unique antecedent problem with predicates that are truth-conditionally, but not syntactically, symmetrical is to import syntactic prominence into the semantics; effectively, he uses structured propositions.

On the other hand, Chierchia's proposal with  $SC \subset FC$  works fine for symmetrical predicates:

- (19)  $\exists w[\text{ACC-FC}(w^*, w) \ \& \ \exists x[\text{bishop-A meets bishop-x in } w]] \ \& \ \exists w'[\text{ACC-FC}(w^*, w')] \ \& \ \exists x[\text{bishop-B meets bishop-x in } w'] \ \& \ \neg(\exists w''[\text{ACC-SC}(w^*, w'')] \ \& \ \exists x[\text{bishop-A meets bishop-x in } w'']) \ \& \ \exists w'''[\text{ACC-SC}(w^*, w''')] \ \& \ \exists x[\text{bishop-B meets bishop-x in } w'''])$

Suppose  $FC = \{w_1, w_2, w_3, w_4\}$  and  $SC = \{w_4\}$ . Bishops meet other bishops in  $w_1, w_2,$  and  $w_3$ , but no bishop meets any other in  $w_4$ .

To have our cake and eat it too, we combine the two proposals in a way that is intuitively closer to Dayal's and technically to Chierchia's. We trade reference to the truth of exhaustified alternatives for truth not being uniform across worlds.

- (20) Revised Viability presupposition  
[... FCI ...] is felicitous if each alternative is true in some world and false in some world.

Reading "true in some world and false in some world" as "true in some but not all worlds," (20) may even be regarded as negating a scalar alternative of some sort.

Rather than closing the discussion here, let us introduce a further modification that will be critical in the extension of universal free choice to unconditionals. It is stated with reference to  $AK\acute{A}R$ .

- (21) Fluctuation presupposition for  $AK\acute{A}R$ , a second revision of Viability  
A free choice reading involving  $AK\acute{A}R$  is felicitous if each alternative described by the bare  $AK\acute{A}R$  clause is true in some but not all worlds [or events, in unconditionals].
- (22) The bare  $AK\acute{A}R$ -clause is one that does not yet contain a modal [or conditional, in unconditional adjuncts].

In the case of (3a), each alternative described by the bare  $AK\acute{A}R$  clause is an element of  $\wp$  as defined in (10a), i.e. has the form  $\lambda w.\text{call}(a)(w)$ , for some individual  $a$ .  $\exists_{AK\acute{A}R}(\wp)$  scopes over the modal to yield the schematic assertion  $\diamond p \vee \diamond q$ .

- (3) a. Akár-ki telefonál-hat.  
akár-who call-may  
'Anyone may call'

To summarize, Universal Force is computed for the whole sentence, strengthening  $\diamond p \vee \diamond q$  to  $\diamond p \wedge \diamond q$  (as in the literature). But Fluctuation will be directly tied to the segment that the AKÁR expression invariably contributes on its various uses.<sup>8</sup> The bifurcation does not make a difference for traditional universal free choice, where a possibility modal is involved either way. It will make a big difference in the case of unconditionals, where the bare AKÁR clause is the adjunct.

## 5 Unconditionals as a special case of universal free choice

To take stock, we assume that the NPI and  $\forall$ -FCI readings of AKÁR expressions are accounted for along the lines of Chierchia 2013, with some modification regarding the implementation of Fluctuation, given in (21)-(22). We are now ready to turn to unconditionals.

The basic idea is this. In universal free choice, the existential/disjunction scopes over a possibility modal; in unconditionals, it scopes over the “if” of a conditional. Strengthening and Fluctuation carry over, accounting for most of the properties that Rawlins 2013 derives for unconditionals. Partition effects do not follow, but we will argue that only some Hungarian unconditionals exhibit them and that they correlate with identificational focus.

Apart from the fact that Rawlins takes the unconditional adjunct to be a question and we do not, there is an overall technical difference between his derivation and ours. Rawlins uses pointwise Hamblinian composition both in building the adjunct and in combining the adjunct with the main clause. In contrast, we use a scope taking mechanism in both cases, following Karttunen 1977 and Charlow 2018. Over and beyond other advantages, thinking about universal free choice and unconditionals in terms of scope makes it easy to see the central parallelism: AKÁR expressions scope over a possibility modal in the former case, and over “if” in the latter.

