On non-exhaustive reading with disjunction and the role of articles

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Synopsis There is a growing literature on non-exhaustive disjunction (Barotto and Mauri, 2022; Ciferri Muramatsu and Yadav, 2024, i.a.). This work, with Hindi as a case study, discusses non-exhaustive disjunction in languages lacking articles. It aims to add to the literature on the NP/DP distinction (Boskovic, 2008; Bošković, 2009; Dayal, 2004, i.a.) which discuss that languages behave a certain way based on whether or not they have articles. As per this parameter, if a language has articles it has a D projection and languages without articles do not have this projection at all, i.e., no null D head in the structure. This project shows that the non-exhaustive reading is only possible if the language lacks articles or if a language having articles can drop them in a disjunction in contexts like (1).

Exclusivity Below is a context that licenses a non-exhaustive reading with Hindi disjunction.

(1) Context: The speaker walks into the living room, noticing that John is drinking some kind of beverage. The speaker cannot see what he is drinking but notices that he seems to be intoxicated. Later, Mary asks about John to the speaker. The speaker replies with:

(2) John beer yaa whiskey pii raha thaa.
John beer.F yaa whiskey.F drink do.PROG be.PST
(Lit.)'John was drinking beer or whiskey, or something like the two.'

This interpretation is allowed iff the disjuncts are perceived as belonging to the same natural class. If the two disjuncts are not similar enough, the disjunction is exhaustive.

(3) John beer yaa doodh pii raha thaa.
John beer yaa milk drink do.PROG be.PST
'John was drinking either beer or milk.'

Such non-exhaustive reading is found in the following languages: Hindi, Urdu, Punjabi, Marathi, Gujarati, Sinhala, Malayalam, Kashmiri, Tamil, Telugu, Chinese, Korean, Persian, Russian, Icelandic, Serbo-Croatian. As already mentioned, it is also triggered in some DP languages if articles are dropped. Greek and Kurdish are two such languages. Example (4) is from Greek shows that without articles the reading is non-exhaustive. If articles are are added before *bira* and *wine* in (4), the reading will be exhaustive.

(4) O Giannis pinei/epine bira i krasi.
the.NOM.M.SG John is/was-drinking beer or wine
Lit: 'John is/was drinking beer or wine, or any other kind of alcohol.'

For this reading to exist in a language: either it must lack articles, or it can drop articles in the relevant context with disjunction. In this work, we show that this reading is only triggered with true complements of VP, which stay in-situ and unmodified. If these conditions are not met as in (6 -8) the reading is exhaustive.

(5) John-ne pen yaa pencil khariidii. [base sentence]
John-ERG pen.F yaa pencil.F buy.F.PFV
Lit: 'John got pen or pencil, or something like the two.'

(6) pen yaa pencil, John-ne khariidii [fronting of the disjunction]
pen yaa pencil John-ERG buy.F.PFV
'John either bought pen or pencil.'

(7) pen$_i$ yaa, John-ne t$_i$ pencil khariidii. [fronting of the disjunction]
pen yaa John-ERG pencil buy.F.PFV
'John either bought pen or pencil.'

(8) Peter-ne yaa Arthur-ne pencil khariidii. [subject disjunction]
Peter-ERG or Arthur-ERG pencil buy.F.PFV
'Either Peter or Arthur bought a pencil.'

The requirements listed above about the position of the disjunction make a prediction about unaccusative subjects as they start as the complement of the verb and later move higher in the structure. The prediction is borne out as disjunction in unaccusative subjects lacks this reading, as shown in example (9).

(9) kursii yaa table toot gayii.
chair YAA table break go.F.PST
'Either chair or table broke'

Modification of the disjuncts with adjectives, quantifiers, or numerals result in an exhaustive reading (10).

(10) John-ne mehngii/kuchh/das kursii yaa oonchii/kuchh/teen table khaiidii.
John-ERG expensive/some/ten chair yaa high/some/three table buy.F.F
'John either bought an expensive/some/10 chair(s) or a high/some/three table(s).'

Also if the disjuncts are plural the reading is surprisingly reduced to the exhaustive one as shown in (11).

(11) John-ne kursiiyaaN yaa . tableN khariidiiN.
John-ERG chairs yaa tables buy.F.PL.PST
'John either got chairs or tables.'

Summarizing our findings, Hindi disjunction can be non-exhaustive only with bare, singular disjuncts.

