Two strategies for forming unconditionals: Evidence from disjunction

Introduction. Rawlins (2008a,b, 2013) proposes that alternative unconditionals should be analysed as exhaustive conjunctions of conditionals in English (1). Specifically, Rawlins argues that the adjunct clause of an unconditional has the semantics of an alternative question (2), and that the $\langle st, t\rangle$-type denotation of the adjunct composes with the matrix clause via pointwise functional application.

(1) a. $[_{adjunct}$Whether Mari moves to Paris or Lyon], she needs to learn French
$=$ [M. moves to P. $\rightarrow$ M. needs to learn Fr.] $\wedge$ [M. moves to L. $\rightarrow$ M. needs to learn Fr.]

b. $[_{adjunct}$Whether Mari moves to Paris or not], she needs to learn French
$=$ [M. moves to P. $\rightarrow$ M. needs to learn Fr.] $\wedge$ [M. does not move to P. $\rightarrow$ M. needs to learn Fr.]

(2) Will Mari move to [Paris]$\uparrow$ or [Lyon]$\downarrow$? – Paris/Lyon. – #Yes/No.

In this paper, it is argued that alternative unconditionals may be formed in two ways. The first strategy corresponds to Rawlins's analysis; it involves a Q-particle and pointwise functional application. The second strategy does not involve a Q-particle, but an existential closure operator $\exists$. Schematically, the two strategies can be represented as in (3) (where p stands for an alternative contributed by the adjunct).

(3) a. $[p_1 \rightarrow matrix] \wedge [p_2 \rightarrow matrix] \wedge ...[p_n \rightarrow matrix]$ [Q-strategy; e.g. Rawlins, 2013]

b. $[p_1 \vee p_2 \vee ... \vee p_n] \rightarrow [matrix]$ [$\exists$-strategy; this contribution]

The data that is used to argue for the existence of the Q- and $\exists$-strategies comes from two languages with distinct 'logical' and 'interrogative' disjunctors: Mandarin Chinese (MC) and Finnish (F).

Logical and interrogative disjunction. The disjunctors discussed in this paper are (in the logical/interrogative order) *tai/vai* (F) and *huòzhe/háishi* (MC). In F, only the logical disjunctor *tai* may appear in non-question contexts. In questions, it gives rise to a polar question interpretation (^{ok}yes/no-answers) (4a). In contrast to *tai*, the interrogative disjunctor *vai* may only appear in questions, and obligatorily gives rise to an alternative question interpretation ($^{\#}$yes/no-answers) (4b).

(4) a. *Aikooko Mari muuttaa Pariisiin **tai** Lyoniin?* [polar question]
intends-Q Mari-NOM move Paris-ILL or Lyon-ILL
'Does Mari intend to move to [Paris or Lyon]$\uparrow$?'

b. *Aikooko Mari muuttaa Pariisiin **vai** Lyoniin?* [alternative question]
intends-Q Mari-NOM move Paris-ILL or Lyon-ILL
'Does Mari intend to move to [Paris]$\uparrow$ or [Lyon]$\downarrow$?'

In MC, disjunctive polar questions are formed with *huòzhe* (^{ok}yes/no-answers) and alternative questions with *háishi* ($^{\#}$yes/no-answers). In contrast to *tai* and *vai*, *huòzhe* and *háishi* are interchangeable in some non-question contexts, such as conditionals (5) (Erlewine, 2017).

(5) a. *Rúguǒ (yǒu) ZS {**huòzhe/háishi**} LS dǎdiànhuà lái, jìu shuō wǒ bú zài* [MC]
if have ZS or LS call come then say 1SG not present
'If Zhang San or Li Si calls, say that I'm not here'

b. *Jos ZS **{tai/*vai}** LS soittaa, sano etten ole täällä* [F]
if ZS or LS calls say that-NEG.1SG be here
'If Zhang San or Li Si calls, say that I'm not here'

Disjunction in unconditionals. Crucially, MC and F differ in whether they allow the interrogative disjunctor to appear in unconditionals: in MC, this is possible (Erlewine, 2017), while in F, it is not (6). The unavailability of *vai* is surprising if the only way to form unconditionals is by using the Q-strategy.

(6) a. *(Wúlùn/bùgǎn) [ZS {**huòzhe/háishi**} LS dǎdiànhuà lái], wǒ dōu bú zài* [MC]
no matter ZS or LS call come 1SG DOU not
'(No matter) [whether Zhang San or Li Si calls], I'm not here'

b. *[Käy(pä) Mari Pariisissa {**tai/*vai**} Lyonissa], hän tarvitsee ranskaa* [F]
visit-PRT Mari-NOM Paris-INE or Lyon-INE she-NOM needs French
'Whether Mari visits Paris or Lyon, she will need French'