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<sup>8</sup> The intuition is that Fluctuation is a property of AKÁR. Ideally, AKÁR expressions would have a “fluctuate if you can” property in all their roles. If Fluctuation were a scalar implicature, it would not arise in a decreasing context, explaining why it is not observed in NPIs. But Fluctuation, when in action, imposes a stronger, presuppositional requirement. We leave open the question of how to extend Fluctuation to AKÁR NPIs.

**Overview of the derivation.** With this in mind, consider the derivation of (2a,b), repeated from (6).

- (23) { Akárki / akár K akár M } telefonált, elbeszélgettünk.  
 `Whoever / Whether K or M} called, we chatted`

$$\forall w,e [\text{call}(k)(w,e)] [\text{chat}(w,e)] \wedge \forall w,e [\text{call}(m)(w,e)] [\text{chat}(w,e)]$$

strengthening

$$\lambda P[P(\lambda w,e. \text{call}(k)(w,e)) \vee P(\lambda w,e. \text{call}(m)(w,e))] (\lambda r[\forall w,e[r(w,e)] [\text{chat}(w,e)]]) \\ = \forall w,e [\text{call}(k)(w,e)] [\text{chat}(w,e)] \vee \forall w,e [\text{call}(m)(w,e)] [\text{chat}(w,e)]$$

quantifying-in

$$\lambda P[P(\lambda w,e. \text{call}(k)(w,e)) \vee P(\lambda w,e. \text{call}(m)(w,e))] \quad \lambda r[\text{if } (r) (\lambda w,e. \text{chat}(w,e))] = \\ \lambda r[\forall w,e[r(w,e)] [\text{chat}(w,e)]]$$

$\exists$ -lift

$$\{ \text{akárki telefonált} / \text{akár K akár M telefonált} \} \\ \lambda p[p=\lambda w,e. \text{call}(k)(w,e) \vee p=\lambda w,e. \text{call}(m)(w,e)]$$

Fluctuation presupposition

$$\forall q [q \in \lambda p[p=\lambda w,e. \text{call}(k)(w,e) \vee p=\lambda w,e. \text{call}(m)(w,e)]] \\ [\exists w,e. q(w,e) \wedge \exists w,e. \neg q(w,e)]$$

lift to consequent

$$\text{elbeszélgettünk} \\ \lambda w,e. \text{chat}(w,e)$$

Working from bottom up, *akárki telefonált* `whoever called' and *akár K (telefonált) akár M telefonált* `whether K (called) or M called' are composed and interpreted as a set of propositions, as was detailed in Section 2. Note that if Kati and Mari are the only relevant individuals, both AKÁR-clauses are based on the same set of propositions, { $\wedge$ Kati called,  $\wedge$ Mari called}. The elements of this set of propositions are the alternatives whose truth the presupposition associated with AKÁR requires to fluctuate, cf. (21)-(22). The use of (world, event) pairs will be motivated in Section 6.

The step labeled  $\exists$ -lift existentially quantifies over the above set, spelling out the truth-conditional contribution of the silent AKÁR discussed in Section 2, and lifts the result to a generalized quantifier over propositions, prepping it for getting quantified into the conditional antecedent.

*Elbeszélgettünk* ‘we chatted’ morphs into the consequent of a conditional looking for an antecedent via lift to consequent. The fact that propositional variable  $r$  in the restriction of the universal that interprets the conditional is immediately abstracted over facilitates the quantifying-in of the AKÁR clause. Given these preparations, quantification in the next step is just functional application.

Finally, the step strengthening corresponds to recursive exhaustification of the sub-domain alternatives of the whole sentence, endowing it with Universal Force, following Chierchia 2013 on  $\forall$ -FCIs, cf. Section 3.

Naturally,  $\exists$ -lift and lift to consequent could be broken into multiple steps, but the compressed presentation of the familiar content makes the tree more legible.

In the rest of this section and in Sections 6 and 7 we comment on and flesh out details of the derivation, adding brief pointers to Rawlins 2013 for English.<sup>9</sup>

**The locus of quantifying-in.** The AKÁR clause is quantified into the conditional right above “if,” to obtain the same scope configuration as the famous (24):

(24) If a relative of mine dies, I inherit a house.

