

Where is additivity?*

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1 Introduction: What is a quantifier particle?

- In languages like English, the morphological exponents appearing in quantifier words are restricted to those quantificational NPs (QNPs).

(1)

Pronouns	<i>every-body</i>	<i>some-body</i>	<i>any-body</i>	<i>no-body</i>
Determiners	<i>every student</i>	<i>some student(s)</i>	<i>any student(s)</i>	<i>no student(s)</i>

- But consider some of the uses of *either*. *Either* appears with *or*, rendering a fairly strong exclusive disjunction implicature (2a), but also functions as an additive focus particle in the scope of negation (2b), as well as like a free-choice item when there are two options in the domain (2c).

- (2)
- a. John **either** ate rice **or** beans.
 - b. JOHN didn't eat rice, **either**.
 - (i) Presupposition=Somebody other than John didn't eat rice.
 - c. You can pick {**either card** / **any card**}
 - (i) *either card*=two cards to choose from
 - (ii) *any card*=more than likely >two

- We can of course approach these three roles separately. But what is the minimal semantic contribution that *either* can make that is consistent with all of its readings? Then we can think about *neither*, maybe even *whether*... What's going on?

- In many languages, QNPs are built out of an existential/indefinite like a WH word or *some-X* (a.k.a. INDETERMINATE PRONOUNS), in concert with a particle. Japanese *-mo* and *-ka* are two extremely well-studied examples of this (Kuroda 1965; Kratzer and Shimoyama 2002; Shimoyama 2006). When combined with WH-words, these form a range of QNPs. *-mo* forms universal generalized quantifiers (3a-i) if the

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WH-word is stressed, NPIs if the WH-word is unstressed (3a-ii), and free-choice items (FCIs) with the aid of another particle *-de* (3a-iii). *-ka* forms existential quantifiers with Wh-words (3b).

(3) Japanese

- a. (i) {Daré-**mo** / donó gakusei **mo**} hanashi-ta
 {who-*mo* / which student *mo*} talk-PST
 ‘everybody talked’ / ‘every student talked’ (Mitrović 2021, 7)
- (ii) Yoko-ga [gakusei-o dare-**mo**] syootaisi-*(nakat)-ta
 Yoko-NOM student-ACC who-*mo* invite-(NEG)-PST
 ‘Yoko didn’t invite any student’ (Shimoyama 2006, 417)
- (iii) dare-de-**mo**
 who-*de-mo*
 ‘Anyone (FCI)’
- b. {Dare-**ka** / dono gakusei **ka**} hanashi-ta
 {who-*ka* / which student *ka*} talk-PST
 ‘Somebody talked/ some student talked’ (Mitrović 2021, 7)

• Outside of QNPs, these quantifier particles “live busy lives” (Szabolcsi 2015, 161). For example, *-mo* also functions as an additive focus particle (4a-i) or a scalar focus particle (4a-ii) (depending on context), or doubled in coordination—‘both...and’ in positive sentences, ‘neither...nor’ under negation—these are all things that a language like English uses lexical items distinct from the QNPs for.

(4) Japanese

- a. [sono syoonin-**mo**] damatteita
 that witness-*mo* was.silent
 (i) Additive focus reading: ‘THAT WITNESS was silent, too’
 (ii) Scalar focus reading: ‘Even THAT WITNESS was silent’ (Shimoyama 2006, 145)
- b. Takashi-wa [tyuukan-siken-ni-**mo** kimatu-siken-ni-**mo**] {ukat-ta / ukara-nakat-ta}
 Takashi-TOP midterm-exam-DAT-*mo* term.end-exam-DAT {pass-PST / pass-NEG-PST}
 (i) Positive: ‘Takashi passed both the midterm and the final’
 (ii) Negative: ‘Takashi didn’t pass the midterm or the final’ / ‘...neither the midterm nor the final’ (Shimoyama 2011, 439)

(5) Questions quantifier particles raise for semantic compositionality (Szabolcsi 2015, 161)

- a. “Do the roles of each particle form a natural class with a stable semantics?”
 b. “Are the particles aided by additional elements, overt or covert, in fulfilling their varied roles? If yes, what are those elements?”
 c. “What do we make of the cross-linguistic similarities and differences in the distribution of the particles?”

• Many have denied that elements like Japanese *-mo* can really be considered one single lexical item and that what we have is accidental homophony (Hagstrom 1998; Cable 2010). There are two reasons to suggest against this approach. First, as we shall soon see, many of the roles served by *-mo* also overlap in other languages. Secondly, as pointed out by Mitrović and Sauerland (2016), the QNP uses of *-mo* can appear

coordinated (6a), but it is ungrammatical to have more than one instance of the particle in each coordinand (6b).¹

- (6) a. [dono gakusei **mo**] [dono sensei **mo**] hanishita
 which student *mo* which teacher *mo* talked
 ‘Every student and every teacher talked’
 b. *[dono gakusei **mo mo**] [dono sensei **mo mo**] hanishita
 which student *mo mo* which teacher *mo mo* talked

- The alternation between two forms of the same particle observed in Sakha *da(ɣani)* (in §3) adds another example where homophony is extremely unlikely.
- Kratzer and Shimoyama (2002) consider German *irgend-* and Japanese *-mo*—semantics should not vary significantly from one language to another. Matthewson’s (2001) “No variation hypothesis”
 - (maybe) whatever makes English *any* an NPI makes Japanese *dare-mo* one as well.

- (7) **Microsemantic principle:** Compositional analysis cannot stop at the word level (Szabolcsi 2010, 189)²

- Many mainstream theories of morphosyntax do not recognize words as a discrete linguistic unit (e.g. Distributed Morphology, Nanosyntax, etc.)
- Of course, *Negative Polarity Item*. Calling it an *item* suggests that polarity sensitivity is a property of lexical items. Recent approaches (Chierchia 2013)—negative polarity is a derived property.

1.1 Some terminology

- (8) a. **Negative Polarity Item (NPI)**—a word or phrase which is grammatical in a downward-entailing environment (e.g. negation, antecedent of conditional, (sometimes) the standard of a comparison, restrictor universal quantifier), but ungrammatical in corresponding upward-entailing environments. E.g. English *any*, *ever*.
 (i) A function f is *downward entailing* iff i. $f(A) \vee f(B) \Rightarrow f(A \wedge B)$, ii. $f(A \vee B) \Rightarrow f(A) \wedge f(B)$
 b. **Strict NPIs**—NPIs which require their licenser to be Anti-Additive
 (i) A function f is *anti-additive* iff $f(A) \wedge f(B) \Rightarrow f(A \vee B)$
- (9) Additivity: A function f is Additive iff $f(A) \Rightarrow f(A \wedge B)$
- (10) Free Choice Items—elements like English *any* in the scope of a possibility modal. Following Chierchia (2013), there are two main types:
 a. Existential Free Choice Items (\exists -FCI), e.g. epistemic indefinites. Some X or other. Example: English *some*, iff it has lexical stress and the head noun is a singular, count noun. E.g. *Some* [SAM] *linguist told me English had productive vowel harmony*. (signals that the speaker doesn’t know the exact identity, or else doesn’t care, or wants to hide the identity), *There must be some*

¹Modulo the possibility of haplology.

²The name *microsemantic principle* is from Mitrović (2021).

answer to this question (=the explanation for this). +*I saw some 30 people charging the bulls* (approx, pick a number near 30 and it's still true)

- b. Universal Free Choice Items (\forall -FCI)—e.g. English *any* in *I can read anything I want to!* (\approx For everything, whatever it is, if I want to read it, I can do so.)

2 TOO-particles

- Consider the distribution of Japanese *-mo*, Hungarian *is* (negative concord *sem*), Bosnian/Serbian/Croatian *i* (neg. concord *ni*), and Hindi *bhii*, shown in Table 1. Hebrew *kol*, which is not exactly a quantifier particle, is included to show parallel to Japanese *-mo*.

