

Tuvan *-daa* in Quantificational Noun Phrases Existential or Universal?

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Introduction (i)

- Tuvan has a particle *-daa* which appears in semantically restricted contexts; however the meanings it associates with are diverse.
- Despite non-trivial overlap with well-studied Japanese particle *-mo*, *-daa* departs significantly in embedded clauses.
- Very little previous work on *-daa* other than descriptions (Iskhakov & Pal'mbakh 1961: 249–51, Anderson & Harrison 1999, Harrison 2000, Baiyr-ool 2012)
- Data collected here from elicitations with a native speaker

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- Tuvan (Tyvan, <ТЫВА ДЫЛ>; ISO: tʏv)
 - ≈300K native speakers in Russia, Mongolia, China.
 - Turkic > Common Trk. > Siberian > South Siberian



Flag of Tuva

([Wikimedia-link](#))

Introduction (ii)

- Particle *-daa* [da:] combines with WH-words (*čüü* ‘what’, *kim* ‘who’) to form Quantificational NPs (QNPs).
- Positive, episodic (=non-modal), WH-*daa* gets universal interpretation (1)

- (1) Men düün {**čünü-daa** / **kimni-daa**} kör-dü-m
 I yesterday {what.ACC-*daa* / who.ACC-*daa*} see-PST-1 SG
 ‘I saw every{thing/one} yesterday’ $\forall x[\text{THING}(x) \rightarrow \text{SEE}(I, x)]$

- Negative WH-*daa* (2) functions as a Negative Polarity Item (NPI):

- (2) Men düün {**čünü-daa** / **kimni-daa**} kör-be-di-m
 I y.day {what.ACC-*daa* / who.ACC-*daa*} see-NEG-PST-1 SG
 a. ‘I didn’t see any{thing/one} yesterday’ (i) $[\neg > \exists]$ \equiv (ii) $[\forall > \neg]$
 b. *‘I didn’t see every{thing/one} yesterday’ (i) $\times [\neg > \forall]$

- WH-*daa* does not admit narrow-scope \forall with clausemate negation (2b)

Transcription: <VV>=[V:], <č>=[tʃ], <š>=[s], <ö>=[œ], <ü>=[y], <i>=[i~ɯ]

Introduction (iii)

- Perhaps WH-*daa* is underlyingly a universal which takes wide-scope w.r.t. negation?

$$(3) \quad \text{a. } \forall x[\neg\phi(x)] \equiv \neg\exists x[\phi(x)] \quad \text{b. } \neg(\phi \vee \psi) \equiv (\neg\phi \wedge \neg\psi)$$

- Similar to popular approach for Japanese *-mo* (Kratzer & Shimoyama 2002, Shimoyama 2006, 2011, Kobuchi-Philip 2009, Szabolcsi 2015).
- But there are two problems with this approach for Tuvan *-daa*-marked QNPs...

Introduction (iv): Problems for a \forall -analysis

- First, not all *-daa*-marked QNPs allow a universal interpretation. The determiner/numeral *čaŋgīs* ‘one; only; a single’ forms a pure NPI with *-daa*:

- (4) Men **čaŋgīs-daa nom** nomču-*(**va**)-dī-m
 I one-*daa* book read-(NEG)-PST-1SG
- a. ‘I didn’t read any book(s)’ / ‘I didn’t even read one book’ [$\neg > \exists$]
- b. *‘For even one book x: I didn’t read x’
 (=‘among the books x s.t. I read x, there is even one book y in x s.t. I didn’t read y’)

Introduction (v): Problems for a \forall -analysis

- Second, and most significantly, when negation is hosted on a matrix verb, embedded WH-*daa* DOES admit $[\neg > \forall]$ readings (5b).

