Comitative coordination in Inari Saami

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1 Inari Saami Comitative Coordination

- In Inari Saami,[1] coordination can be expressed with the conjunction *já*, as in (1), or with comitative coordination (CC), as in (2):

(1) Mun já Ánná   láim   meecist.
     I.NOM and Anna.NOM be.PST.1DU forest.SG.LOC
     'Anna and I were in the forest.'

(2) Muoi   Ánnáin   láim   meecist.
     we.DU.NOM Anna.SG.COM be.PST.1DU forest.SG.LOC
     'Anna and I were in the forest.'

- Inari Saami CC consists of a **non-singular pronoun directly followed by a noun in comitative case**.

- Word orders different from the one in (2) express 'with' readings:

(3) a. Muoi   láim   meecist   Ánnáin.
         we.DU.NOM be.PST.1DU forest.SG.LOC Anna.SG.COM
         'We (dual) were in the forest with Anna.'
     b. Ánnáin   muoi   láim   meecist.
         Anna.SG.COM we.DU.NOM be.PST.1DU forest.SG.LOC
         'It was with Anna that we (dual) were in the forest.'

(4) a. Mun   lijjim   meecist   Ánnáin
         I.NOM be.PST.1SG forest.LOC A.COM
         'I was in the forest with Anna.'
     b. Mun   luuhim   ki'rje   Ellain
         I.NOM read.PST.1SG book.SG.ACC E.COM
         'I read a book with Ella.'

- Example (2) contain a dual pronoun, but plural pronouns are also possible:

(5) a. Mij   vi'ljâidânguin   lep   meecist.
         we.PL.NOM brothers.COM.1PX be.PRES.1DU forest.SG.LOC
         'My brothers and I are in the forest.'
     b. Mij   Paavoin já Reinoin lep   meecist.
         we.PL.NOM P.COM   and R.COM be.PRES.1DU forest.SG.LOC
         'I, Paavo and Reino are in the forest.'

- If the pronoun is plural, more than one name or a plural noun follows the pronoun, and the interpretation is still 'I and...', it is not 'we and ...'.

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[1] For readings on various aspects of the Inari Saami language, see Äimä (1918a,b), Itkonen (1971), Bartens (1972), Itkonen (1986–1991, 1992), Sammallahti and Morottaja (1993), Olthuis (2000), Toivonen (2007), Olthuis et al. (2013), Morottaja and Toivonen (2016).

- The examples above contain first person pronouns; second and third person pronouns are also possible:

(6) Tuoi   párnáin   lávloid
     you.DU.NOM child.SG.COM sing.PST.2DU
     'You (sg) and the child sang.'

(7) Suoi   nieidáin   moonáin   pááikán.
     they.DU.NOM girl.SG.COM go.PST.3DU home.SG.ILL
     'He/she and the girl went home.'

- Non-pronominal nouns do not occur:

(8) a. *Máttáátteijeeh párnáin   lávloin.
          teachers.PL.NOM child.SG.COM sing.PST.3DU
          (intended: 'The teacher and the child sang.')

     b. *Kyehti máttáátteijee párnáin   lávloin.
          two   teachers.SG.GEN child.SG.COM sing.PST.3DU
          (Intended: 'The teacher and the child sang.')

- In sum, **first, second or third person pronouns in both dual and plural** are possible as the head noun in the Inari Saami CC.

- The **comitative noun** is a proper name or a regular noun, and typically not a pronoun:

(9) ?Muoi   suin   láin   meecist.
      we.DU.NOM he.SG.COM are.3du forest.SG.LOC
      (intended:) 'He and I are in the forest.'

- The comitative is often a noun that refers to someone with a personal, one-of-a-kind connection, like a family member.

- The comitative coordination phrase can be a subject (see examples above), but does not have to be:

(10) Mun oinim   sunnuu   Ellain
     I.NOM see.PST.1SG them.DU.ACC Ella.SG.COM
     'I saw him and Ella.'

