Disjunction and Positive Polarity

Disjunction is known to show scopal restrictions typical of Positive Polarity Items (PPIs) in some languages. For example, in Hungarian and Romanian disjunction cannot take scope below a clause-mate negation, as shown in (1) and (2), respectively (the Hungarian examples come from Szabolcsi 2002 and all other examples are provided by the author). This contrasts with languages like English where disjunction does not exhibit the same PPI–like behavior and can readily be interpreted with narrow scope; the wide scope reading will always be available.

(1) Nem csuktuk be az ajtót vagy az ablakot.
not closed in the door or the window
'We didn't close the door or we didn't close the window.' *neg>or

(2) Băieţii nu au închis uşa sau fereastra.
boys not have closed door or window
'The boys didn't close the door or they didn't close the window.' *neg>or

Looking closely at Hungarian disjunction, Szabolcsi (2002) proposes the following generalization: Hungarian disjunction is anti-licensed if locally embedded in an anti-additive (AA) context, unless the AA context itself is contained in a downward entailing (DE) context.

The Problem: We claim that Szabolcsi's generalization has a counterexample, at least for Romanian disjunction.The crucial observation is that while Romanian disjunction cannot take scope in the restrictor of *every*, it can in the restrictor of *no*. Note that Romanian can use either *fiecare* 'each' or *toţi* 'all' to mean *every* and the same generalization holds for both.

(3) Fiecare student din anul doi sau trei va veni la petrecere.
each student of year two or three will come to the party
'Every second or third year student will come to the party.' *every>or

(4) Niciun student din anul doi sau trei nu va veni la petrecere.
no student of year two or three not will come to the party
'No second or third year student will come to the party.' ✓no>or

Notice that since the restrictors of both *every* and *no* are AA, according to Szabolcsi's generalization, disjunction should be anti-licensed in both environments so the contrast between the two is unexpected.

Domain Alternatives and Exhaustification: In order to account for the above contrast, we adopt Nicolae's (2012) theory of PPI licensing where PPIs are assumed to be elements with obligatorily active alternatives that require exhaustification. Specifically, she takes PPIs to be associated with super-domain alternatives that need to be exhaustified by a covert propositional operator $\mathcal{E}$ (cf. Chierchia 2006 for NPIs). In this system, the Romanian disjunction *sau* would be interpreted as a cross-categorical existential quantifier with super-domain alternatives, as in (5).

(5) a. $[\![$ John read A sau B $]\!] \Leftrightarrow \exists x \in \{A, B\}[^{\vee}\mathbf{read}(j, x)]$
b. $\mathcal{A}lt$(John read A sau B) $= \{\exists x \in D[^{\vee}\mathbf{read}(j, x)] \mid \{A, B\} \subset D\}$

The operator $\mathcal{E}$ is similar to *even* in meaning:

(6) $[\![\mathcal{E}]\!]([\![S]\!]) \Leftrightarrow [\![S]\!] \wedge \forall q \in \mathcal{A}lt(S)[[\![S]\!] \lhd_c q]$ ($\lhd_c$ = less likely in context c)

As Nicolae (2012) shows for PPI indefinites (e.g. *someone*), their distribution follows on the assumption that exhaustification with $\mathcal{E}$ is obligatory and the second conjunct $\forall q \in \mathcal{A}lt(p)[p \lhd_c q]$ needs to be tautological. For example, in a simple positive sentence like (5a), the second conjunct will be a tautology, as the super-domain alternatives q are all entailed by the assertion, thus making the prejacent p least likely. On the other hand, when there is a clause-mate negation taking scope over the disjunction, the likelihood relation is reversed, and as a result, the

second conjunct becomes false. We assume that in such cases exhaustification fails and the sentence is judged as ungrammatical. The reason why only clause-mate operators matter is because $\mathcal{E}$ is assumed to be a clausal operator, rendering any extra-clausal DE operators irrelevant for the purposes of exhaustification since in such cases $\mathcal{E}$ has the option of adjoining below the extra-clausal DE operator. This syntactic assumption will be crucial below.