(5) Men [seni **čünü-daa** nomča-an] di-ve-di-m
 I [you.ACC what.ACC-*daa* read-PST] say-NEG-PST-1SG

- ‘I didn’t say that you read anything’
- ‘I didn’t say that you read everything’

- (5a) is cross-clausal NPI licensing (compare (6)):

(6) [Men [seni **čangis-daa nom** nomča-an] di-*(ve)-di-m
 I [you.ACC one-*daa* book read-PST] say-(NEG)-PST-1SG
 ‘I didn’t say that you read any book/even one book’

Outline

- I argue that *-daa*-marked phrases are underlying existentials with active alternatives. Meanings are a result of recursive exhaustification (Fox 2007, Chierchia 2013)
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Roadmap:

Overview of roles served by *-daa*

Focus and coordination

As a quantifier particle

Comparison to Japanese *-mo*

Against \forall : Embedded *-daa*

Alternative proposal within alternative-semantics

Conclusion & Discussion

Overview of roles served by *-daa*: Focus & coordination (i)

- **Focus particle:** *-daa* attaches directly to the focused element
- Basic additive reading (7a), mirative focus (7b) (salient when *-daa* is stressed).

(7) Öörenikči-**daa** ol nom-nu nomču-du
 student-DAA that book-ACC read-PST

- ‘[The student]_F read that book, too.’
 (=the student read it, and somebody else read it)
- ‘Even [the (young) student]_F read that book’
 (Unexpected that such a young student would read that book;
öörenikči ‘primary school student’)

(8) Men-**daa** nom ekkel-be-di-m
 I-*daa* book read-NEG-PST-1SG

- ‘[I]_F didn’t read the book, either’
- ‘Even [I]_F didn’t read the book’

Overview of roles served by *-daa*: Focus & coordination (ii)

- Marking each coordinand in a coordination. positive ‘both...and’, negative ‘not X and not Y’

- (9) Men [kofe-**daa** šay-**daa**] iš-(pe)-di-m
 I coffee-*daa* tea-*daa* drink-(NEG)-PST-1SG
- a. POS: ‘I drank both coffee and tea’
- b. NEG:
- (i) ‘I didn’t drink coffee or tea’ / ‘I drank neither coffee nor tea’
- (ii) #‘I didn’t drink both coffee and tea’ (= ‘I only drank only coffee’, ‘.. only tea’)

- Cumulative readings are disallowed:

- (10) Buyan-**daa** Mergen-**daa** iji metr uzun
 Buyan-*daa* Mergen-*daa* two meter tall
- a. ‘Buyan and Mergen are both two meters tall’ Distributive
- b. #‘Buyan and Mergen’s combined height is two meters’ Cumulative

Roles: Quantifier particle (i)

- We saw *-daa* attached to WH-words forms NPIs and universal quantifiers.
- WH-*daa* in the scope of possibility modal also functions as universal free-choice item (\forall -FCI) as in reading (11a)

- (11) Ežik-ti **kim-daa** sokta-p bol-ur
 door-ACC who-*daa* knock-CVB can-NPST
- a. ‘Anyone can/could/may knock at the door’ \forall -FCI
- b. ‘Everyone can knock at the door’ \forall -GQ

- (11) ambiguous with \forall -GQ reading (11b). Pos. episodic (12) disambig.:

- (12) Ežik-ti **kim-daa** sokta-p tur
 door-ACC who-*daa* knock-CVB stand.LT.VB
- a. *‘Anyone is knocking at the door’ \times \forall -FCI
- b. ‘Everyone is knocking at the door’ \forall -GQ

Roles: Quantifier particle (ii)

- WH-*daa bolza* (*bol*=modal copula, -*ZA* conditional mood suffix) only has a free-choice readings (13a)

(13) Ežik-ti **kim-daa** **bolza** sokta-p bol-ur
 door-ACC who-ACC-*daa* IT.BE knock-CVB can-NPST

a. 'Anyone can knock at the door'

∀-FCI

b. *'Everyone can knock at the door'

∀-GQ

- Ungrammatical in episodic sentences:

(14) *Ežik-ti **kim-daa bolza** sokta-p tur
 door-ACC who-*daa* IT.BE knock-CVB stand.LT.VB
 '*Anybody is knocking at the door'

✗ ∀-FCI

- */??Necessity modals:

(15) ??/*Men **čünü-daa** **bolza** nomču-ur užurlug=men
 I what.ACC-*daa* IT.BE read-NPST oblige.to=1 SG
 '??I must read anything'

Roles: Quantifier particle (iii)

- *čangis-daa* functions as a minimizer determiner (c.f. Sakha *biir da*, Kirby 2020, 2021)
- No universal (16b) or free-choice readings (16c).