(11) Taat lii   munnuu   Ilmaráin   käärbis.
     thisNOM be.3SG us.DU.GEN Ilmar.SG.COM boat.NOM
     'This is my and Ilmari's boat.'

2 Other types of comitative conjunction

- The construction presented here is a specific kind of comitative construction, and it is sometimes called the *plural pronoun construction* (McNally 1993, Dyła and Feldman 2003, Vassilieva and Larson 2005) or *inclusory conjunction* (Lichtenberk 2000, Haspelmath 2007).

- Another type of comitative conjunction illustrated is with the Russian example in (12):

(12) Anna   s   Petej napisali pis'mot.
     A.NOM with P.INSTR wrote.PL letter
     'Anna and Peter wrote a letter.'

- The construction in (12) is similar in that it uses *with* to express coordination, but it is different in that there is no non-singular pronoun.

- Inari Saami only marginally allows examples of the type illustrated in (12).

- When such examples occur, there is a strong preference for there to be a close connection between the referents of the coordinated nouns, for examples as family members:

(13)   Máárjá obijnis   Ellain   lává   táálust.
        M.NOM sister.SG.COM.3SGPX E.COM be.PRS.3DU house.SG.LOC
        'Marja and her sister Ella are in the house.'

- It is also possible for some speakers (perhaps through influence from North Saami) to say:

(14)   Piäká kyevtis   Mattijn vuol'gijn   meddâl
        P.GEN two(people).NOM M.COM left.PAST.3DU away
        'Pekka and Matti left.'

- If *Mattijn* is omitted in (14), *Piäká kyevtis vuol'gijn meddâl*, the natural interpretation of the sentence is 'Pekka and his wife left' (Morottaja 2007).

- Examples including *kyevtis* has a comitative as the second conjunct and is in that way similar to exampels like (13).

- However, the inclusion of *kyevtis* also invites a comparison with what Weber (1989) calls *list-and-count conjunction* and Haspelmath (2007) calls *summary conjunction*, illustrated with an examples from Mongolian in (14) (example from Vietze 1988, cited in Haspelmath 2007):

(15)   bagš   Gombo xojor
        teacher G.   two
        'the teacher and Gombo'

- The constructions illustrated in (13)–(14) are similar to the construction introduced in Section 1. However, the construction in Section 1 is different in that the first nominal is non-singular and a pronoun.

- We set the constructions in (13)–(14) aside and focus on the construction introduced in the previous section.

3   Collective reading

- In addition to comitative coordination ((2), repeated here as (16)), Inari Saami allows NP coordination with the conjunction *já* as in (1) (repeated here as (17)):

(16)   Muoi   Ánnáin   láim   meecist.
        we.DU.NOM Anna.SG.COM be.PST.1DU forest.SG.LOC
        'Anna and I were in the forest.'

(17)   Mun   já Ánná   láim   meecist.
        I.NOM and Anna.NOM be.PST.1DU forest.SG.LOC
        'Anna and I were in the forest.'

- Examples (16) and (17) are very close in meaning but they are not identical.

- CC examples are typically associated with a *collective* reading, whereas the *já* examples are compatible with both a distributive and a collective reading.

- (18) is a natural continuation of (17), but not of (16):

(18)   ... mut muoi   iän   lamaš   tobbeen oovtâst.
        ... but we.DU.NOM not.1DU be.NEG.PRT there   together
        '...but we were not there together.'

- Similarly, (19) can have a collective or distributive reading (Ella and I won 100e together, or Ella and I each won 100e), but the collective reading is preferred for the CC example in (20):

(19)   Ella já   mun vuoi'ttijm 100 eurod.
          E.   and I   won.1.DU 100 euro.PART
          'Ella and I won 100 euro.'

(20)   Muoi   Ellain   vuoi'ttijm 100 eurod.
          we.DU.NOM E.SG.COM won.1.DU 100 euro.PART
          'Ella and I won 100 euro.'