Category	Role	Japanese - <i>mo</i>	Hungarian <i>is/sem</i>	BCS <i>i/ni</i>	Hindi <i>bhii</i>	Hebrew <i>kol</i>
QNPs	∀-GQ, ‘everybody’	✓ <i>daré-mo</i>	✗ <i>mind-en-ki</i>	✗	✗	✓ <i>kol-am</i>
	NPI, ‘anybody’	✓ <i>dare-mo</i>	✓ <i>vala-ki-is,</i> <i>akár-ki is,</i> <i>sen-ki</i>	✓ <i>(n)i-(t)ko</i>	✓ <i>koi bhii</i>	✓ <i>kol-exad</i>
	FCI, ‘anybody’	✓ <i>dare-de-mo</i>	✓ <i>akár-ki is</i>	✗	✓ <i>koi bhii</i>	✓ <i>kol-exad</i>
Focus	Additive, ‘X too/also/either’	✓ <i>X-mo</i>	✓ <i>X is, X sem</i>	✓ <i>i X, ni X</i>	✓ <i>X bhii</i>	✗
	Scalar, ‘even X’	✓ <i>X-mo</i>	✓ <i>még X is</i>	✓ <i>(čak/makar) i X</i>	✓ <i>X bhii</i>	✗
Coordination	‘both X and Y’	✓ <i>X-mo</i> <i>Y-mo</i>	✓ <i>X is Y is</i>	✓ <i>i X i Y</i>	✓ <i>X bhii aur</i> <i>Y bhii</i>	✗
	<i>neither X nor Y</i>	✓ <i>X-mo</i> <i>Y-mo</i> (w/ NEG)	✓ <i>sem X</i> <i>sem Y</i> (w/ NEG), <i>X</i> <i>sem Y sem</i> (w/o NEG)	✓ <i>ni X ni Y</i>		✗

Table 1: Japanese (Shimoyama 2006, 2011; Nakanishi 2006, 2012; Szabolcsi 2015), Hungarian (Tóth 1999; Szabolcsi 2010, 2015, 2017, 2018; Halm 2016; Tamás Halm, p.c.), BCS (Progovac 1994; Mitrović and Sauerland 2014, 2016; Szabolcsi 2017), Hindi (Lahiri 1998; Szabolcsi 2017, Ankana Saha p.c.), Hebrew (Glinert 1989; Tonciulescu 2011; Bar-Lev and Margulis 2014)

- One thing that all of these roles share is reasoning about **semantic alternatives**. NPIs and FCIs involve grammatical alternatives (Chierchia 2013), focus involves focus alternatives (Rooth 1985, 1992), coordination is clearly about alternatives.
- One standard view of NPIs is that they denote low-point-of-scale existentials (Chierchia 2013; Crnić 2011, 2014).

- Japanese ∀-GQ?
- What about additive *also*? Seems quite conjunction like

- *both...and?!?*
- What are these particles doing to their host to produce such myriad meanings?
- Which of these roles are “peripheral” and which are central?
- Following from the label of *too*-particles, it would seem that the additive reading is quite important. Indeed, Szabolcsi (2015), following Kobuchi-Philip (2009), argues that for the *both...and* reading of Hungarian *is* and Japanese *-mo*, the particles induce a “short-term” presupposition which is satisfied by the other *is/-mo*-marked coordinand.

2.1 What is additivity?

- Additivity is typically considered to be a presupposition that, for a sentence like (11), in addition to the ordinary value of the sentence being true, some member of the set of focus alternatives distinct from the ordinary value is true as well.

- (11) DJULUS drank coffee, *too/also*. Sardaana drank coffee. DJULUS did *too*
- a. Ordinary value of (11) = Djulus drank coffee=True = Djulus drank coffee
 - b. Focus alternatives of (11) = $\lambda x.x$ drank coffee ={d. drank coffee, s. drank coffee}
 - c. Additive presupposition = $\exists x \in \text{ALT}[x \neq \text{djulus} \wedge x \text{ drank coffee}]$

- Similarly for *either* in *DJULUS didn't drink coffee, either* (presupp.= somebody other than Djulus didn't drink coffee.)
- The additive presupposition of words like *too, also* cannot be suspended (Abusch 2010; Abrusán 2016)

- (12) I don't know if Sardaana drank coffee. # But if Djulus did *too*, he'll probably be hyper.

- It is straightforward enough to define words like English *also, too, either* as having this additive presupposition as part of their denotation. But when the same word that functions as *also/too* appears with myriad readings, it is much trickier to pin down a denotation.

3 Sakha *da(γani)*: A *too*-particle without *too*?

3.1 Background on Sakha

- Sakha (also known by the exonym “Yakut”) is a Turkic language spoken by an estimated 450,000 native speakers (2010 Russian census). It is the native language of the Sakha people, and is also spoken by Evens, Evenki people. Most/all Sakha speakers are bilingual in Russian.
- The Sakha Republic is massive, the largest administrative region in the world. 3,083,523 km² (1,190,555 sq mi)! Almost twice as large as Alaska, and larger than the entire Eurozone.



Figure 1: Map of the Republic of Sakha (Yakutia), in Russia. source: [Wikipedia](#), user Stasyan117.

- Sparsely populated. According to the 2010 Russian census, there are $\approx 950K$ residents of the Sakha Republic. (Ethnic demographics: 49.9% Sakha/Yakut, 37.8% Russian, 2.2% Evenki, 2.2% Even, 2.2% Ukrainian, .9% Tatar)

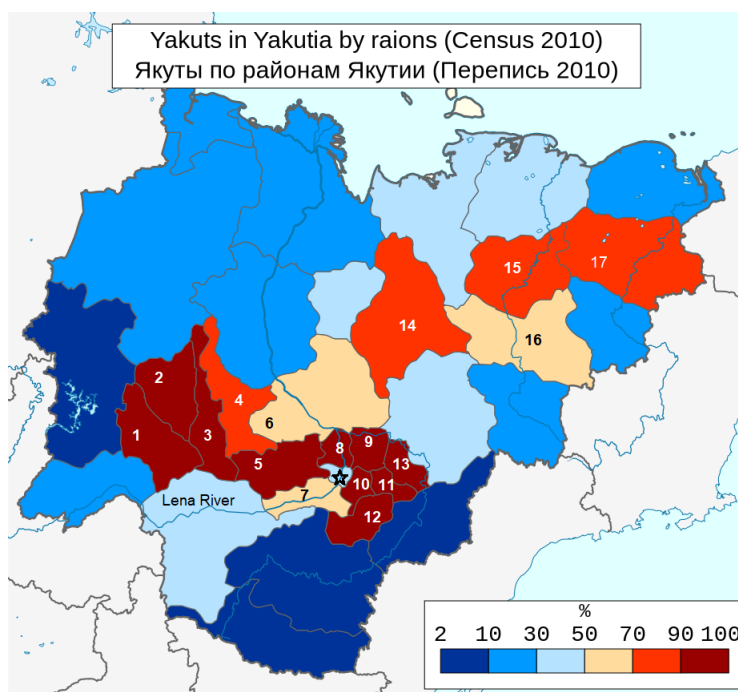


Figure 2: Percentage of ethnic Sakha/Yakut people by administrative district. Yakutsk is starred. Districts as follows 1=Suntarsky District, 2=Nyurbinsky Dist., 3=Verkhnevilyuysky Dist., 4=Vilyuysky Dist., 5=Gorny Dist., 6=Kobyaysky Dist., 7=Khàngalassky Dist., 8=Namsky Dist., 9=Ust-Aldansky Dist., 10=Megino-Khàngalassky Dist., 11=Churapchinsky Dist., 12=Amginsky Dist., 13=Tattinsky Dist., 14=Verkhoyansky Dist., 15=Abyysky Dist., 16=Momsky Dist., 17=Srednekolymsky Dist.. Original map from User: Любо-слов Езыкнн. Numbering and labels in figure my own.

- **CAVEAT:** The judgments here mainly come from a speaker of the Vilyuy dialect. The differences between the dialects have not been widely researched.

