Coordination in focus: additivity and scalarity of BCMS i and ni

<u>I. Ni and i particles in Serbian</u> Special coordination markers that emerge in negative contexts have not been extensively studied (de Swart 2001, Doetjes 2005, Wurmbrand 2008, Dagnac 2012, Gonzalez&Demirdache 2015). The present paper argues that a disjunction-based analysis of the Serbian particle *ni* accounts for its polarity sensitivity and further extends to its roles as an additive particle and as a scalar particle. In parallel, Serbian conjunction *i*, which is not distributionally restricted, but which also serves as an additive and a scalar particle, fits into such an account. *Ni* always carries active alternatives, which need to be exhaustified by a covert operator, whereas *i* only does so when acting as a scalar focus particle.

II. (*Ni...)ni* and (*i...)i* as coordinators *Ni* can coordinate NPs, DPs, PPs, VPs, and it appears only in negative sentences where a negative verbal marker (*ne*, *ni*-AUX) is spelled out (Serbian is a strict Negative Concord language). Preferably, each member of the coordination should be preceded by *ni*, although this is a real requirement only pre-verbally.

(1) a. Ni Sofija ni Lea ne idu na plivanje.

$$\sqrt{[\neg (p \lor q)]}; \ *[\neg (p \land q)]$$

ni Sofija_{NOM} ni Lea_{NOM NEG} go_{3Pl} on swimming_{ACC}

'Neither Sofija nor Lea go swimming'

b. Lea nije (ni) pojela sendvič ni popila jogurt. $\sqrt{[\neg (p \lor q)]}; *[\neg (p \land q)]$ Lea_{NOM NEG}has *ni* eat_{PART} sandwich_{ACC} *ni* drink_{PART} yogurt_{ACC}

'Lea neither ate a sandwich nor drank yogurt'

Ni is degraded when coordinating TPs or CPs (2). We will thus consider that it coordinates VPs below the auxiliary verb and, crucially, the negative operator (1b). As for (2), the only interpretation it can get is the one where *ni* acts as a focus particle.

(2) ??? (Ni) Sofija nije videla Tamaru, ni Lea neće zvati Marka.

ni Sofija_{NOM NEG}has see_{PART} Tamara_{ACC} ni Lea_{NOM NEG}will call_{PART} Marko_{ACC}

'Neither Sofija saw Tamara, nor will Lea call Marko'

Ni-coordination is ungrammatical if in a downward entailing (DE) environment (unless it is anti-additive (AA)), such as the scope of 'few' in (3).

(3) * Malo dece vole (ni) španać ni šargarepu. 'Few children like spinach or carrots' few children_{GEN} like *ni* spinach_{ACC} *ni* carrot_{ACC}

On the other hand, the conjunction i is not in complementary distribution with ni (4). However, it is not distributionally restricted to negation, either. When it occurs with sentential negation (in (4) without the brackets on 'ni-'), it can be interpreted both in its scope ('L didn't both eat a sandwich AND drink yogurt (only one of the two)') and outscoping it ('L didn't eat a/the sandwich and she didn't drink (the) yogurt').

(4) Lea (ni)je (i) pojela sendvič i popila jogurt.

Lea_{NOM} (NEG) has and eat_{PART} sandwich_{ACC} and drink_{PART} yogurt_{ACC}

'Lea (didn't) ate(/eat) a/the sandwich and drank (the) yogurt'

Crucially, ni can only yield the latter of the two interpretations, which, according to one of de Morgan's laws, is equivalent to the reading of a disjunction in the scope of negation ('L didn't eat a/the sandwich or drink (the) yogurt'). Supported by some independent evidence involving intervention, we argue that Serbian ni is a semantically non-negative disjunction (contra Arsenijevic 2011) and that its polarity sensitive behavior comes from the presence of a formal feature which needs to be checked by a matching feature present on a strong ONLY-operator - O^S (following Chierchia 2013 and references therein). The result of this agreement relation is the exhaustification of the scalar and subdomain alternatives (ALT) activated for ni:

(5) a. Assertion: $O^{s}(p \lor q)$	a'. Assertion: $O^{S} \neg (p \lor q)$
b. Scalar ALTs: p∧q	b'. Scalar ALTs: $\neg(p \lor q)$, $\neg(p \land q)$
c. Subdomain ALTs: p, q	c'. Subdomain ALTs: ¬p, ¬q

d. Exhaustification: $(p \lor q) \land \neg (p \land q) \land \neg p \land \neg q$ d'. Exhaustification: $\neg (p \lor q)$

Crucially, in non-DE environments exhaustification yields a contradiction (5d), since O^{s} would negate all the alternatives which are not entailed by the assertion (5b,c). In contrast, in (1), O^{s}

negates none of the alternatives, since the assertion (5a') entails both (5b') and (5c'), thus no contradiction arises (5d'). The exhaustification performed by O^s is strong, so presuppositions and implicatures must be taken into account (Gajewski 2011). For this reason (ni...)ni is ungrammatical in DE environments that are not AA (3): 'few children like spinach' bears an implicature that 'some children like spinach' and this disrupts the DE nature of the sentence. The conjunction *i* is not subject to obligatory exhaustification and thus has a freer distribution.