Analysis The facts above follow from the following assumptions: (i) the commonly assumed three operators $\iota, ^{\cap}, \exists$ (Chierchia, 1998, i.a.), with an additional assumption on type shifting, and (ii) that only NP languages can disjoin bare singular NPs. We propose that Hindi, or NP languages in general, have a disjunction that coordinates two predicates. This disjunction follows from generalized disjunction (Partee and Rooth, 1983).

(12) $[\![\text{beer yaa Whiskey}]\!] = \lambda x.\ \text{BEER}(x) \vee \text{WHISKEY}(X)$

The reason this is unavailable in DP languages is that in these languages, syntax requires a DP to be projected for each disjunct, and predicates are lifted to a different type before being fed to the disjunction. Now, in order for the disjunction phrase in (12) to combine with a verb, the type mismatch must be resolved with ι. We follow the literature and assume that when a predicate is lifted by the iota operator, it denotes the unique atomic instantiation of a kind in a contextually determined taxonomic hierarchy (Dayal, 2004). Now, there cannot be an instantiation of a kind that has the form of BEER+WHISKEY (Dayal, 2004). The closest candidate is the kind with both BEER and WHISKEY as its sub-kinds. This is the immediate hypernym of the two kinds in the taxonomic hierarchy. Thus, in (12), ι picks up ALCOHOLIC BEVERAGE as the instantiation of the kind denoted by the disjunction phrase. We assume the principle of meaning preservation in (Dayal, 2004), where ι is ranked above $\exists$, and is applied whenever possible. $\exists$ is applied when ι cannot, for instance, when the two disjuncts do not form a natural class. In such cases ι cannot pick out an instantiation of a kind, because there is no kind with BEER and MILK as its immediate sub-kinds.

(13) $[\![\text{beer yaa milk}]\!] = \lambda P\ \exists x.\ (\text{BEER}(x) \vee \text{MILK}(x)) \wedge P$

In the case of disjunction of bare plurals, we assume that $^{\cap}$ is applied to the nominals before they can be fed to the disjunction, because of the plural marker. They thus need $^{\cup}$ to fix the type mismatch, as generalized disjunction cannot operate on type $\langle e \rangle$ (Partee and Rooth, 1983).

(14) $[\![\text{kursiiyaaN yaa tableN}]\!] = \lambda x.^{\cup\cap}\text{chairs}(x) \vee^{\cup\cap} \text{tables}(x)$

Now, to feed this into the verb, the type mismatch must be resolved. However, the cap operator has been already applied to the individual disjuncts. We argue that operations that lift properties to instantiations of a kind cannot be applied more than once within the computation of a single nominal. Thus, only the existential operator can be applied. This is only compatible with an exhaustive reading of the disjunction.

(15) $[\![\text{kursiiyaaN yaa tableN}]\!] = \lambda P \exists x.\ (^{\cup\cap}\text{chairs}\ (x) \vee^{\cup\cap} \text{tables}(x)) \wedge P$

All other instances of exhaustive disjunction can be derived in a similar fashion (). The iota operator can be applied to a disjunction phrase only when both the disjuncts are bare singulars. Otherwise, type shifting is applied to the individual disjuncts, thus barring ι from applying to the whole phrase. Our analysis at this point cannot account for why the non-exhaustive reading is only triggered with direct objects and not with subjects or objects of preposition. **To conclude**, we showed that non-exhaustive reading with disjunctions is only licensed with objects in NP languages lacking articles, and this reading is sensitive to syntactic modifications via adjectives, quantifiers, and numerals.

References

Barotto, A. and Mauri, C. (2022). Non-exhaustive connectives. *STUF-Language Typology and Universals*, 75(2):317–377.

Boskovic, Z. (2008). What will you have, dp or np? In *Proceedings-Nels*, volume 37, page 101.

Bošković, Ž. (2009). More on the no-dp analysis of article-less languages. *Studia linguistica*, 63(2):187–203.

Chierchia, G. (1998). Reference to kinds across language. *Natural language semantics*, 6(4):339–405.

Ciferri Muramatsu, G. and Yadav, P. (2024). Ppi disjunction and epistemic lists. *SuB 29*.

Dayal, V. (2004). Number marking and (in) definiteness in kind terms. *Linguistics and philosophy*, 27:393–450.

Partee, B. and Rooth, M. (1983). Generalized conjunction and type ambiguity. *Formal semantics: The essential readings*, pages 334–356.