- (16)
- a. Men **čangis-daa nom** nomču-va-d-ï-m
 I one-*daa* book read-NEG-PST-1SG
 ‘I didn’t read even [one book]_F’ / ‘I didn’t read a single book’
- b. *Men **čangis-daa nom** nomču-du-m
 I one-*daa* book read-PST-1SG
 *‘I read any book’
- c. *Men **čangis-daa nom** nomču-p šida-ar=men
 I one-*daa* book read-CVB can=1SG
 *‘I can read any book’

Roles: Quantifier particle (iv)

- *čangīs* without *-daa* functions like a numeral (Harrison & Anderson (2006) list ‘lone, alone (adj)’, and ‘only, just (adv)’ as other meanings)

(17) {bir / *čangīs*} daška vodka
 {one / *čangīs*} glass vodka
 ‘a glass of vodka’

- Interestingly, *čangīs* alone is a PPI:

(18) Men *čangīs* nom nomču-va-dī-m
 I *čangīs* book read-NEG-PST-1SG

a. ‘There is one book I didn’t read (among the rest)’ $[\exists > \neg]$

b. #‘I didn’t read any book’ $[\neg > \exists]$

- *-daa* turns *čangīs* into an NPI

Roles: Comparison to Japanese *-mo* (i)

Role		Jpn <i>-mo</i>	Tyv <i>-daa</i>
Focus	additive X <i>also/either</i>	X- mo (\pm NEG)	X- daa (\pm NEG)
	Mirative <i>even</i>	X- mo (\pm NEG)	X- daa (\pm NEG)
Coord.	both X and Y	X- mo Y- mo	X- daa Y- daa
	not (X or Y)	X- mo Y- mo ... V-NEG...	X- daa Y- daa ... V-NEG
Quant.	WH+PTCL NPI	$\left(\begin{array}{c} \textit{dare-mo} \\ \text{who - PTCL} \end{array} \right)$	$\left(\begin{array}{c} \textit{kim-daa} \\ \text{who - PTCL} \end{array} \right)$
	\forall -GQ	<i>dare-mo</i>	<i>kim-daa</i>
	\forall -FCI	<i>dare-de-mo</i>	<i>kim-daa (bolza)</i>
	minimizer NPI	$\left(\begin{array}{c} \{it/hito\} - \text{CL} - \textit{mo} \\ \{one/one\} - \text{clssfr} - \text{PTCL} \end{array} \right)$	<i>čangäs-daa</i> +NOUN

(Kuroda 1965, Haspelmath 1997, Kratzer & Shimoyama 2002, Nakanishi 2006, 2012, Shimoyama 2006, 2011, Kobuchi-Philip 2009, Szabolcsi 2010, 2015, 2018)

Roles: Comparison to Japanese *-mo* (ii)

- Like Japanese, in Tuvan, not every combination of WH+PTCL is allowed:

	a. interrogative	b. universal	c. NPI	d. \forall -FCI
Jpn	<i>dare</i> ‘who’	<i>dare-mo</i>	<i>dare-mo</i>	<i>dare-de-mo</i>
	<i>nani</i> ‘what’	%1(<i>nani-mo</i>)	<i>nani-mo</i>	<i>nan-de-mo</i>
	<i>itu</i> ‘when’	<i>itu-mo</i>	—	<i>itu-de-mo</i>
Tuv	<i>kim</i> ‘who’	<i>kim-daa</i>	<i>kim-daa</i>	<i>kim-daa</i> (<i>bolza</i>)
	<i>kažan</i> ‘when’	—	<i>kažan-daa</i> (‘ever’)	<i>kažan-daa</i> (‘any time’)

%1: *nani-mo* only used in idioms.

- In Tokyo Japanese—first mora of the interrogative accented for universal reading; pitchless for NPI, FC. Universal \rightarrow structural case, NPI \rightarrow caseless.
- Tuvan—WH generally stressable for NPI, no stress for \forall , FC. Structural case invariant across meaning.