<u>III. Ni and i as focus particles</u> A disjunction-based analysis for Serbian *ni* should be maintained for its use as an additive focus particle which only occurs in negative environments, as in (6).

- (6) (Sofija ne jede španać.) Ni Lea (ne jede španać).
 - Sofija_{NOM NEG} eats spinach_{ACC} ni Lea_{NOM NEG} eats spinach_{ACC}
 - '(Sofija doesn't eat spinach) Lea doesn't eat spinach, either'

Namely, single *mi* is this time adjoined to a focalized constituent, bearing an anaphoric requirement. Following Ahn's (2014) analysis for English 'either', Serbian *mi* is understood as a disjunction that takes as its arguments the host proposition (p) and a silent anaphor (q) for which it is presupposed that it is a distinct focus alternative of the host proposition. A salient antecedent is needed in the context, and it must entail one of the alternatives from the focus value of the host. Analysing *mi* focus additive particle as a disjunction allows us to explain its polarity-sensitive behavior. This is due to the obligatory presence of an ONLY-operator and the active alternatives. Once the matching feature on *mi* is checked, the operator exhaustifies the alternatives, as in (5a'-d'), but this mechanism is vacuous, since the assertion is stronger than all its alternatives. The only difference is that, this time, p and q are not constituted from overt coordinated constituents, but from the host and the silent anaphor. Again, a contradiction arises (5d) if additive focus particle *mi* is attached to a constituent of a positive sentence. Importantly, the conjunction *i* can be employed as an additive particle, but the host is not negative, see (7).

(7) (Sofija jede španać.) I Lea (jede španać).

Sofija_{NOM} eats spinach_{ACC} also Lea_{NOM} eats spinach_{ACC}

'(Sofija eats spinach) Lea also eats spinach'

Like English 'too' (Ahn 2014), additive focus particle *i* conjoins p (host proposition) and *q* (silent anaphor in need of an antecedent that entails one of the alternatives from the focus value of the host). This time, exhaustification would be vacuous anyway, as the assertion is the strongest alternative. It is also not predicted, since *i* is not limited in its distribution, the way *ni* is.

Finally, both ni and i as focus particles can also express a scalar meaning, similar to that of English 'even' occurring in negative (8) or positive (9) contexts: /serbian is pro-drop/

(8) Nije ni uradila domaći. $\neg (p \lor q \lor (p \lt_{\mu} q))$ (9) Uradila je *i* domaći. $p \land q \land (p \lt_{\mu} q)$ _{NEG}has *ni* do_{PARTF} homework_{ACC} do_{PART} has even homework_{ACC} 'She didn't even do homework' 'She even did homework'

Once the alternatives are ordered on a likelihood scale that builds up a focus value (in contrast to non-ordered alternatives of the additive focus particle), a different kind od exhaustifier is required – an EVEN-operator. But this time, an E^{s} has to be invoked both with *ni* and with *i*, in order to yield the right scalar meaning. In the case of *ni*-disjunction, only when embedded in a negative context can it yield the right meaning (on the example in (8)): it is not the case that she did homework (*p*) and it is not the case that she cleaned her room (*q*), where *p* is less likely than *q*, by some contextually provided probability measure μ . The effect is reversed with *i* in (9).

<u>IV. Conclusions</u> In our approach, Serbian *ni* and *i* receive parallel analyses, based on the three different roles that they cover in grammar. This proposal further supports the alternatives and exhaustification framework which has mainly been established for indefinites, but also disjunction. A remaining issue is the relationship between coordination and focus additive and scalar effects, both synchronically and diachronically.

V. References Ahn, D. 2014. The semantics of additive *either*. Proceedings of SuB 19; Arsenijević, B. 2011. Serbo-Croatian coordinative conjunctions at the syntax-semantics interface, The Linguistic Review 28. 175-206; Chierchia, G. 2013. Logic in Grammar, Polarity, Free Choice and Intervention. Oxford studies in semantics and pragmatics 2, OUP; Dagnac, A. 2012. Gapping as vP-coordination: an argument from French strict NPI licensing. Ellipsis. U. Vigo (Spain); Doetjes, J. 2005. The chameleonic nature of French *iri*: negative coordination in a negative coordination in a negative coordination in a negative coordination in a recursive *iv* in French. Proceedings of 544 LSRL; de Swart, H. 2001. Négation et coordination: la conjonction *iv*. In Adverbial modification. Bok-Bennema et al.; Wurmbrand, S. 2008. Nor: Neither disjunction *nor* paradox. Linguistic Inquiry **39**, 511–522.