- Cross-linguistically, comitative coordination is typically associated with a collective reading (McNally 1993, Dalrymple et al. 1998, Camacho 2000)

- Dalrymple et al. (1998) argue based on Russian data that the collective reading is not specified in the denotation but instead follows from the pragmatics. When no overt distributive marker is present, a collective reading is strongly favored.

- Dalrymple et al.'s take on CC and collectivity in Russian seems to extend to Inari Saami as well.

- In Inari Saami CC examples, a collective reading is strongly preferred, but a distributive reading is possible.

- For example, if *kuábáš* 'both' is added to (20), the sentence gets a distributive reading:

(21)   Muoi   Ellain   kuábáš-uv vuoi'ttijm 100 eurod
          we.DU.NOM E.SG.COM both-PRT   won.1.DU 100 euro.PART
          'Ella and I both won 100 euro.'

4 Our proposal

4.1 The collective reading

- We propose that neither type of example (comitative coordination and regular coordination) is specified for distributivity semantically. However, the comitative coordination examples comes with an *implicature* that regular coordination lacks: comitative coordination implies a collective interpretation.

- One way to implement this insight – to be slightly modified below – is to assume that the comitative morpheme *-in* is a two-place operator that takes two (possibly plural) individuals and returns a new individual, the group consisting of the two individuals (following the treatment of plurals in Link 1983).[2]

- This analysis directly derives the collective interpretation.

- Our task now is to explain how the distributive reading arises, and what the general principles might be that give rise to the observed preference for the collective reading.

4.2 The distributive reading

- The distributive reading can be derived by the optional application of a distributivity operator (e.g., Heim et al. 1991), D[3]

- With this implementation, the distributive reading of a sentence like (2) follows by inserting D into the parse: [[*Muoi Ánnáin*]D] *láim meecist.*

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[2]Specifically, we assume: $[[in]] = \lambda x_e.\lambda y_e.x \oplus y$, where '$\oplus$' is a group-formation operator.

[3]$[[D]] = \lambda X_e.\lambda P_{et}.[\forall x \bullet \sqsubseteq X : P(x)]$, where $\bullet \sqsubseteq$ is the 'atomic part-of' relation (see e.g., Heim et al. 1991, Milačić et al. 2015).

- Roughly speaking, *D* takes a plural NP as input, whose meaning is the group consisting of the speaker and Ánná. *D* takes this input and universally quantifies over the individual atoms in the group (see note 3), so that the sentence reads 'each of me and Anna were in the forest'. (A rough paraphrase of [[*Muoi Ánnáin*]*D*] would be 'me and Anna each'.)

- Thus, comitative coordination sentences – like other sentences with plural NPs – are ambiguous between a collective reading and a distributive reading (presence or absence of *D*), and they seem to display a preference for the collective reading (McNally 1993, Dalrymple et al. 1998, Camacho 2000).

4.3 Disambiguation preferences

- How are we to make sense of the preference for the collective reading, then?

- Note that the distributive reading has a more complex structure (it contains *D*).

- The preference for the collective reading in absence of an overt distributive operator might then follow from a general preference for *simpler* structures (e.g., Miller and Chomsky 1963, Toivonen 2003).

- Specifically, we will assume the following:

(22)   Disambiguation and complexity

    a.   `Preference for simpler structures`: Let *s* be a sentence (string of words), and assume that *s* is ambiguous, that is, that the grammar assigns multiple form-meaning pairs $< f_1, m_1 >, < f_2, m_2 >, \ldots, < f_k, m_k >$ as possible analyses of *s*. If any of the forms f_i is *strictly more complex* than any of the other forms f_j, then, all else being equal, f_i will not be selected as the parse of *s*.[4]

    b.   `Strict complexity`: A structure *X* is strictly more complex than a structure *Y* if *Y* is derivable from *X* by *deleting* elements of *X* (Katzir 2007).