Is WH-*daa* a wide-scope \forall -NPI?

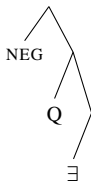
- (19) IMMEDIATE SCOPE CONSTRAINT: An NPI and negation are in an immediate scope relation with each other
 (Shimoyama 2011: 421; Generalized Immediate Scope Constraint in Kim & Sells 2007)

(20) $\forall x[\neg\phi(x)] \Leftrightarrow \neg\exists x[\phi(x)]$

- (21) a. ✓



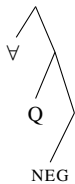
- b. ✗



- c. ✓



- d. ✗



- Shimoyama (2006, 2011) accounts for Japanese NPIs through (c); Kobuchi-Philip (2009) argues for a \forall account of the additive functions of *-mo*

Unavailability of Narrow-scope universal reading

- With clause-mate negation, WH-*daa* is bad on an inverse-scope [NEG > \forall] reading (22b), even in response to pragmatic contexts like (22a).

- (22) a. Ugaannig=sen. Sen [[meeɲ küzen-im] **čünü-daa**]
 smart=2SG. 2SG [[my.GEN want-1SG.POSS] what.ACC-*daa*]
 nomču-du-ɲ
 read-PST-1SG
 ‘You’re smart. You read everything I wanted you to’
- b. Men {šuptu-zun / dögere-zin / # **čünü-daa**} nomču-va-dī-m
 I {all-POSS.ACC / complete-POSS.ACC / what.ACC-*daa*} read-NEG-PST-1SG
 ‘I didn’t read EVERYTHING’

- Instead a distinctly universal element like *šuptu*, *dögere* is used (22b)
- With *čünü-daa*, (22b) only has the NPI reading (‘I didn’t read anything’)

WH-*daa* in embedded clauses

- Matrix negation+embedded WH-*daa* allows both readings (23a), (24). Bad in Jpn. (25)

- (23) a. Men [Buyan-nĩ **čünü-daa** ekkel-gen] di-ve-di-m
 I [Buyan-ACC what.ACC-*daa* bring-PST] say-NEG-PST-1SG
 (i) ‘I didn’t say that Buyan brought everything’ [¬ > ∀]
 (ii) ‘I didn’t say that Buyan brought anything’ [¬ > ∃]
- b. Men [Buyan-nĩ **šuptu-zun** ekkel-gen] di-ve-di-m
 I [Buyan-ACC all-POSS.ACC bring-PST] say-NEG-PST-1SG
 ‘I didn’t say that Buyan brought everything’
- (24) Men [**kimnĩ-daa** čaraš dep] sana-vas=men
 I [who.ACC-*daa* beautiful COMP] consider-NEG.NPST=1SG
 a. ‘I don’t consider everyone/all of them beautiful’
 b. ‘I don’t consider anyone/any of them beautiful’
- (25) *Taro-wa [Yoko-ga **dare-mo** syootaisi-ta to] iwa-nakat-ta (Japanese)
 Taro-TOP [Yoko-NOM who-*mo* invite-PST that] say-NEG-PST
 int: ‘Taro didn’t say that Yoko invited anyone’ (Shimoyama 2011: 418)

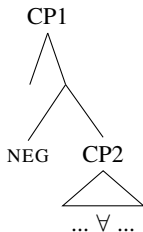
If WH-*daa* is underlyingly universal...

- (26) Men [Buyan-nī **čüünü-daa** ekkel-gen] di-ve-di-m
 I [Buyan-ACC what.ACC-*daa* bring-PST] say-NEG-PST-1SG

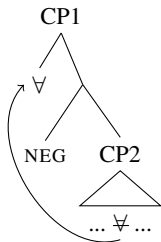
- a. 'I didn't say that Buyan brought everything'
 b. 'I didn't say that Buyan brought anything'

[$\neg > \forall$]
 NPI

(26a)



(26b)



- On this approach, the difference to Japanese would be that Japanese disallows the movement of \forall from the embedded clause.