Charlow 2018 develops a Karttunen-inspired, scope-based method of alternative management, with the specific aim of catering to in-situ indefinites. His Fig. 6 spells out the derivation of (24) with alternative percolation out of a scope island, without movement out of the island. The indefinite shifts into a scope-taker, moves to the edge of the island, then pied-pipes the island to a scope position over the conditional. Our derivation in (23) performs the exact same tasks, but much of it is overt, given the properties of Hungarian summarized in Section 2. Recall that Hungarian *akárki* moves to, and the reiterating particle *akár* is attached to, the left edge of their clauses (and invoke silent  $\exists$  propositional quantifiers right above). They take scope overtly and are in a canonical position to pied-pipe. The quantifying-in step feeds each alternative into the antecedent of a separate conditional.

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<sup>9</sup> For reference, Rawlins (2013: 172) summarizes his derivation for English as follows:

- (i) Disjunction or a wh-ever item introduces alternatives into the composition.
- (ii) The question operator introduces exhaustiveness and mutual exclusivity presuppositions.
- (iii) Alternatives compose pointwise with the main clause via Hamblin pointwise functional application – one modal claim for each alternative.
- (iv) A conditional adjunct (whatever its content) restricts the domain of a main clause modal.
- (v) The modal imposes an existence presupposition or entailment on its domain, leading to a distribution effect.
- (vi) A default Hamblin universal operator collects alternatives.

In sum, the scope-taking analysis is well-motivated and can be accomplished with or without overt movement, depending on the language or on the expressions involved; compare *a relative of mine* with *whichever relative of mine* in English.

**Universal force.** Unconditionals present the alternatives in the adjunct as antecedents of separate conditionals, with the main clause as the consequent. Strikingly, each of these conditionals is asserted to be true. On our account, Universal Force in unconditionals comes about in the same way as in universal free choice. We adopted Chierchia's theory that strengthens the original disjunctive/existential semantics of the whole sentence that comes from the wide-scoping AKÁR expression, to a conjunctive / universal one, via recursive exhaustification. But any other theory of free choice that also subsumes negative polarity would do. Rawlins achieves universality in unconditionals by postulating a default universal quantifier on top of the logical form, which is not known from elsewhere in the grammar.

**The roles of Fluctuation.** Fluctuation plays a critical role in the intuitive characterization of universal free choice. Each alternative must be true in some world, but variation must be attested. This presupposition is violated if a particular person's calling is excluded, or if the same person or persons call on every imaginable scenario.

(25) Anyone may call.

Likewise, each alternative in the unconditional adjunct must be true at some event or, in the case of ignorance, in some epistemically accessible world. This is one of the things that distinguishes (26) from (27), a conditional with a flat disjunction in its antecedent.

(26) Whether Kate or Mary or Sue called, we chatted.  
Whether Kate or Mary or Sue calls, we'll chat.

(27) If Kate or Mary or Sue called, we chatted.  
If Kate or Mary or Sue calls, we'll chat.

On our account, universal free choice and unconditionals are the same thing. Therefore Fluctuation carries over and requires that each alternative be true somewhere, but not in a constant manner. On Rawlins's analysis, the source is quite different: the domain of quantification must not be empty and it has a partitioned structure.

Fluctuation also plays a role in accounting for speaker ignorance in unconditionals pertaining to a single event; see the discussion of flavors in Section 6.

**Size matters: Universal Force vs. Fluctuation.** Chierchia 2013 and Dayal 2013 implement Fluctuation in universal free choice differently (see Sections 3-4), but on both accounts, Fluctuation pertains to the same domain as the recursive exhaustification that produces Universal Force: the whole sentence. This leads to a conflict unless the sets of worlds in which the sentence has to be true/false is carefully managed. That kind of conflict resolution is not natural or maybe not even possible in the case of unconditionals. But there is an easy way-out: to restrict Fluctuation to the conditional antecedent.<sup>10</sup> Consider the following two pieces from (23):