4.4 A brief aside: Conjunction and the preference for simpler structures

- A potential problem for our proposal is that the preference for collective readings does not seem to extend to plural phrases created by a *conjunction* (e.g., *and* in English, *já* in Inari Saami).

- Conjunctive noun phrases, like other plural noun phrases, can be assigned both a collective and distributive reading. For example, *John and Bill weigh 150kg* can be interpreted collectively, that John and Bill's combined weight adds to 150kg, or distributively, that John and Bill each weigh 150kg.

- It would be natural to account for this ambiguity in the same way as we did with other plural NPs.

- Assuming that conjunctive morphemes like *and* and *já* can denote ⊕, they can be used to generate collective readings, to which the insertion of *D* could derive the distributive reading that *and* appears to readily generate.

- But then we are left with a puzzle: why is there not a strong preference for collective readings of *and* as there is with plural pronouns? The preference for simpler structures is a *general* one (note that (22) applies to all sentences). Thus, it would be undesirable to stipulate an exception for conjunctions.

- We will argue that there is no need for a special stipulation once a more complete picture of the semantic behaviour of conjunction is incorporated into our analysis.

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[4]A fuller processing theory would account for the factors that could override this *ceteris paribus* preference. For example, Singh et al. (2016) present evidence that the pragmatic constraint that a sentence provide a complete answer to the question under discussion (e.g., Groenendijk and Stokhof 1984, Lewis 1988, Roberts 1996) is 'higher ranked' than the preference to avoid complex structures. We also expect plausibility to be an important factor. More generally, we are proposing that (22) is one among several factors that enter into parsing decisions, and we hope that we can return to a fuller account of the interaction of these factors in future work.

- Specifically, we resolve the puzzle by assuming that conjunctive morphemes like *and* are lexically ambiguous (following Partee and Rooth 1983): they can denote not only the group-formation operator, $\oplus$, but, as is well-known and assumed throughout the literature, *and* can also denote the binary connective $\wedge$ from propositional logic.

- This logical conjunction – sometimes called propositional conjunction or sentential conjunction – takes two sentences and returns a new sentence, their conjunction. The conjunction is true if and only if both conjuncts are true.[5]

- Under this assumption, let us return to sentences like *John and Bill weigh 150 kg*.

- As discussed earlier, such a sentence can get a collective reading (by assigning *and* the $\oplus$ interpretation).

- As we noted, adding D to the parse should be dispreferred, given the assumed preference for simpler structures.

- How do we get the distributive reading, then?

- That meaning follows from the connective interpretation of *and*.

- Specifically, because *and* can also be assigned its propositional connective interpretation, that meaning must be responsible for the distributive reading, which we can paraphrase as 'John weighs 150kg and Bill weighs 150kg'.

- How do we get a sentential conjunction semantically, even though the structure appears to be conjoining two noun phrases?

- More generally, conjunction appears to conjoin phrases of several syntactic categories, but it nevertheless yields a sentential conjunction as its interpretation. For example, *John walks and sings* is true if and only if John walks and John sings, but *and* in this sentence syntactically coordinates verb phrases, not sentences.

- A common strategy for dealing with this is to assume that connectives are multiply ambiguous: in addition to the group-formation meaning and the sentential conjunction meaning, there are homophonous variants of sentential conjunction *and* that can conjoin non-sentential categories but nevertheless yield a sentential conjunction meaning.

- Thus, in *John and Bill weigh 150kgs*, out of the several variants of *and* that the grammar provides, only two would be well-formed: the group reading, and the *and* that conjoins individuals syntactically and returns a sentential conjunction semantically.[6]

- Note that this route to the distributive reading does not generate a more complex syntactic object than the one used to generate the collective reading: the ambiguities that are involved are *semantic* ambiguities – type ambiguities – that do not affect the syntactic structure in any way (see notes 5, 6).

- The choice the listener faces is to decide whether to assign *and* the $\oplus$ meaning or the logical conjunction meaning.