Problems with the underlying universal account

- *čangis-daa*, a pure NPI, cannot plausibly be viewed as a universal, despite being grammatical in embedded clauses

(27) Men [seni **čangis-daa nom** nomča-an] di-*(ve)-di-m
 I [you.ACC one-*daa* book read-PST] say-(NEG)-PST-1SG
 ‘I didn’t say that you read any/even one book’

- Moreover, if *čangis-daa* and *WH-daa* both appear, the reading of the latter is fixed to the NPI

(28) Men [čangis-daa kiži-ni čünü-daa ašta-an dep] dijna-va-dī-m
 ‘I [one-*daa* person-ACC what.ACC clean-PST COMP] hear-NEG-PST-1SG
 a. ‘I didn’t hear that anyone cleaned anything’
 b. #‘I didn’t hear that anyone cleaned everything’

Alternative-semantics based approach

- Instead, I account for *-daa* in the alternative-semantics framework of polarity-sensitivity and focus (Chierchia 2013, Mitrović 2021).
- Much of the work is done by covert exhaustifiers like O(nly) (29) which ‘exhaustify’ the alternatives of the ordinary value (= ‘prejacent’)

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

($O_{ALT}(\phi)$ asserts that ϕ is true and, for any alternative ψ of ϕ , if ϕ entails ψ , it ψ is true. If ϕ does not entail ψ , ψ is false)

(30) Consider a set of alternatives {p, q, r} (no entailment)

a. $O(p) = p \wedge \neg q \wedge \neg r$

(only p asserts that p is true and no non-entailed alternative is true)

Polarity sensitivity

- On the theory of Chierchia (2006, 2013), NPIs are existentials (=disjunction), and their ungrammaticality in positive, episodic sentences comes from a contradiction produced by exhaustification:

(31) Positive:

- a. $O_{ALT}(p \vee q \vee r)$, where $ALTs = \{p, q, r\}$
- b. (i) $O_{ALT}(p \vee q \vee r) = (p \vee q \vee r) \wedge \neg p \wedge \neg q \wedge \neg r$
- (ii) $= (p \vee q \vee r) \wedge \neg(p \vee q \vee r) \perp$ (contradiction!)

(32) Negative:

- a. $O_{ALT}(\neg(p \vee q \vee r))$, where $ALTs = \{\neg p, \neg q, \neg r\}$
- b. (i) $O_{ALT}(\neg(p \vee q \vee r)) = \neg(p \vee q \vee r) \wedge \neg p \wedge \neg q \wedge \neg r$
- (ii) $= \neg(p \vee q \vee r)$ (subdomain alternatives entailed)

Recursive exhaustification

- In EXH-based approaches, free-choice is the result of recursive exhaustification (Fox 2007, Fox & Katzir 2011, Chierchia et al. 2012). Free-choice items are said to be “pre-exhaustified” in Chierchia (2013), represented by $O_{\text{Exh-DA}}$ (Only, exhaustified subdomain alternatives)
- Recursive exhaustification also used to account for $\exists \Rightarrow \forall$ strengthening, recursive application of O without the inclusion of scalar alternatives (Bowler 2014, Bar-Lev & Margulis 2014, Mitrović 2014, Singh et al. 2016, Bassi & Bar-Lev 2016, Wong 2017, Szabolcsi 2017)

(33)

a. Prejacent: $(p \vee q)$

b. Alternatives: $\{p, q, p \wedge q\}$ SUB-ALTs= $\{p, q\}$ Scalar-ALTs= $\{p \wedge q\}$

c. $O_{\text{Exh-DA}}(p \vee q) = \underbrace{(p \vee q)}_{\text{prejacent}} \wedge \underbrace{\neg O(p) \wedge \neg O(q)}_{\text{pre-exhaustified}}$

d. $= (p \vee q) \wedge \underbrace{\neg(p \wedge \neg q)}_{(p \rightarrow q)} \wedge \underbrace{\neg(q \wedge \neg p)}_{(q \rightarrow p)} = (p \vee q) \wedge (pq) = (p \wedge q)$

Proposal for semantics of *-daa*

- Following [Xiang \(2020\)](#) on Mandarin *dou*, I argue that *-daa*'s semantics is accounted by recursive exhaustification (34).

$$(34) \quad \llbracket -daa \rrbracket = \lambda p : \exists q \in \text{SUB}(p, \text{ALT}). p = 1 \wedge \forall q \in \text{SUB}(p, \text{ALT})[\text{O}_{\text{ALT}}(q) = 0]$$

([Xiang 2020](#): 183)

(*-daa* asserts p and presupposes that p has subdomain alternatives q . For each of these subdomain alternatives q , it is false that only q is true.