- (28) a. By Fluctuation  
 $\forall q [q \in \lambda p [p = \lambda w, e. \text{call}(k)(w, e) \vee p = \lambda w, e. \text{call}(m)(w, e)]]$   
 $[\exists w, e. q(w, e) \wedge \exists w, e. \neg q(w, e)]$   
 b. By strengthening to Universal Force  
 $\forall w, e [\text{call}(k)(w, e)] [\text{chat}(w, e)] \wedge \forall w, e [\text{call}(m)(w, e)] [\text{chat}(w, e)]$

Suppose Mari calls at  $(w_1, e_1)$  but not at  $(w_2, e_2)$ , and Kati calls at  $(w_2, e_2)$  but not at  $(w_1, e_1)$ . Fluctuation is satisfied, and this state of affairs is entirely compatible with Universal Force, i.e. the assertion that at every  $(w, e)$  pair where Mari called, we chatted, and at every  $(w, e)$  pair where Kati called, we chatted.

It is desirable to apply Fluctuation uniformly in unconditionals and traditional universal free choice. Therefore, in Section 4, we proposed that Fluctuation originates with AKÁR (or, in general, with particles responsible for free choice) and always pertains to what I called the bare AKÁR clause, cf. (21)-(22). This does not seem to make a big difference for traditional free choice. It only affects where the existential quantifier over worlds comes from: the possibility modal in the scope of the free choice item, or the statement of the presupposition itself.

## 6 Unconditional flavors and (world, event) pairs

Rawlins 2013 recognizes three modal flavors in English unconditionals: circumstantial, epistemic, and totally realistic. Hungarian unconditionals exhibit the same flavors, which makes the data directly comparable. Below, the characterization in modal terms and the remarks on indifference and ignorance come from Rawlins. The multiple-event and single-event labels are our own, as are the English and Hungarian examples that illustrate what we consider felicitous uses.

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<sup>10</sup> Big thanks to Y. Xiang for pointing out the problem, and to V. Dayal for offering the solution.

- (29) Multiple events, circumstantial modal base, at-issue relational indifference  
 { Whoever / whether K or M } entered, we chatted.  
 { Akárki / akár K akár M } jött be, elbeszélgettünk.
- (30) Single event, epistemic modal base, presupposed speaker ignorance<sup>11</sup>  
 { Whoever / whether K or M } entered a minute ago, I didn't recognize her.  
 { Akárki (is) / akár K akár M } jött be az imént, nem ismertem meg.
- (31) Material unconditional [ $\approx$  totally realistic modal base, empty ordering source], multiple events, no ignorance or indifference effects  
 { Whoever / whether K or M } entered, the floor squeaked.  
 { Akárki / akár K akár M } be jött, nyikorgott a padló.

Rawlins (2013: 163) observes that “the presence of ignorance implications in unconditionals and free relatives obeys a constraint discovered by Giannakidou and Cheng (2006) and Reynolds (2007) for free relatives. In particular, in both constructions ignorance implications fail to appear in non-episodic contexts. (The inverse is not fully true: in episodic contexts, unconditionals must have an ignorance reading, but FRs may alternatively have a FR-indifference reading, depending on the details of the context and sentence.)”

Rawlins draws on von Stechow 2000 for ignorance in free relatives:

- (32)  $[[\text{whatever } \alpha]]^w = \lambda x. [[\alpha]]^w(x)$   
 defined for  $F, w$  only if:  $\exists w', w'' \in F(w) : \lambda x. [[\alpha]]^{w'}(x) \neq \lambda x. [[\alpha]]^{w''}(x)$

Given that he analyses unconditional adjuncts as questions, Rawlins reincarnates (32) as a presupposition that requires that there be multiple epistemically accessible worlds, at each of which there exist distinct sets of complete answers to the question that are true at that world. He observes that an unconditional obligatorily involves presupposed speaker ignorance if and only if it is episodic, although the tie between ignorance and episodicity is beyond the scope of the analysis.