(13) Sakha dialects (Antonov 1997)

a. (Antonov 1997) three groups: Western (including Vilyuy and Northwestern)

(i) Western

Vilyuy

Northwestern

(ii) Eastern

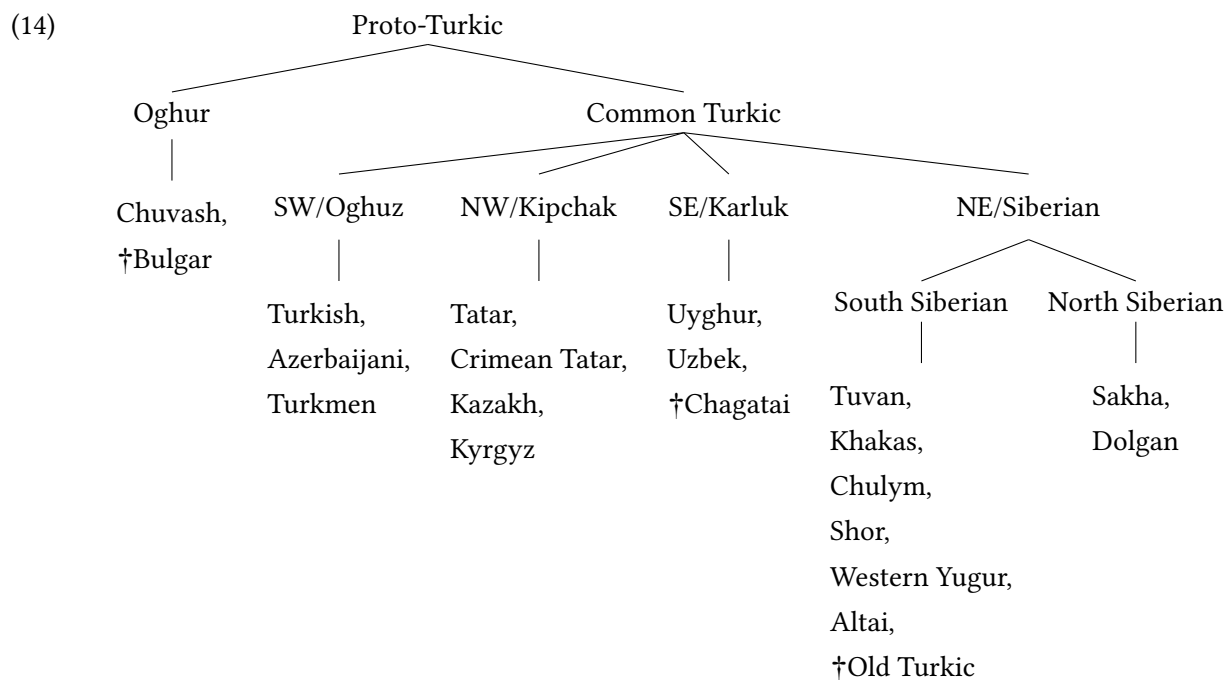
Central

Northeastern

(iii) Dolgan³

- It is generally accepted that the Sakha people are the descendants of the Kurykans, whose culture is dated to the 6th–10th century CE around the shores of Lake Baikal (see Pakendorf 2007). It is believed that the Sakha people migrated from Lake Baikal to the central tributaries of the Lena River (mainly Aldan and Vilyuy Rivers) by the 13th–14th century, likely due to rising pressures from Mongols.

³Dolgan is often considered a separate language, as it has very low mutual intelligibility with most dialects of Sakha.



- Like other Turkic languages, Sakha is SOV, Nominative-Accusative (ACC differential-object marking on non-animate nouns SPECIFIC vs. NON-SPECIFIC), primarily suffixing, and employs extensive vowel harmony and consonant assimilation at morpheme boundaries. It also makes extensive use of *pro*-drop. The language has 8/9 cases,⁴ including a so-called COMPARATIVE case (more on this shortly).

3.2 The Sakha quantifier particle system

- Sakha has a relatively large inventory of quantifier particles. Haspelmath includes Sakha (under the name “Yakut”) in his (1997) study on indefinite pronouns and draws the following implicational map.

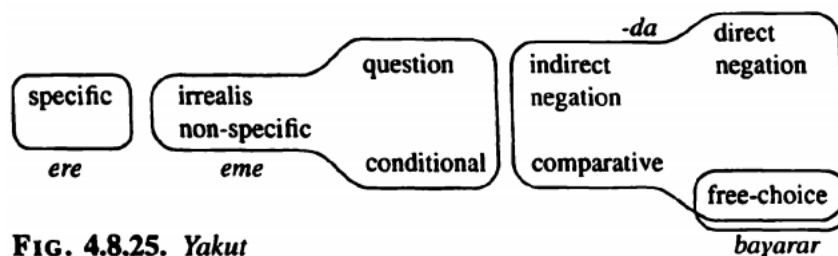


FIG. 4.8.25. *Yakut*

Figure 3: Haspelmath's (1997, 73) implicational map for Sakha

- Note that Haspelmath's characterizations are drawn from descriptive grammars (Afanas'ev and Xaritonov 1968; Ubrjatova 1982). His characterization of *-da* forming free-choice indefinites does not match my consultant's intuitions.

⁴The cases are nominative $-\emptyset$, accusative, $-(n)l$, dative $-GA$, partitive $-TA$, ablativ $-(t)An$, instrumental $-(l)nAn$, comitative $-\bar{l}n$, comparative $-T\bar{A}\bar{y}Ar$. Atypical for a Turkic language, genitive case is only marked on possessed possessors (see Baker and Vinokurova 2010; Satk 2020), hence my above saying “8/9 cases”.

(15) Inventory of Sakha quantifier particles

WH-word		<i>baɣarar</i> (FC ‘any’)	<i>eme/emie/emit</i> epistemic indef- inite, irrealis	<i>ere</i> plain existential	<i>da(ɣani)</i> (strong) NPIs
<i>kim</i>	‘who’	<i>kim baɣarar</i>	<i>kim eme, ...</i>	<i>kim ere</i>	<i>kim da(ɣani)</i>
<i>tuox</i>	‘what’	<i>tuox baɣarar</i>	<i>tuox eme</i>	<i>tuox ere</i>	<i>tuox da(ɣani)</i>
<i>xanna</i>	‘where’	<i>xanna baɣarar</i>	<i>xanna eme</i>	<i>xanna ere</i>	<i>xanna da(ɣani)</i>
<i>xahan</i>	‘when’	<i>xahan baɣarar</i>	<i>xahan eme</i>	<i>xahan ere</i>	<i>xahan da(ɣani)</i>
<i>xajdax</i>	‘how’	<i>xajdax baɣarar</i>	∅	<i>xajdax ere</i>	<i>xajdax da(ani)</i>
<i>xannik</i>	‘which’	<i>xannik baɣarar</i>	∅	<i>xannik ere</i>	<i>xannik da(ɣani)</i>
<i>xaja</i>	‘how’, ‘which’	<i>xaja baɣarar</i>	<i>xaja eme</i>	<i>xaja ere</i>	<i>xaja da(ɣani)</i>

- Other WH-words: *töhö* ‘how much’, *toɣo* ‘why’ also form the same.