***Every* vs. *No*:** The above analysis straightforwardly explains (3). Since the restrictor of *every* is AA, the likelihood scale is reversed, making the alternatives less likely. Schematically,

(7) a. $[\![\text{Every } A \text{ sau } B \text{ came}]\!] \Leftrightarrow \forall x[[\exists P \in \{A, B\} \wedge {}^{\vee}P(x)] \rightarrow {}^{\vee}\mathbf{came}(x)]$

b. $\mathcal{A}lt(\text{Every } A \text{ sau } B \text{ came}) = \{\forall x[[\exists P \in D \wedge {}^{\vee}P(x)] \rightarrow {}^{\vee}\mathbf{came}(x)] \mid \{A, B\} \subset D\}$

Assuming that the lowest sentential node at which $\mathcal{E}$ can appear is above *every*, the disjunction *sau* is correctly predicted to be anti-licensed in this case since the assertion is not least likely, contrary to the requirements of the exhaustification. What about *no*? If the structure in (4) is isomorphic to the one in (3), we would expect *no* to also anti-license *sau*, contrary to fact. Following the literature on neg-split (cf. Penka 2011, Zeijlstra 2011) we propose instead that *no* is syntactically decomposable into two components, a negation ($\neg$) and an existential ($\exists$). We assume that $\neg$ takes sentential scope, which in turn allows $\mathcal{E}$ to take intermediate scope: below $\neg$ but above $\exists$, as in (8). Since $\mathcal{E}$ can take scope below the negation, the likelihood scale is not reversed and thus the exhaustification returns a tautological second conjunct similarly to what happens in a positive sentence, thus rendering the configuration grammatical.

(8) $[\![\neg[\, \mathcal{E}[\, \exists\, A \text{ sau } B \text{ came}\,]]\,]\!] \Leftrightarrow \neg\exists x[\exists P \in \{A, B\} \wedge {}^{\vee}P(x) \wedge {}^{\vee}\mathbf{came}(x)]$

In other words, by taking into account the fact that negative quantifiers are subject to neg-split, we can straightforwardly explain why disjunction in Romanian can be interpreted in the restrictor of negative quantifiers by appealing to the fact that exhaustification happens at the level of the local clause.

Crosslinguistic Variation: Japanese is another language whose disjunction exhibits PPI-like behavior. It can't take scope under a local negation and similarly to Romanian and Hungarian, it's ruled out from the restrictor of *every*. What distinguishes Japanese from Romanian, however, is the fact that it is also ruled out from the restrictor of *no*, see (9).

(9) ?dono ichinensei-ka ninensei-mo ko-nakat-ta.
no first.year-or second.year-MO come-NEG-PAST
'No second or third year student will come to the party.' *no>or

We attribute this variation to a requirement that in Japanese, exhaustification is a root-clausal phenomena (cf. Spector 2011 on French PPIs). Since $\mathcal{E}$ can only adjoin at the level of the matrix clause in Japanese, the fact that *no* is decomposable becomes irrelevant for the licensing of PPIs because $\mathcal{E}$ will always end up scoping above the negation. We furthermore predict that in a language such as Japanese where exhaustification is a root phenomena, PPIs should never exhibit clausal restrictions; in other words, regardless of whether or not the negative operator and the PPI disjunction are clause-mate, the disjunction will always be interpreted as taking scope higher than the negation, a prediction that is borne out in Japanese.

Furthermore, the present account also predicts that in no language will disjunction be allowed to scope under *every* but not under *no*.

References: Chierchia (2006) Broaden your views. *LI*, 37. Nicolae (2012) Negation-resistant polarity items. *Empirical Issues in Syntax and Semantics 9*. Penka (2011) *Negative Indefinites*. Spector (2011) Are there obligatory scalar implicatures? *Talk at TPrag in Berlin*. Szabolcsi (2002) Hungarian disjunction and positive polarity. In *Approaches to Hungarian 8*. Szabolcsi (2004) Positive polarity - negative polarity. *NLLT*, 22. Zeijlstra (2011) On the syntactically complex status of negative indefinites. *Journal of Comparative Germanic Linguistics*, 14.