Disjunction and 'closure'. The present proposal assumes that distinct disjunctors may have different semantic 'closure' requirements that are syntactically encoded. It thus closely follows Erlewine's (2017) proposal for the semantics of MC disjunction (7), couched within the framework of two-dimensional Alternative Semantics (Rooth, 1992) (see also Alonso-Ovalle, 2006, Biezma and Rawlins, 2012):

(7) a. $[\![\alpha \text{ DISJ } \beta]\!]^o = \text{undefined}$ b. $[\![\alpha \text{ DISJ } \beta]\!]^f = \{\alpha, \beta\}$ (Erlewine, 2017)

As the ordinary semantic value in (7a) is undefined, some operation must take place for the whole structure to be semantically well-formed. Erlewine proposes that lexical items associated with logical disjunction carry a syntactic feature $[u\exists]$, and the relevant operator is therefore the existential closure operator $\exists$ (cf. Kratzer and Shimoyama, 2002; Biezma and Rawlins, 2012). For reasons of space, all disjuncts are treated as propositions here, and $\exists$ is given the semantics in (8) (Erlewine uses Uegaki's (2016) cross-categorial definition, and argues for in situ interpretation of disjunction in MC). Under (8), the meaning of *p tai/huòzhe q* comes out as $\lambda w.p^w \vee q^w$. In $\exists$-unconditionals, then, the proposition that results from $\exists$-closing the adjunct is plugged in as the antecedent of a conditional (see (3b)).

(8) a. $[\![\exists(A)]\!]^o = \lambda w.\exists p \in [\![A]\!]^f\colon p^w$ b. $[\![\exists(A)]\!]^f = [\![A]\!]^f$ (Erlewine, 2017)

By analogy with $\exists$, some structures – such as alternative questions – involve 'closure' by Q, whose semantics is given in (9). The question *p vai/háishi q?* denotes $\{\lambda w.p^w, \lambda w.q^w\}$ (Biezma and Rawlins, 2012), and Q-unconditionals plug each alternative as the antecedent of a distinct conditional (see (3a)).

(9) a. $[\![Q(A)]\!]^o = [\![A]\!]^f$ b. $[\![Q(A)]\!]^f = \{[\![Q(A)]\!]^o\}$ (Kotek, 2014, 2016)

Features of DISJ: MC vs. F. Erlewine argues that *háishi* (MC) is not associated with $[uQ]$; this is why it is exchangeable with *huòzhe* in some non-question contexts (5). To explain the restriction of *vai* to questions in F, the current paper simply assumes that *vai* does carry $[uQ]$, and it therefore requires the presence of Q (cf. Tsai, 2015 for MC). In both languages, the logical disjunctor carries $[u\exists]$.

Unconditionals: MC vs. F. The grammaticality of *huòzhe* and *háishi* in MC unconditionals now follows if the latter may involve Q (written as $(Q_{[iQ]})$ below), and both Q- and $\exists$-strategies are available (6a). The ungrammaticality of $vai_{[uQ]}$ in F unconditionals follows if the latter never involves Q (written as $^*Q_{[iQ]}$ below), and only the $\exists$-strategy is available (6b). The lack of Q in F unconditionals is supported by the fact that unconditionals are never formed using the question clitic *–kO* in the language (cf. (4)).

Strategy	Language	'Logical' DISJ	'Interr.' DISJ	Q and DISJ in unconditional?
Q or $\exists$	Mandarin Chinese (MC)	$huòzhe_{[u\exists]}$	*háishi*	$(Q_{[iQ]}) \Rightarrow {}^{ok}$*huòzhe*, ^{ok}*háishi*
$\exists$ only	Finnish (F)	$tai_{[u\exists]}$	$vai_{[uQ]}$	$^*Q_{[iQ]} \Rightarrow {}^{ok}$*tai*, **vai*

Differences: Q- vs. $\exists$-unconditionals. (i) Q-unconditionals have been argued to carry the presuppositions of alternative questions (e.g. Rawlins, 2013): exactly one alternative must be true. $\exists$-unconditionals are not necessarily predicted to carry such presuppositions. This seems to be correct for F: (6b) does not mean that Mari may only visit one city. (ii) In unconditionals, the truth of the matrix clause is entailed (e.g. Rawlins, 2008a). In Q-unconditionals, this follows if the denotation of the adjunct contains all possible alternatives (cf. alternative question presuppositions). In $\exists$-unconditionals, one non-presuppositional way to derive matrix clause entailment is to say that the adjunct involves polarity focus and thus polar alternatives (i.e. p and $\neg p$); then its $\exists$-closure is always true by the law of excluded middle. In this case, obligatory verb-fronting in F unconditionals could be related to polarity focus (6b).

Conclusion. Based on evidence from 'logical' and 'interrogative' disjunctors in Mandarin Chinese (MC) and Finnish (F), it is proposed that unconditionals involve 'closure' by Q or $\exists$. MC may use either the Q- or the $\exists$-strategy for unconditionals, whereas F may only use the $\exists$-strategy. Future work will focus on matrix clause entailment and identification of other languages that make use of the $\exists$-strategy.

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