(16) *baɣarar* [bɑɣɑɣɑɣ] √-FCIs (16a), from lexical verb *baɣar*= ‘to want’ (16b). Final *-ar* in *baɣarar* is the aorist suffix. Also forms *whether...or* coordination (16c)

- a. (i) Djulus [tuox **baɣarar**] sie-n söp
Djulus what *baɣarar* eat-CVB can
‘Djulus can eat anything’
- (ii) Djulus [xanna **baɣarar**] utuj-on söp
Djulus where *baɣarar* sleep-CVB can
‘Djulus can sleep anywhere’
- (iii) *Djulus [xanna **baɣarar**] utuj-tu
Djulus where *baɣarar* sleep-PST
*‘Djulus slept anywhere’
- (iv) *Djulus [xanna **baɣarar**] utuj-uox-taax
Djulus where *baarar* sleep-FUT-MUST
*‘Djulus must sleep anywhere’
- b. Min aay-iex-pin baɣara-bin
I read-FUT-1SG.AGR want-1SG.AGR
‘I want to read’
- c. [**baɣar** bögün] [**baɣar** sarsin] kuorat-tan tönnü-öm
ba.. today *ba..* tomorrow city-ABL return-1SG
‘I’ll return from the city, either tomorrow or the next day/whether...or’ (Landmann 2016, 109)

(17) *ere* [ɛrɛ]

- a. (i) araj mas-ka tii-bit-tere atah-a [**biir tuox ere**] ijan-an
then tree-DAT approach-PTPL-3PL.AGR friend-3POSS one what *ere* hang-CVB
tur-ar-in kör-büt
stand.LTVB-3SG see-PST
‘suddenly, they arrived at a tree and his friend saw **something** was hanging’
- (ii) araj atah-a ür-e tur-taɣ-ina [**tuox ere**] zigzina-an taɣɣ-an
then friend-3POSS bark-CVB stand-??-3SG what *ere* buzz-CVB come.out-CVB
kel-büt
come-PST

- ‘suddenly, his friend barking, something came buzzing (out of the hole in the tree)’
- b. et ere
say.IMP *ere*
‘Just tell me it’
- c. kepsetii futbol ere tuhunan
conversation soccer *ere* about
‘(The) conversation (was) about only soccer’
- (18) *eme/emie/emit* [ɛmɛ, ɛmiɛ, ɛmit] functions as a quantifier particle in epistemic indefinites/irrealis (18a). As a focus particle it means ‘again’ (18b) or ‘also’/‘either’ (18c)
- a. (i) Xojut [kim-inen *eme*] [tugu *eme*] iit-ia-m
afterwards who-INSTR *eme* what-ACC *eme* send-FUT-1SG
‘Afterwards, I’ll send something with someone’ (Haspelmath 1997, 290, sentence originally from Ubrjatova 1982)
- (ii) [Tujara [tugu **emit**] oŋor-douna] Djulus čaj kut-an bier-iex-teex
Tujara what.ACC *emit* repair-COND.3SG Djulus tea pour-CVB give-FUT-MOD
‘If Tujara repair anything, Djulus will serve tea’
- (iii) [Kim **emit** kofje ih-er=ij?
who *emit* coffee drink-AOR=Q
‘Does anyone drink coffee?’
- b. (i) **Emie** xahiit-i sataa-bit <<Bay-a-baya-čan xanna baar-gin=ij?>>
emie cry.out-CVB try-PTPL frog-frog-DIM where COP-2SG=Q
‘Again he tried crying out ‘Froggy where are you?’
- (ii) **emie** huntaar, toyo **da** berd=ej, huntaar-i tuox **ere** buulaata
emie Suntar, why *da* odds=Q, Suntar-ACC what *ere* happening
‘Again Suntar district! What are the odds? Something is going on in Suntar’
- c. Djulus emie kofje is-(pe)-te
Djulus *emie* coffee drink-(NEG)-PST
- (i) positive: ‘DJULUS drank coffee, too’
- (ii) Negative: ‘DJULUS didn’t drink coffee, either’

3.3 Dayani

Category	Role	Sakha		Jpn - mo	Hun is/sem	BCS i/ni	Hindi bhii	
		<i>da</i> (γ ani)	<i>em</i> (i)e/ <i>emit</i>					
QNP	\forall -GQ, ‘everybody’	\times	\times	\checkmark	\times	\times	\times	
	NPI, ‘anybody’	\checkmark <i>kim da, biir da</i> <i>kihi</i>	\times	\checkmark	\checkmark	\checkmark	\checkmark	
	(Environment)	Direct Neg	\checkmark		\checkmark	\checkmark (sem)	\checkmark (ni)	\checkmark
		Indirect Neg	maybe?		\times	\checkmark (is)	\checkmark (i)	
		Comparative	\checkmark		\times	\times	\checkmark	
		Conditional	\times	\checkmark	\times	\checkmark	\checkmark	\checkmark
		Polar Question	\times	\checkmark	\times	\checkmark	\checkmark	\checkmark
Restrictor of \forall	\times					\checkmark		
FCI, ‘anybody’	\times	\checkmark	\checkmark	\checkmark	\times	\checkmark		
Focus	Additive, ‘X too/also/either’	\times	\checkmark X <i>emie, emie</i> X	\checkmark	\checkmark	\checkmark	\checkmark	
	Scalar, ‘even X’	\checkmark <i>Onnooyor X</i> <i>da</i>	\times \times	\checkmark	\checkmark	\checkmark	\checkmark	
Coord.	‘Both X and Y’	\checkmark X <i>da</i> Y <i>da</i> Y	\checkmark <i>emie da</i> X <i>emie da</i> Y	\checkmark	\checkmark	\checkmark	\checkmark	
	‘Neither X nor Y’	\checkmark X <i>da</i> Y <i>da</i> (w/ NEG)		\checkmark	\checkmark	\checkmark		

Table 2: Here reduced *da* is shown rather than *da*(γ ani) for reasons of space (and this font lacks bolded gamma and barred-i.) See citations for Table 1.

No additive reading • *da*(γ ani) is unique among the set in Table 2 in lacking an additive reading. Instead, *emie* is used:

- (19) a. Min {*emie* / #*da*(γ ani)} is-t-im
 I {*emie* / *da*} drink-PST-1SG
 ‘I_F drank (it), too’
- b. Min {*emie* / #*da*(γ ani)} is-pe-t-im
 I {*emie* / *da*} drink-NEG-PST-1SG
 ‘I_F didn’t drink it, either’

(20) If students = {Djulus, Erkin, Tujara}

- a. Question: en studjen-nar-iŋ beyehee kel-e sildji-bit-bara duo?
 you student-PL-2SG.POSS yesterday come-CVB AUX-PTPL-?? Q
 ‘Did your students come over yesterday?’
- b. Answer: Uhuh. Sardaana {emie / da(ɣani)} kel-e sildji-bit-e
 uhuh. Sardaana {emie / da} come-CVB AUX-PTPL-3SG
 (i) With *emie*: ‘yeah and Sardaana came too’ (implies she is not a student)
 (ii) With *da(ɣani)*: Yes and even Djulus came over.

- With *da(ɣani)*, (19) only means ‘Even I did/did not drink (it)’

Da-marked NPIs • Two types: WH+*da(ɣani)*, and *biir da*+Noun (*biir*=‘one’)

- *da(ɣani)*-NPIs are licensed by a variety of morphemes contributing negation, including verbal negation in *-BA* (21a)–(21b), the negative auxiliary *suox* (21c), the prohibitive (negative imperative) *-ImA* (21d), the negative converb *-BAkka* (21e), and the negative auxiliary *ilik* ‘to not yet do’ (21f)

(21) NPIs

- a. {Kim **da(ɣani)** / *biir da* studjen} iti kinige-ni aax{-patax / -*pit}
 {who *da* / one *da* student} that book-ACC read{-NEG.PTPL / PTPL}
 ‘Nobody/no student read that book’ (lit: ‘Anybody/any student didn’t read that book’)
- b. Min [xahan **da(ɣani)**] [xanna **da(ɣani)**] it-i kör{-bötöx / *-büp}-pün
 I where *da(ɣani)* when *da(ɣani)* dog-ACC see{-NEG.PTPL / -PTPL}-1SG
 ‘I did not ever see the dog anywhere’
- c. [Tuox **da(ɣani)**] siala {suox / *baar} suruj-but-um
 what *da(ɣani)* purpose {NEG.COP / COP} write-PTPL-1SG
 ‘I wrote for no reason’ / ‘I didn’t write for any reason’
- d. {Tugu **da(ɣani)** / *biir da* kinige-(ni)} aay-*(ima)
 {what.ACC / one *da* book-(ACC)} read-(NEG.IMP)
 ‘Don’t read anything/ any book!’
- e. {Tugu **da(ɣani)** / *biir da* kinige-(ni)} aax-pakka ereeri üören-n-im
 {what.ACC *da(ɣani)* / one *da* book-(ACC)} read-NEG.CVB even.though study-PST-1SG
 ‘I studied without reading anything/any book’ / ‘I studied without even reading anything/any book’
- f. [Kim **da(ɣani)**] [*biir da* kinige-(ni)] aay-a ilik
 who *da(ɣani)* one *da* book-(ACC) read-CVB AUX_not.yet
 ‘Nobody has read any book(s) yet’ (lit: ‘Anybody has not read any book yet’)

- These NPIs are also licensed in comparatives. One way Sakha forms comparatives is through the case suffix *-TAAɣAr* on the standard of comparison (22a). (22b) shows an NPI in the standard, (22c) shows that the subject of the comparison is not an NPI licenser.