In the labels attached to (29)-(30)-(31), we distinguished multiple-event and single-event cases. The intuition that unconditionals with a circumstantial modal flavor pertain to multiple events is very strong. The adjunct is readily (perhaps not accurately) paraphrased using *whenever*, and the main clause pertains to the same event or a related event. So it seems that events should play a role in the semantics, over and beyond a circumstantial, “as far as the facts are concerned” modal

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<sup>11</sup> The optional particle *is* seems to correlate with the ignorance reading, with some cross-speaker variation. This paper will not attempt to address this role of *is*.

base. (Material unconditionals also involve multiple events; the difference between (29) and (31) is taken up in Section 7.) In contrast, we propose that the key property of episodicity is that the sentence pertains to a single event.

This promises to tie together single-event cases and speaker ignorance. Informally, Fluctuation requires that each proposition in the set  $\wp$  for the bare AKÁR clause (here: the adjunct) be true “somewhere” and false “somewhere (else)”. This entails that there must be at least two instances of “somewhere” under consideration.<sup>12</sup> In (23), we use quantification over (world, event) pairs. The intuition is that unconditionals primarily look for multiple events to satisfy Fluctuation. If the sentence clearly pertains to a single event, then multiple ways of viewing that event are invoked. That is, if the event component of (w,e) is firmly fixed, the world component must vary. The primacy of events may be reinforced by the fact that in Tamil and Telugu, unconditionals do not have ignorance readings (R. Balusu, p.c.). If those unconditionals are syntactically based on free relatives, then this may tie in with the finding in Šimík 2018 that “*ever* free relatives” in many languages are purely quantificational and lack the ignorance and indifference readings that they exhibit in English. Šimík proposes to factor modality out of the basic account of *ever* free relatives.

Our formalization in terms of quantification over (w,e) pairs is preliminary and heavy-handed, but here we will leave it at that, and refrain from engaging with the complications of epistemic modality and alternating modal bases. To match, we formalize the conditional as universal quantification over (w,e) pairs, without a silent modal.

## 7 Are the alternatives mutually exclusive? If yes, what is the source?

It is a well-established intuition that unconditionals present mutually exclusive and jointly exhaustive alternatives. Rawlins 2013 postulates a Q operator with partition semantics in the derivation of unconditional meanings.<sup>13</sup>

Hungarian unconditionals only exhibit mutual exclusivity effects in the circumstantial and the epistemic flavors (29)-(30). The reason why we can safely distinguish these from the material unconditional flavor (31) is that, given the appropriate choice of the verb, they differ in word order. In Sections 1 through 5, we used the prefixless verb *telefonál* ‘call’, so as to abstract away from this issue. In

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<sup>12</sup> Hirsch 2016 derives ignorance from the partition semantics for questions and the non-triviality presupposition pertaining to the epistemic modal base. While we do not use these ingredients, our intuition seems to be similar to his.

<sup>13</sup> In recent years the partition semantics for questions has been abandoned, so even if unconditionals are based on questions, the availability of a partitional Q operator is not automatic.



(29)-(30)-(31), however, it was replaced with *be-jön* ‘enter, lit. in-come’, so as to make the flavors trackable. Now notice that in (29)-(30), the order is Verb Prefix (*jött be*), whereas in (31), it is Prefix Verb (*bejött*). The significance of the word order difference is that it unambiguously signals that *akárki* (likewise, *Kati / Mari*) is in identificational focus in (29)-(30) but not in (31).

When a Hungarian sentence has identificational focus (É. Kiss 1998), the focus-accented phrase occurs in an immediately preverbal position. Remarkably, when the verb has a prefix, identificational focus triggers prefix/verb inversion (*be jött > jött be*). According to Horvath 2010, the syntactic representation is as below. EI-Op is a null operator in complementary distribution with *csak* ‘only’ that associates with a focus-accented phrase and drags it to the specifier of the clause-level EI head (EI for Exclusion-by-Identification).

(33)  $[_{EI-P} [_{EI-Op} \text{MARI} [_{EI^0} [_{TP} \text{come} + T_{past} [\text{MARI} \text{ come in } ]]]]]]$

What is important for our purposes is that identificational focus is easily visible and it has both presuppositional and truth-conditional impact (Szabolcsi 1994).