- Like with other plural subjects, the $\oplus + D$ parse is ruled out (all else being equal) by the preference for simpler structures.

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[5]To distinguish this sentential *and* from the group-denoting *and*, we will refer to it as and_s. A commonly assumed lexical entry for and_s is the following (e.g., Heim and Kratzer 1998): $[[and_s]] = \lambda p_t.\lambda q_t.p = q = 1$.

[6]Let us refer to this proper name conjoining *and* as and_{pn}. The following lexical entry would derive the desired result: $[[and_{pn}]] = \lambda x_e.[\lambda y_e.[\lambda P_{et}.([[and_s]](P(y))(P(x))]]$. Note that we have re-used and_s – the sentential conjunction – in this definition of and_{pn} (see note 5). In this way, and_s is assumed to be the 'basic' entry from which the others are systematically derived (see Heim and Kratzer 1998 for a textbook treatment). One potential concern with this entry is that it does not fit the $< X, < X, X >>$ format commonly assumed for connectives. Here, the type is $< e, < e, < et, t >>$. Following Partee and Rooth (1983), we can assume that the type of individuals can be 'lifted' to $< et, t >$. For example, *John* could be lifted from denoting j, the individual, to denoting $\lambda P_{et}.P(j)$ (roughly, the set of properties that are true of John). This would allow and_{pn} to be assigned a revised entry with the type $< et, < et, et >>$, which would allow it to follow the desired format: $\lambda Q_{<et,t>}.\lambda R_{<et,t>}.\lambda S_{et}.([[and_t]](R(S), Q(S))$.

- However, unlike other plural subjects, conjunctions provide an alternative route to a distributive reading, sentential conjunction and its cross-categorial variants.

- These conjunctions are no more syntactically complex than the form used to create the collective reading. The only difference is which of *and*'s lexical meanings gets assigned: $\oplus$ or *and$_{pn}$* (see note 6).[7]

4.5 Further restrictions

- We still need to capture the observation that the first 'conjunct' in Inari Saami comitative coordinations must be pronominal, that they appear to be semantically interpreted as singular pronouns even though they are realized as dual/plural pronouns, and finally that they have the same value for the person feature as the corresponding singular pronoun.

- For example, *Muoi Ánnáin* (we.DU.NOM Anna.SG.COM) is interpreted as 'the group consisting of me and Anna', even though no first person singular pronoun appears on the surface.

- Note also that no re-ordering of the conjuncts or the placement of *-in* seems to be allowed.

- Building on Vassilieva and Larson (2005), we suggest that plural pronouns are complex – composed of a singular pronoun that composes with another element – but we differ slightly in our implementation.

- Specifically, we assume that *we* is 'me $\oplus$ X', plural *you* is 'you(sg) $\oplus$ X', and so on, where recall that '$\oplus$' represents a group formation operator.

- Furthermore, we assume that 'X' is a variable ranging over individuals whose value is determined by the context (we assume with Link 1983 that individuals can be singular and plural).

- Thus, a plural pronoun PRO_{pl} has the following logic: $\oplus(PRO_{sg}, X)$, where $\oplus$ is the group formation operator, PRO_{sg} is the pronoun that is otherwise identical to PRO_{pl} but which is singular in number, and X is a variable that receives its value by a contextually-determined assignment function (see e.g., Heim and Kratzer 1998 for textbook discussion of variables and assignments in formal semantics).

- This captures the standard intuition that *we* is 'the group consisting of me and a contextually determined individual', *you* is 'the group consisting of you (sg) and a contextually determined individual', *they* is 'the group consisting of him/her and a contextually determined individual'.

- The Inari Saami dual marked first-person pronoun *muoi* would be 'the group consisting of me and a contextually determined singular individual', the Inari Saami plural marked first-person pronoun *mij* would be 'the group consisting of me and a contextually determined plural individual', and so on.