(22) Sakha Comparative, NPI licensing

- a. Tujara Djulus-taayar uhun
 Tujara Djulus-CMPR tall
 ‘Tujara is taller than anyone’ (*Tujara uhun*=‘Tujara is tall’)

- b. Tujara kim-nee γ er **da**(γ ani) uhun
 Tujara who-CMPR *da*(γ ani) tall
 ‘Tujara is taller than anyone’
- c. *Kim **da**(γ ani) Djulus-ta γ ar uhun
 Intended: ‘Anyone is taller than Djulus’ or ‘Someone is taller than Djulus’

- They are not grammatical in the antecedent of conditionals or in polar questions (i.e. replacing *emit/eme* in (18a) is ungrammatical).

Scalar focus *da*

- (23) a. [Onooyor studjen **da**(γ ani)] iti kinge-ni aax-(pa)-ta
 even student *da* that book-ACC read-(NEG)-PST
 ‘Even THE/A STUDENT (didn’t) read that book’
- b. iti studjen [kinige-ni **da**(γ ani)] aax-^{??}(pa)-ta
 that student book-ACC *da* read-(NEG)-PST
 ‘That student didn’t read even one book’ (and speaker expected he would read at least one)
- c. [studjen **da**(γ ani)] kinige-ni aax-(pa)-ta
 student *da* book-ACC read-(NEG)-PST
 ‘even the student (did/didn’t) read the book’
- d. iti kinige-ni [studjen **da**(γ ani)] aax-(pa)-ta
 that book-ACC student *da* read-(NEG)-PST
 ‘That book, even the student (did/didn’t) read it’
- (24) Intensifier:
- a. [elbex **da** kihi] [araas **da** dojdu-ttan] kir-er ebit
 many *da* person various *da* country-ABL visit-AOR INDIRECTIVE
 ‘So many people, from so many countries, are visiting (the site)’
- b. [a γ ijax **da**(γ ani) o γ o-loox-tor] onnuk baaja suox-tar ee
 few *da* child-HAVE-PL such rich NEG-PL *eh*
 ‘Even people with few children are not rich, you know?’

da...da coordination

- (25) Djulus kofje **da**(γ ani) čaj **da**(γ ani) is-(pe)-te
 Djulus coffee *da* tea *da* drink-(NEG)-PST
- a. Positive: ‘Djulus drank both coffee and tea’
- b. negative: ‘Djulus drank neither coffee nor tea’

- Positive *da...da* coordination is pragmatically restricted. Answers to questions (26), whether alternative or WH:

- (26) a. Djulus kofje is-pit-e duu čaj is-pit-e duu?
 Djulus coffee drink-PST-3 or.Q tea drink-PST-3 or.Q
 ‘Did Djulus drink coffee or tea?’
- b. Djulus tugu is-te?
 Djulus what.ACC drink-PST

‘What did Djulus drink?’

- Another context that positive *da(ɣani)*-coordination is felicitous is if the speaker deems the both coordinands unlikely to obtain together (e.g. if we know Djulus is sensitive to caffeine, positive (25) is felicitous).⁵
- In more neutral contexts *uonna* ‘and’ or *ikki* ‘two’ (if only two coordinands).⁶

- (27) a. djulus kofje uonna čaj is-te
Djulus coffee and tea drink-PST
‘Djulus drank coffee and tea’
- b. Djulus kofje ikki čaj iste
‘Djulus drank coffee and tea’

- negative *da(ɣani)* coordination is not pragmatically restricted.
- *da(ɣani)* invariably appears at the right edge of the coordinated element. Each included coordinand is marked with *da(ɣani)*.
- One apparent exceptions is a look-alike construction involving a single instance of *da(ɣani)* is when it is used as a concessive particle:

- (28) a. [Kini ilii-te iraa**s da(ɣani)**] sirej-e kirdeex
3SG hand-POSS clean *da* face-POSS dirty
‘Even though he has clean hands, his face is dirty’⁷
- b. [Djulus miigin sötüölee-bit-e die-bit-e **da(ɣani)**] min onu baar-a kiaj-an
Djulus 1SG.ACC swim-PTPL-3SG say-PTPL-3SG *da(ɣani)* I that.ACC COP-3SG able.to-CVB
sötüölee-bep-pin
swim-NEG.CVB-1SG
‘Even though Djulus said that I swam, I cannot swim’
- c. [Djulus öjdöox **da(ɣani)**] [onno bar-bit
Djulus clever *da* there go-PTPL
‘Even though Djulus is smart, he went there’

- One major syntactic difference between concessive *da(ɣani)* and doubled *da(ɣani)* coordination is syntactic. *da(ɣani)*-marked coordinands have a strict requirement that the *da(ɣani)*-marked elements have the same syntactic label, and in fact even VB.FINITE *da...PRED.ADJ da* is ungrammatical (Vinokurova 2011, 202). Compare (28c) to

- (29) *Djulus öjdöox **da(ɣani)** onno bar-bit **da(ɣani)**
Djulus clever *da* there go-PTPL *da*
intended: ‘Djulus is smart and he went there’

- Finally, there is the *emie da X emie da Y* pattern where *da* is used in concert with *emie* ‘also’, shown in (30a). This is considered highly literary, “like something from a folk tale”. This is atypical because the *da* particle occurs to the right of the coordinand. Only reduced *da* is acceptable here (30b). *Emie* cannot be

⁵My consultant describes the particle’s role in *da(ɣani)...da(ɣani)* coordination as providing “options”.

⁶**X da(ɣani) uonna Y da(ɣani)*

⁷One source translated this sentences as ‘His hands are clean, but is face is dirty’. My consultant indicated that *even though* seems more fitting.

used this way without *da* (30c)

- (30) a. [**emie da** bulčut] [**emie da** balkisit]
emie da hunter *emie da* fisherman
 ‘He is both a hunter and a fisherman’
 b. **emie dayani* bulčut *emie dayani* balkisit (**emie da...emie dayani*, etc.)
 c. **emie* bulčut *emie* balkisit

3.4 Dayani vs. da

- While the alternation between full *dayani* and reduced *da* has been noted since the earliest descriptions of Sakha (Böhtlingk 1851, §670), there’s no consensus on what governs the alternation.⁸
- From what I have found, it seems to have a lot to do with where the particle shows up in its host. In bare NPs, the particle is invariably post-nominal (31a). With a determiner like *biir* ‘one’, *elbex* ‘many’, it appears immediately after the determiner (31b).