- (34) a. *MARI jött be*  
           *M came in*  
           ca. ‘It was Mari who entered (in the contextually relevant set)’  
       b.  $\iota x[\text{entered}(x) \ \& \ \forall y[\text{entered}(y) \rightarrow y \leq x]] = m$

When *akárki* functions as an NPI or FCI, it cannot be in identificational focus; but in unconditionals with a circumstantial/epistemic flavor, it must be.<sup>14</sup> So maybe a partitional operator in unconditionals forces identificational focus? That cannot be correct, because in material unconditionals such as (31), there is no identificational focus. The reason why we know that (31) is indeed an unconditional and not a plain conditional that for some reason lacks *ha* ‘if’ is that (31) exhibits the existential presupposition that is characteristic of unconditionals but is absent from plain conditionals.

(35)  $\{Akárki / akár Kati akár Mari\}$  *bejött, nyikorgott a padló.* (=31)  
       ‘{Whoever / whether K or M} entered, the floor squeaked’

(36) *Ha {akárki / akár Kati akár Mari} bejött, nyikorgott a padló.*  
       ‘If {anyone / either K or M} entered, the floor squeaked’

The sentences in (35) presuppose that multiple people (or specifically, both Kati and Mari) entered at some time or other, whereas those in (36) do not. (The

<sup>14</sup> Halm 2016 makes the same observations about *bárki*, cf. fn. 5.

AKÁR expressions in (37) are NPIs, licensed in the conditional antecedent.)

Corresponding to the presence vs. absence of identificational focus, (29)-(30) only considers mutually exclusive alternatives. This is clearest when *akár Kati akár Mari* ‘whether K or M’ is in focus. Situations in which they entered together are not under consideration. In contrast, (31) says that there was coming and going by individuals, alone or in arbitrary combinations. This jibes with Dayal’s observations about universal free choice. “It is sometimes thought that English sentences like (22a) [=Bill may read any of these books] do not have a reading in which the permission extends to the full set of books. I believe this is incorrect. If one utters (22a) and Bill reads all the books, he has not exceeded his mandate. The present account allows for this” (Dayal 2013).

It appears, therefore, that unconditionals do not have a partition semantics per se. When the adjuncts have identificational focus, we have exclusivity effects, and when they do not, we do not. What explains the correlation (traceable in Hungarian) between the “modal” unconditionals and focus? We conjecture that identity is under discussion in those cases (and the unconditional states that it should not matter). Identificational focus is not only exclusive, it is also identificational; probably that is the reason why it is employed in these cases.

It is possible that a similar division exists in other languages that do not make identificational focus as visible as Hungarian does, and so unconditionals whose alternatives are not mutually exclusive (like our (31)) escape attention.

The joint exhaustivity aspect of partition semantics is more difficult to check, because questions, unconditionals, focus, etc. are subject to contextual domain restriction.

## **Section 8 Why is the territory of Hungarian AKÁR divided between *any* and *wh-ever* in English?<sup>15</sup>**

This paper does not undertake the analysis of unconditionals in any language other than Hungarian. However, it is reasonable to wonder why English does not use *any* in unconditionals.

We conjecture that set of alternatives in unconditionals must be pied-piped above the conditional antecedent in overt syntax. This is something that Hungarian AKÁR expressions and English *wh-ever* can accomplish, but English *any* cannot. At least on its standard use, *any* stubbornly stays in-situ in overt syntax.

Recall from Section 2 that Hungarian *akár* is either a reiterating particle that attaches to the left edge of each proposition in a Junction Phrase, or builds quantifier words with indeterminate pronoun bases: *akárki*, etc. Moreover, quantifier

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<sup>15</sup> This section is based on detailed discussions with R. Balusu.

words containing *akár* move in overt syntax (all quantifier words do). In this respect, they behave much like *wh*-words in English do. If this is critical, then it becomes understandable why English recruits *wh-ever* in unconditionals. Likewise, *whether\_or* occurs higher in the syntax than *either\_or*. If this line of reasoning is correct, the question-like appearance of English unconditionals is motivated by syntax (or, syntax/semantics interface) considerations and not by pure semantics.

There are two sets of data that support this approach, preliminary as it is.

First, English can form unconditionals with *any*, although not in the normative register. In that case the *any*-item is obligatorily or at least preferably fronted. Compare (38)-(39) with NPI/FCI *any*-items with unconditional (40a,b,c).