- Tnder this analysis, non-singular pronouns inherit their person features from the singular pronoun that it contains, and the variable that the singular pronoun combines with is left unpronounced.

- The unit $\oplus(PRO_{sg}, X)$ requires help from the context in finding values for X, and the unit gets realized as PRO_{pl}, which is identical to PRO_{sg} other than number.

- However, in a comitative coordination, we suggest that instead of a variable there is a lexically determined referent (e.g., *Anna*, *my brothers*), and $\oplus$ both get morphologically realized.

- Specifically, we suggest: (i) the comitative morpheme attaches to a noun phrase that overtly identifies the second conjunct, and (ii) *-in* realizes the group formation operator $\oplus$ (note that this independently seems like a natural interpretation for *with*/comitative).

- Thus, *muoi Ánnáin* has the structure $\oplus(me, Anna)$ and is interpreted as 'the group consisting of me and Ánná' (recall that *muoi* is dual marked); *Mij vi'ljâidânguin* has the structure $\oplus(me, my brothers)$ and is interpreted as 'the group consisting of me and my brothers' (recall that *mij* is plural marked), and so on.

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[7]A question that gets raised by this approach is whether there are systematic preferences for one of these entries over the other. For example, Partee and Rooth (1983) propose that there might be a general preference for *simpler* types, given an assumed metric of type simplicity. We do not enter this discussion here, but there does not appear to be any empirical evidence suggesting a (*ceteris paribus*) preference for one of these entries over the other.

- Thus, under our analysis, plural pronouns in Inari Saami can be produced in two ways.

- First, when a variable is present in the structure $\oplus(PRO_{sg}, X)$, context needs to furnish a value for X and the subconstituents $\oplus$ and the variable X remain covert; this yields plural pronouns like *mij* and *muoi* on the surface.

- Alternatively, the second argument to $\oplus$ is lexically determined (e.g., Ánná), in which case that lexically specified value is pronounced, as is $\oplus$ (realized as *in*); this yields concomitative coordinations like *Muoi Ánnáin* on the surface.

- However, *-in* cannot be identified with an unrestricted group formation operator, for note that *in* appears to require that the first conjunct be a pronoun.

- We encode the required restrictions as presuppositions.

- Specifically, suppose that the gross structure of the coordination is *NP$_i$ NP$_j$-in*.

- We propose the following lexical entry for *-in*: $[[in]] = \lambda x_e.\lambda y_e : i \in \text{dom}(g) \,\&\, \text{sg}(y). \oplus (x,y)$.[8]

5 Concluding remarks

- We have presented the main characteristics of comitative coordination in Inari Saami.

- We have presented evidence that comitative coordinations in Inari Saami display many of the properties found in other languages

- They display a collective/distributive ambiguity, there is a preference for a collective interpretation, and the plural pronoun in comitative coordinations appears to be identical to plain plural pronouns in non-comitative coordinations.

- We made sense of this array of facts by assuming (i) that plural pronouns themselves are complex, built by a group formation operator $\oplus$ that combines a singular variant of the pronoun with other elements, (ii) there is a general preference for simpler structures, (iii) that plain plurals require access to the context to determine the value of one of the arguments to $\oplus$, whereas comitative coordinations provide this argument lexically and realize $\oplus$ as a morpheme.

- We have tried to the extent possible to reuse semantic machinery that has been independently motivated.

- Nevertheless, Inari Saami comitative coordinations appear to have their own idiosyncratic properties, such as restrictions requiring that the first conjunct be pronominal.

- We have encoded these restrictions as presuppositions.

- In future work, we hope to provide a more thorough typology of comitative coordinations across languages and language families.

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[8]We take our notation largely from Heim and Kratzer (1998). *dom* is a contextually determined assignment function, i.e., a (partial) function from the natural numbers N to the domain of individuals D_e; the order of application has been Schönfinkelized to mirror the order of syntactic composition, and by '$sg(y)$' we mean that y is singular.

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