- (31) a. (i) (Adj) Noun *da*(*yani*)
 (ii) *Adj *da*(*yani*) Noun
 b. (i) Det *da*(*yani*) (Adj) Noun
 (ii) *Det (Adj) *da*(*yani*) Noun
 (iii) *Det (Adj) Noun *da*(*yani*)

- when NP-final both full *dayani* and reduced *da* are acceptable. On the other hand, the second-position, the acceptability of full *da* seems to depend how long the determiner is:⁹

- | | |
|---|---|
| (32) NP-final | (33) Second-position |
| a. <i>tugu da</i> (<i>yani</i>)
‘anything.ACC’ (NPI) | a. <i>biir da</i> (<i>??yani</i>) <i>kinige</i>
‘any book’ (NPI) |
| b. <i>kim da</i> (<i>yani</i>)
‘anybody’ (NPI) | b. <i>elbex da</i> (<i>??yani</i>) <i>kihi</i>
‘SO many people’ (scalar, intensifier) |
| c. <i>studjen da</i> (<i>yani</i>)
‘even the student’ (scalar focus) | c. <i>aɣijax da</i> (<i>yani</i>) <i>oɣolooxtor</i>
‘even those with few children’ (focus) |

- This second-position effect is especially salient when a possessive NP is marked with scalar-focus *da*(*yani*). Sakha marks possession on the possessum obligatorily, but it can be reinforced with an overt personal pronoun (in the nominative case):

- (34) a. *ehe-em*
 grandfather-1SG.POSS
 ‘My grandfather’
 b. *min ehe-em*
 I grandfather-1SG.POSS
 ‘My grandfather (not yours)’

- *da*(*yani*) appears in a post-nominal position when the pronoun is absent (35a), but immediately after the pronoun if it is present (35b).

⁸Realistically there is a gradient from full *dayani* to reduced *da*. In rapid speech, the full particle is rendered as [da:ni].

⁹My consultant judged examples like (33a) and (33b) as “technically correct”, but very odd, and very difficult to articulate.

- (35) a. *iti kinige-ni [ehe-em da(ɣani)] aay-ia-n söp*
 that book-ACC grandfather-1SG.POSS *da(ɣani)* read-FUT-CVB can
 ‘Even MY GRANDFATHER can read that book’
- b. *Iti kinige-ni [min da(??ɣani) ehe-em] aay-ia-n söp*
 that book-ACC I *da* grandfather-1SG.POSS read-FUT-CVB can
 ‘Even MY GRANDFATHER can read that book’
- c. *...*min eheem da(ɣani)*...

- But observe that with *bihigi* ‘we’ (36b), both forms are acceptable!

- (36) a. *Min da(??ɣani) ehe-em* b. *Bihigi da(ɣani) ehe-bit*
 I *da* grandfather-1SG.POSS We *da* grandfather-1PL.POSS
 ‘even MY GRANDFATHER’ ‘even OUR GRANDFATHER’

- It is undeniable that these are the same morpheme.
- *da(ɣani)* coordination presents another interesting pattern. When it serves as an answer to a question, there is a slight preference for both particles to be full *daɣani*. In other contexts, there is generally a preference for at least one particle to be shortened to *da*
- Because we see alternation of the particle in each of its roles, accidental homophony is unlikely. This is a rare piece of evidence!

4 Semantics of *da(ɣani)*

4.1 NPIs

- Chierchia’s (2013) Grammatical Theory of Polarity Sensitivity. NPIs are low-end point existentials with obligatorily active alternatives.
- If alternatives are active, they must be exhaustified. One basic exhaustifier, and the **only** one I’ll be talking about today is O(nly).

- (37) $O_{ALT}(\phi) = \phi \wedge \forall \psi \in ALT[\psi \rightarrow \phi \subseteq \psi]$, where ‘ \subseteq ’ = entails (Chierchia 2013, 31)

- a. i.e. O_{ALT} is an operator that takes a proposition ϕ which has alternatives ALT. O(nly) asserts ϕ and, for each of the alternative ψ in $ALT(\phi)$:
- (i) If ϕ entails ψ , then $\psi = T$
- (ii) If ϕ does not entail ψ , then $\psi = F$ (i.e. $\neg\phi = T$)

- This theory is a formalization of familiar Gricean pragmatics of scalar implicatures.

- (38) Some principles for exhaustification-based theory of NPIs (Chierchia 2013, 186)

- a. ALTs generated by ordinary scalars are subject to pragmatic relevance and can be pruned
 i.e. if exhaustification contradicts the prejacent/ordinary value, throw out the offending alternative
- b. ALTs generated by polarity-items like *any* are not subject to relevance and cannot be pruned.
 i.e. if exhaustification contradicts the prejacent/ordinary value, you’re out of luck

- c. ALTs cannot be activated idly. If they're active, non-entailed ones must be eliminated.
- (39) Djulus drank coffee or tea. (Scalar implicature= Not both)
- a. $= (c \vee t)$, where c = 'Djulus drank coffee', t = 'Djulus drank tea'
- b. (i) Scalar-ALTs($c \vee t$) = $\{c \wedge t\}$
(ii) Subdomain-ALTs($c \vee t$) = $\{c \vee t, c, t\}$
(iii) ALTs($c \vee t$) = Scalar-ALTs($c \vee t$) \cup Subdomain-ALTs($c \vee t$)
 $= \{c \vee t, c, t, c \wedge t\}$
- c. Entailed alternatives of $(p \vee q) = \{p \vee q\}$, non-entailed alternatives = $\{p, q, p \wedge q\}$
- (40) $O(c \vee t) = \underbrace{(c \vee t)}_{\text{(prejacent)}} \wedge \underbrace{\neg c \wedge \neg t}_{\neg(c \wedge t)} \wedge \neg(c \wedge t)$
- a. $= \underbrace{(c \vee t) \wedge \neg(c \vee t)}_{\perp} \wedge \neg(c \wedge t)$
A contradiction can never be relevant (38a)! So we throw out $\neg c$ and $\neg t$:
- b. $= (c \vee t) \wedge \neg(c \wedge t) \wedge \neg(c \wedge t)$
Exclusive reading of *or*.

• NPIs are low-point existentials. If the positive version of (41) were grammatical, it would mean 'I read anything'. The key difference between any_{NPI} , WH- $da(\gamma ani)$ and equivalent non-polarity sensitive elements is that NPIs have **grammatical** alternatives, meaning that having active alternatives is part of their morphological makeup. Thus, we are not in the realm of relevance (38b). I represent having obligatorily active alternatives with a subscripted [+ALT] after the formula in (41a)

- (41) Min tugu da(γani) aax-*(pa)-t-im
I what.ACC *da* read-(NEG)-PST-1SG
'I didn't read anything'
- a. $[[\text{tugu da}(\gamma ani)]] = [[any_{NPI}]] = \lambda P_{\langle et, t \rangle}. \exists x[\text{thing}(x) \wedge P(x)]_{[+ALT]}$
- b. $[[\text{positive version of (41)}]] = \exists x[\text{thing}(x) \wedge \text{read}(I, x)]_{[+ALT]}$

• Existentials are logically equivalent to a disjunctions. Let's simplify the domain of things in (41b) to two entities: a and b . Thus (41b) is equivalent to $(p \vee q)$, where p = 'I read book a' and q = 'I read book b'

- (42) Exhaustifying (41b)
- a. $ALT(p \vee q) = \{p \vee q, p, q, p \wedge q\}$
- b. $O_{ALT}(p \vee q) = (p \vee q) \wedge \underbrace{\neg p \wedge \neg q}_{\neg(p \vee q)} \wedge \neg(p \wedge q)$
└──────────────────┘
Contradiction!

• Because the ALTs are obligatory, we're stuck with a contradictory meaning after exhaustification (42b). This, on Chierchia's view (2013), is the reason that NPIs are not grammatical in positive sentences—they are uninterpretable.

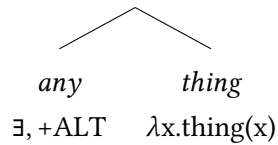
• What happens under negation? Observe:

- (43) a. $[[\text{negative version of (41)}]] = \neg\exists x[\text{thing}(x) \wedge \text{read}(I, x)]_{[+ALT]} \equiv \neg(p \vee q)$
 b. $ALT(\neg(p \vee q)) = \underbrace{\{\neg(p \vee q), \neg p, \neg q, \neg(p \wedge q)\}}_{\text{all entailed!}}$
 c. $O_{ALT}(\neg(p \vee q)) = \neg(p \vee q) \wedge \neg p \wedge \neg q \wedge \neg(p \wedge q)$

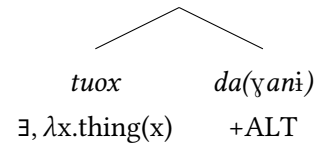
• What is the role of *da*(γani) in these NPIs? While Chierchia’s approach is largely cast in terms of having obligatory alternatives as a feature of lexical items, Szabolcsi (2017, 460) recasts particle-based NPIs slightly differently—that is, **the activation of alternatives (making the obligatory) is performed by the particle itself.**

• The existential component of NPIs inherently has alternatives. What the particle does is take something with alternatives and makes them obligatory. We can think English *any* as having a bundle of features \exists and +ALT (44a), while Sakha *da*(γani) simply has +ALT (44b).