- (37) a. Mary didn't buy anything [whatsoever].  
 b. Mary may buy anything [what(so)ever].
- (38) a. ?? Mary bought anything, we were happy.  
 b. Anything Mary bought, we were happy. colloquial  
 c. Anything that Mary bought, we were happy.<sup>16</sup> not all speakers

Second, Telugu offers convergent data. The particle *ainaa* builds negative polarity and free choice items from indeterminate pronoun bases (Balusu 2017a). In addition, the sentence-final particle (SFP) *-naa* forms free-choice relatives; these have an indeterminate pronoun in-situ and *-naa* appears at the right edge of the clause (Balusu 2017b). R. Balusu (p.c.) notes that *ainaa* is composed of a reduced version of the verb 'become' plus *-naa*. It may be that *-naa* being an SFP must attach to a verbal stem and *-ai-* supplies that verbal base when *-naa* combines with a nominal element. Be that as it may, we see that the syntax of *-naa* is very similar to that of Japanese *ka* (and *mo*).

- (39) wh {ai-naa / ka} `anything/something`  
 DP<sub>1</sub> {ai-naa / ka} DP<sub>2</sub> {ai-naa / ka} `either DP<sub>1</sub> or DP<sub>2</sub>`
- (40) [<sub>FocP</sub> ... wh ... V] {naa / ka} `uncond. naa / question ka`  
 [<sub>FocP</sub> ... DP<sub>1</sub> ... V] {naa / ka} [<sub>FocP</sub> ... DP<sub>2</sub> ... V] {naa / ka}

In contrast to Japanese and Telugu, Hungarian indeterminate pronouns and particles never come apart, although *akár* itself occurs at the left edge in JP. See Cable 2010 for the syntax.

- (41) \* *akár* [... *ki*...]

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<sup>16</sup> We thank the version with *that* to A. Warstadt, who also finds it in corpora. It is reminiscent of French *que* in free choice expressions.

In sum, Telugu *-naa* offers yet another, cross-linguistically well-attested way to pied-pipe alternatives above the conditional and unifies NPIs, FCIs, and unconditionals.

We supplement this discussion with a fairly complete set of relevant data for Telugu. Most of the data come from Balusu 2017a,b, but here they are pulled together and the occasional gaps are filled by Balusu (p.c.).<sup>17</sup>

- (42) NPI  
 ravi ee-pustakam-ainaa cadiveeDu ani neenu ana-leedu  
 Ravi which-book-AINAA read that I said-not  
 ‘I didn’t say that Ravi read any book’
- (43) ravi kuura-ainaa (vanDeeDu) caaru-ainaa vanDeeDu ani neenu ana-leedu  
 Ravi curry-AINAA cooked sambar-AINAA cooked that I said-not  
 ‘I didn’t say that Ravi cooked either curry or sambar’
- (44) FCI  
 bhushan eemi-ainaa tinnaa-Vaccu  
 Bhushan what-AINAA eat-may  
 ‘Bhushan may eat anything’
- (45) bhushan kuura-ainaa (tinnaa-Vaccu) caaru-ainaa tinnaa-Vaccu  
 Bhushan curry-AINAA eat-may sambar-AINAA eat-may  
 ‘Bhushan may eat either curry or sambar’
- (46) UNConditional  
 [uma eemi vanDi]-naa vanTillu manci vaasana vastundi  
 Uma what cooks-NAA kitchen good smell come-will  
 ‘Whatever Uma cooks, the kitchen will smell good’
- (47) uma [kuura vanDi]-naa [caaru vanDi]-naa vanTillu manci vaasana vastundi  
 Uma curry cooks-NAA sambar cooks-NAA kitchen good smell come-will  
 ‘Whether Uma cooks curry or sambar, the kitchen will smell good’
- (48) uma [kuura-oo caaru-oo vanDi]-naa vanTillu manci vaasana vastundi  
 Uma curry-DISJ sambar-DISJ cooks-NAA kitchen good smell come-will  
 ‘Whatever Uma cooks by way of curry or sambar, the kitchen will smell good’

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<sup>17</sup> Note: *ainaa* and *-naa* with lexical foci have further uses that *akār* does not, and so observationally, (43), (45), (47) and (48) are not dedicated NPIs, FCIs, or unconditionals.

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