- Do such particles perform themselves exhaustify (as in [Chierchia 2013](#), [Mitrović 2014](#)) or do they merely activate alternatives (as in [Szabolcsi 2017](#)), indirectly “pointing to” an exhaustifier? (c.f. [Szabolcsi 2015](#) on KA, MO pointing to join \cup and meet \cap)

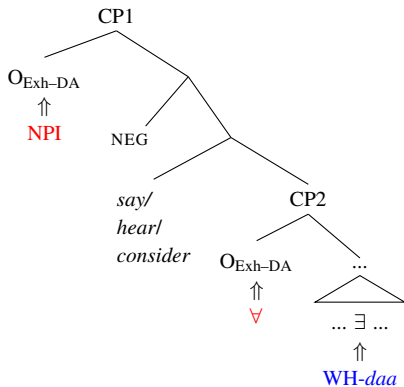
- (35) Men [Buyan-ni **čünü-daa** ekkel-gen] di-ve-di-m
 I [Buyan-ACC what.ACC-*daa* bring-PST] say-NEG-PST-1 SG

- a. 'I didn't say that Buyan brought everything'
 b. 'I didn't say that Buyan brought anything'

[$\neg > \forall$]

NPI

(36) a.

b. [$\neg > \forall$] (35a)

$$= \neg(\text{O}_{\text{Exh-DA}}(p \vee q))$$

$$= \neg(p \wedge q)$$

c. NPI (35b)

$$= \text{O}_{\text{Exh-DA}}(\neg(p \vee q))$$

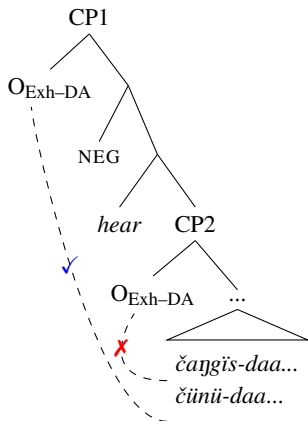
$$= \neg(p \vee q) \wedge \neg(p \leftrightarrow q)$$

$$= \neg(p \vee q)$$

(WH=existential/disjunction
 (-*daa*=alternative – sens.operator)

- (37) Men [čangis-daa kiži-ni čünü-daa ašta-an dep] dijna-va-dī-m
 ‘I [one-*daa* person-ACC what.ACC clean-PST COMP] hear-NEG-PST-1SG
 a. ‘I didn’t hear that anyone cleaned anything’
 b. #‘I didn’t hear that anyone cleaned everything’

(38)



- Reading fixed because *čangis-daa* must be interpreted above negation
- both *-daa*-marked elements interpreted at same time

Conclusion & Discussion

- Despite significant similarities between Tuvan *-daa* and Japanese *-mo*, subtle differences emerge in embedded clauses
- Alternative semantics offers a route to explain the semantics of *-daa* via recursive exhaustification at different levels in the structure.
- Justifying the absence of a scalar alternative? Often justified with reference to lack of a discrete lexical item that serves as this alternative (Bowler 2014, Szabolcsi 2017). But Tuvan has many discrete universal quantifiers: N *bürü*, *bügü* N, *xamik* N ‘every/all/each N’, *tödü*, *dooza*, *dögere*, *suptu-* ‘all’ (Anderson & Harrison 1999: 29–30)
- Historical, synchronic reflex of *-daa* in other Turkic language (Kirby 2020, 2021).

(39)

		also/even X	NPI	\forall -FCI	\forall -GQ
Tuvan	<i>-daa</i>	X-daa	WH-daa	WH-daa (bolza)	WH-daa
Sakha	<i>da(yani)</i>	X-da(yani)	WH-da(yani)	—	—
Turkish	<i>dA</i>	X dA	—	—	—

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