(44) a. English *anything*



b. Sakha *tuox da*(γani)



• For purposes of the present talk, I will not discuss the *even* reading of *da*(γani), nor the *biir da* NPIs. Because these involve richly ordered scales (scalar *even* requires a scalar of pragmatic expectations, *biir* has the rich scale of positive numerals as its alternatives), this would require another exhaustifier *E*(*ven*) (see Chierchia 2013, ch. 3; Crnić 2014).

4.2 *da...da* coordination

- (45) Djulus kofje **da**(γani) čaj **da**(γani) is-(pe)-te
 Djulus coffee *da* tea *da* drink-(NEG)-PST
 a. positive: ‘Djulus drank both coffee and tea’
 b. negative: ‘Djulus drank neither coffee nor tea’

• Resembles i) implicature cancellation under negation ii) strengthening of *or* to *and*-like seen in free-choice.

• Which should we take as the underlying meaning—conjunction ‘and’ or disjunction ‘or’?

• Shimoyama (2011) actually argues that, for Japanese *-mo*, the universal meaning is the basic. What we call NPIs are actually positive-polarity items (PPIs). ($\neg\exists xP(x) \equiv \forall x\neg P(x)$). I see no plausible way of taking *and* as the basic meaning:

- Why would *WH-da*(γani), *biir da* be ungrammatical in positive sentences? This would make it a PPI which is ungrammatical in positive sentences.
- Why would negative *da*(γani)...*da*(γani) be pragmatically neutral, but the positive equivalent restricted?

- How would we handle coordinated NPIs like (46), (47)?

- (46) a. Min [kimi **da**(γ ani)] [tugu **da**(γ ani)] kör-*(bö)-t-üm
 I who.ACC *da* what.ACC *da* see-(NEG)-PST-1SG
 ‘I didn’t see anybody or anything’
 b. *...kimi da da ...tugu da da...
- (47) a. Djulus [kim-neeyer **da**(γ ani)] [tuox-taa γ ar **da**(γ ani))] kirahiabaj
 Djulus who-CMPR *da* what-CMPR *da* attractive
 ‘Djulus is more attractive than anyone or anything’ / ‘Nobody is more attractive than Djulus
 and nothing is more attractive than Djulus’
 b. *...kimneeyer da da ... tuoxtaa γ ar da da...

- If we view the coordination as conjunction ‘and’ outscoping negation (46a) or the comparative (47a), why do we still observe an NPI effect? Why are (46b), (47b) bad?

- If we analyze *da*(γ ani) as an element which makes alternatives of a disjunction obligatorily active, it is much more parsimonious to treat *da*-coordination as underlying disjunction ‘or’. But how do we do that?
- There are approaches which utilize exhaustification with O(nly) to derive conjunctive meanings from underlying disjunctions.¹⁰ This is performed through recursive exhaustification of the subdomain alternatives **without** going further and exhaustifying a stronger scalar.
- Recursive exhaustification (Chierchia et al. 2012; Fox 2007; Fox and Katzir 2011) appeals to subdomain alternatives in a very strong way. The approach I outlined for NPIs involved non-recursive exhaustification. When recursive, we must consider not only the alternatives of the prejacent, but also the alternatives of the alternatives. For an alternative set of a disjunction ($p \vee q$) like (48), the subdomain alternatives are (48a) and (48b).

- (48) ALT($p \vee q$) = Subdomain-ALT($p \vee q$) = { $p \vee q$, p , q }
- a. ALT(p) = { p , q }
- b. ALT(q) = { p , q }

- Recursive exhaustification of this set proceeds as follows. I represent recursive exhaustification via a superscript R for simplicity.

- (49) a. $O_{ALT}^R(p \vee q) = (p \vee q) \wedge \neg O(p) \wedge \neg O(q) = \dots$
 (i) $(p \vee q) \wedge \dots$
 (ii) $\neg O(p) = \neg(p \wedge \neg q) = (p \rightarrow q) \wedge \dots$
 (iii) $\neg O(q) = \neg(q \wedge \neg p) = (q \rightarrow p)$
 b. $= (p \vee q) \wedge (p \leftrightarrow q)$

¹⁰See Bar-Lev and Margulis (2014) on Hebrew *kol*, Mitrović (2014) on Japanese *-mo*, Singh et al. (2016) on Child-English *or*, Bowler (2014) on Warlpiri *manu*, Wong (2017) on Malay *pun*.

p	q	(p ∨ q)	(p ↔ q)	(p ∨ q) ∧ (p ↔ q)
1	1	1	1	1
1	0	1	0	0
0	1	1	0	0
0	0	0	0	0

- In prose “I drank coffee or tea, and not only coffee and not only tea”
- The reason *da(ɣani)* appears in each coordinand is that it is marking each as having obligatorily active alternatives.

(50) (Djulus drank coffee_[+ALT]) ∨ (Djulus drank tea_[+ALT])

- If only one of the disjuncts had active alternatives, we would reach a contradiction

(51) $O_{ALT}^R(p \vee q) = (p \vee q) \wedge \underbrace{\neg O(p)}_{(p \rightarrow q)} \wedge \neg q$ (contradiction, **always false**)

- There are some issues with using recursive exhaustification with no scalar alternative (what Chierchia 2013, 122 calls the ‘free choice effect “gone wild”’). When justification for such an approach is given, it is typically that the language at hand lacks a lexical item which would stand as the scalar alternative for the underlying disjunct (e.g. Singh et al. 2016 on Child English *or*, Bowler 2014 on Warlpiri *manu*, also Davidson 2013 on ASL coordination).¹¹ That is, if a language lacks *and* its *or*-word will lack a scalar alternative, and what they have instead is *and/or*. Analogous to thinking of the meaning of PLURAL as dependent on other distinctions: if a language has an obligatory morphological DUAL, plural is used for more than three.

- Sakha does have an *and* word: *uonna* as discussed above. Perhaps this is not even a candidate lexical alternative for *da(ɣani)*, because *uonna* is a conjunction, and *da(ɣani)* is a focus particle.¹²

5 Whither additivity?

- Why does Sakha *da(ɣani)* lack a basic additive reading? Why do Japanese *-mo*, Hungarian *is/sem*, BCS *i/ni*, Hindi *bhii* have one?
- If we stipulate additivity (as done by Mitrović 2014 for Japanese *-mo*), it is easy enough to unstipulate it for Sakha. But this is unsatisfying.
- As Szabolcsi (2017) argues, all of the other readings of quantifier particles can be captured by exhaustification of alternatives of a disjunction (whether the alternatives are a rich scale like ‘one’, alternatives of an existential, or focus alternatives) and what’s more, as a focus-sensitive operator, we already know that *also*-readings involve alternatives.

¹¹In a recent work, (Mitrović 2021, 60) has parameterized this for lexical coordinators.

¹²An alternative approach is that *uonna* is not really ‘and’. (Vinokurova 2011, 203) reports that it has a range of additional meanings, including ‘in spite of’.

- Szabolcsi (2017) experiments with a unique way to derive additive presuppositions with recursive exhaustification of a subset of the focus alternatives, without a scalar alternative.

(52) Hungarian

- BILL is ásított
Bill is yawned
'BILL yawned, too'
- Assertion/prejacent/ordinary value= $\text{yawn}_w(b)$
- Focus value/Focus ALTs= $\{w : \text{yawn}_w(b), w : \text{yawn}_w(k), w : \text{yawn}_w(m)\}$
= $\{\text{bill yawned, katalin yawned, mari yawned}\}$

- Crucial to the additive reading is that some member of the focus ALTs (52c) distinct from the ordinary value (52b) is true. That is, in addition to Bill, either Mari or Katalin yawned (or both).
- Stipulates that, in addition to activating alternatives, Hungarian *is* (52a) “bifurcates” the alternatives: one contains the alternative(s) which entail the prejacent $\{w : \text{yawn}_w(b)\}$ and one a disjunction of the other alternatives $\{w : \text{yawn}_w(k) \vee \text{yawn}_w(m)\}$. This resulting set BI-ALT (53) is then recursively exhaustified (53a). Here I simplify to $b = \text{'Bill yawned'}$, etc.

(53) BI-ALT(52a) = $\{b\}, \{m \vee k\}$

$$\begin{aligned} \text{a. } O_{\text{BI-ALT}}^R(b) &= b \wedge \underbrace{\neg O(b)}_{\substack{\neg(b \wedge \neg(m \vee k)) \\ b \rightarrow (m \vee k)}} \wedge \underbrace{\neg O(m \vee k)}_{\substack{\neg((m \vee k) \wedge \neg b) \\ (m \vee k) \rightarrow b}} \\ &= b \wedge (b \leftrightarrow (m \vee k)) \end{aligned}$$

- 'Bill yawned is true and Bill yawned iff (Mary or Katalin) yawned'. Sure sounds like an additive presupposition.
- While Szabolcsi (2017) does not discuss the *both...and* reading of *is...is*, the BI-ALT approach is totally compatible with it.

(54) Kati is Mari is aludt

Kati is Mari is slept

'Both Kati and Mari slept' / 'Kati as well as Mari slept' (Szabolcsi 2018, 5)

- $= [\text{Mari}_{[+\text{ALT}]} \text{ slept}] \vee [\text{Kati}_{[+\text{ALT}]} \text{ slept}]$
- ALT(54a) = $\text{BI-ALT}(m) \cup \text{BI-ALT}(k)$
 - $\text{BI-ALT}(m) = \{m\}, \{k \vee b\}$
 - $\text{BI-ALT}(k) = \{k\}, \{m \vee b\}$
- $O_{\text{ALT}}^R(m \vee k) = (m \vee k) \wedge \underbrace{\neg O(m) \wedge \neg O(k \vee b)}_{\substack{(m \leftrightarrow (k \vee b)) \\ \text{additive presupp. for } m}} \wedge \underbrace{\neg O(k) \wedge \neg O(m \vee b)}_{\substack{(k \leftrightarrow (m \vee b)) \\ \text{additive presupp. for } k}}$

- Recursive exhaustification (54c) creates two presuppositions : one for *Mari slept* and one for *Kati slept*.

Because the domains overlap, the presupposition of one disjunct is satisfied by the other.¹³ Here are the truth conditions for (54c)

m	k	b	(54c)
1	1	0	1
1	1	1	1
all others=False			

5.1 Approach 1: Additivity is absent

- If Szabolcsi's (2017) approach is correct, it could simply be that Sakha *da*(γani) doesn't bifurcate it's alternatives.
- This jibes well with the fact that the licensing environments of *da*(γani) NPIs are Anti-Additive,¹⁴ though I'm not sure how to directly link these facts.
- One potential issue this poses is that *even* also often carries an additive presupposition. This is true in English as well as Sakha.

(55) Onnooyor studjen *da*(γani) iti kinige-ni aax-ta
 even student *da* that book-ACC read-PST
 'Even THE/A STUDENT read that book'

- Scalar presupposition: The student was very unlikely to read the book.
- Additive presupposition: Somebody other than the student read the book.

- There is a crucial difference, at least in English: The additive presupposition of *even* can be suspended (56), while it is impossible to do so for *also* (57)

(56) **Context:** Pooh and Eeyore come across a bush of thistles. Eeyore (a known thistle enjoyer) takes a bite and spits it out:
 'Those thistles must be really prickly! Even Eeyore spit them out' (Szabolcsi 2017, 458)
 (Nobody else spit thistles out!)

(57) I don't know if Sardaana drank coffee. # But if Djulus did too, he'll probably be hyper.

- Szabolcsi tentatively suggests that the difference between failed attempts to suspend additivity of *also* and successful ones of *even* may have to do with the main contribution of the elements. *Even*'s main function is to induce a scalar presupposition, not an additive one.

- What about languages where *even* and *also* are served by the same particle? Would they too be fine with suspending their additive presupposition if the intended reading is *even*?

- If it turns out that inducing additivity is genuinely absent from Sakha *da*(γani), it would follow that the *too* function of TOO particles is actual an non-central role. Further, there **must** be more languages that have the *da*(γani) pattern.

¹³(Szabolcsi 2015, 168), following Kobuchi-Philip (2009), proposes something similar for Japanese *-mo*, noting that, because presuppositions typically are satisfied locally left-to-right, this would more properly be a postsupposition.

¹⁴Anti-Additivity for negation is uncontroversial. Hoeksema (1983) argues that clausal comparatives are anti-additive.

5.2 Approach 2: Additivity is hiding

• Something that is quite surprising is that many descriptive grammars and dictionaries translate *da*(*γani*) as *also* or *too* (Böhlingk 1851, §670; Krueger 1962, 115; Landmann 2016, 108, 136). While it is tempting to brush this off as due to the fact that its cognate usually means *also/too* in other Turkic languages (58), I'm not so sure.¹⁵

- (58) a. Tatar
A: Min sezne kürüeme šat. B: Min **dä**
'A: I am very happy to see you. B: Me, too' (Landmann 2014, 105)
- b. Turkish
O **da** sorunun yanıtını biliyor
'He/she also knows the question's answer'
- c. Balkar
Kerim **da** neni biledi
'What does KERIM know also?' (Voznesenskaia 2020, 168)

• One thing I like about the BI-ALT approach to reiterated *too*-particle conjunction is that you don't actually have to omit the stronger scalar alternative to strengthen *or* to *and*.¹⁶

- (59) (p ∨ q)
- a. (i) ALT(p ∨ q) = {BI – ALT(p), BI – ALT(q), r, p ∧ q ∧ r}
(ii) BI-ALT(p) = {{p}, {q ∨ r}}
(iii) BI-ATL(q) = {{q}, {p ∨ r}}
- b. O^R(BI – ALT(p) ∨ BI – ALT(q))
= (p ∨ q) ∧ $\underbrace{\neg O(p) \wedge \neg O(q \vee r)}_{p \leftrightarrow (q \vee r)} \wedge \underbrace{\neg O(q) \wedge \neg O(p \vee r)}_{q \leftrightarrow (p \vee r)} \wedge \underbrace{\neg(p \wedge q \wedge r)}_{\text{negated scalar}}$
- c. Truth conditions
- | p | q | r | (59b) |
|------------|---|---|-------|
| 1 | 1 | 0 | 1 |
| else false | | | |

• Another possibility – *da*(*γani*) does have an additive presupposition, but its use in most contexts is blocked by *emie*. Only emerges in coordination, scalar focus.

- The competition would have to be restricted to the quantifier particles. To my knowledge, Sakha's number of quantifier particles (4) is quite high – Japanese has 2 (*-mo* and *-ka*), Hungarian I believe only has *is/sem* (1.5).
- One challenge is that multiple particles can appear in the appear on the same host (e.g.). More work needs to be done to figure out the contribution of these stacked particles.

¹⁵In fact, my consultant translates the word as 'also', despite rejecting it as a basic additive particle.

¹⁶If the scalar is included in the course of recursive exhaustification of focus alternatives, the reading is additive+“not all” (i.e. if there are 100 alternatives including the prejacent, it is satisfied so long as the prejacent is true and between 1 and 98 of the non-entailed alternatives are true.)

- German *eben* ‘even’, *auch* ‘also, even’
- Maybe I’m just looking for it in the wrong place? Suggestions please...

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