Lexical (and other) constraints on agreement in NGT & Chechen (WiP!)

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RG Lexical Constraints
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Lexical (and other) constraints on agreement in NGT & Chechen

- Background
- Differential agreement/indexing
- Case study: NGT
- Case study: Chechen
- Comparison of Results

Background

- Jenia: acceptability judgments study on NGT
  - Five verbs appear to have differential indexing (non-obligatory; in flux?)
  - Age as a factor?
  - Lexical constraint: different verbs elicit different judgments
- Katherine: annotated corpus of spoken Chechen available
  - 30% of verbs index absolutive argument (obligatory; stable)
  - Does presence of an index impact realisation of the indexed argument (i.e., overt – pronoun/NP – or zero)?
  - Lexical constraint: indexing is lexically determined

Aims

- Can we confirm the NGT findings in a corpus?
  - Do agreement rates correlate with age?
- How does the behaviour of NGT DAI (emergent) in discourse compare with Chechen (stable)?
  - Is differential indexing correlated with argument realisation (NP/pronoun)?
- Can we compare case studies across frameworks & modalities?

Differential argument indexing

Differential argument marking (DAM): a system in which arguments 'bearing the same generalized semantic argument role may be coded in different ways, depending on factors other than the argument role itself, and which is not licensed by diathesis alternations' (Witzlack-Makarevich and Seržant 2018)

(also: sporadic/optional/differential agreement)

Differential argument indexing

- Marking of the arguments (case, adpositions) = Differential Argument Flagging (DAF)
- Marking on the (verbal) predicate (clitics, affixes) = Differential Argument Indexing (DAI)
  - Indexing vs. flagging: cf. Haspelmath (2019)
  - BUT 'indexing' here in Croft's (2003) sense: not restricted to marking person
  - NB indexing has a different meaning for UG in SL!

Differential argument indexing

- Marking on the (verbal) predicate (clitics, affixes) = Differential Argument Indexing (DAI). E.g., Kamang (Alor-Pantar, Indonesia)

(a) *koo* *ge-dum=a* *ga- faafa*
continuously 3.POSS-child=SPEC 3./a/-search.for
'(She) kept looking for her child.'

(b) *male* *uh* *ok* *taweng* *te-bini* *ø-faafa*
woman CLF two in.turns DIST-lice ø-search.for
'Two women search for each other's lice in turns.'

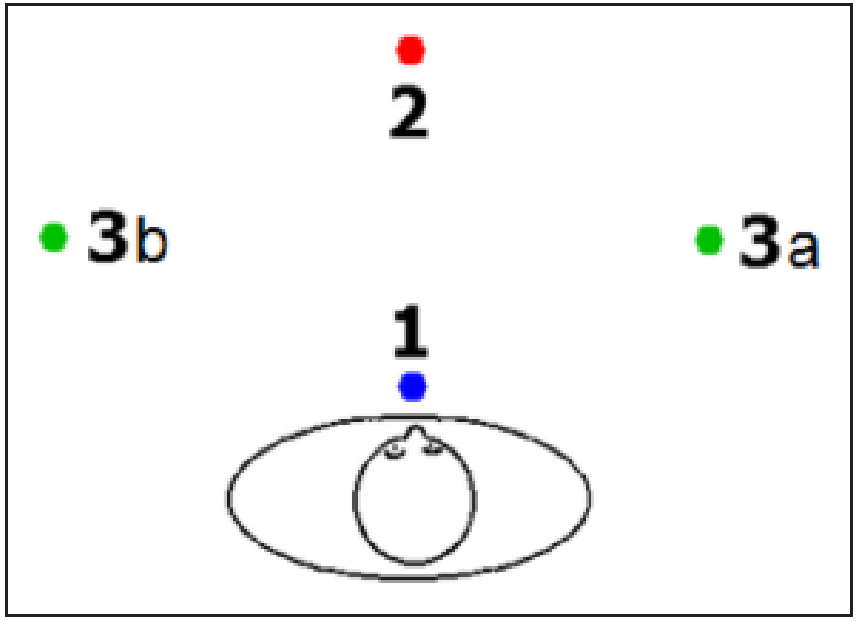
Profile: NGT

First schools for the deaf in the early 20th century (© Dutch Sign Centre).

- Sign Language of the Netherlands (NGT) - the main language of communication for Deaf (deaf, hard-of-hearing people and their families) in the Netherlands
- Signers: ~ 60,000 (Cokart et al., 2019)
- History:
  - 1790: first school for deaf in Groningen
  - Late 19th – 20th century: oral education
  - 1980s – 2000s: bilingual education

(Klomp 2021)

Agreement/indexing in sign languages (SLs)



(Pfau et al., 2018: 3)

Agreement/indexing in SL is realized via the direction of the motion in verbal signs; start and end points of the movement encode person features of the arguments:

the body of the signer – 1st person;
the front – 2d person;
the sides– 3d person (also non-present)

Agreement/indexing in SLs: NGT example

First-person subject third-person object agreement

$_{1}$ANTWOORDEN$_{3a}$

Third-person subject first-person object agreement

$_{3a}$ ANTWOORDEN$_{1}$

(Klomp 2021: 201)

Agreement/indexing in NGT: previous studies

Bos (1990, 1993, 1994)

on backward agreement; pro-drop; agreement auxiliaries in NGT and much more

Van Gijn & Zwitserlood (2006)

unified account of different types of agreement (including classifiers)

Legeland (2016)

corpus study on agreement optionality in NGT

Klomp (2021)

A descriptive grammar of NGT

subject agreement in NGT is optional

Legeland (2016)

Corpus NGT study

- 27 agreeing predicates; 393 tokens
- **27.4 %** of agreeing predicates in the corpus has subject agreement
- Factors stimulating subject agreement:
  - 3rd person subject
  - role shift
  - Age, region and gender do not play a role.

Agreement/indexing in NGT: acceptability judgments

(Accidental) acceptability judgment findings:

- 9 participants (27-71 y.o.)
- **Target verbs:** ANTWOORDEN (answer), HELPEN (help), LESGEVEN (teach), BELLEN (call), PESTEN (bully)
- **Stimuli:**

(a) BOY_{3a} $GIRL_{3b}$ $_{1}HELP_{3b}$ *default agreement*

(b) BOY_{3a} $GIRL_{3b}$ $_{3a}HELP_{3b}$ *full agreement*

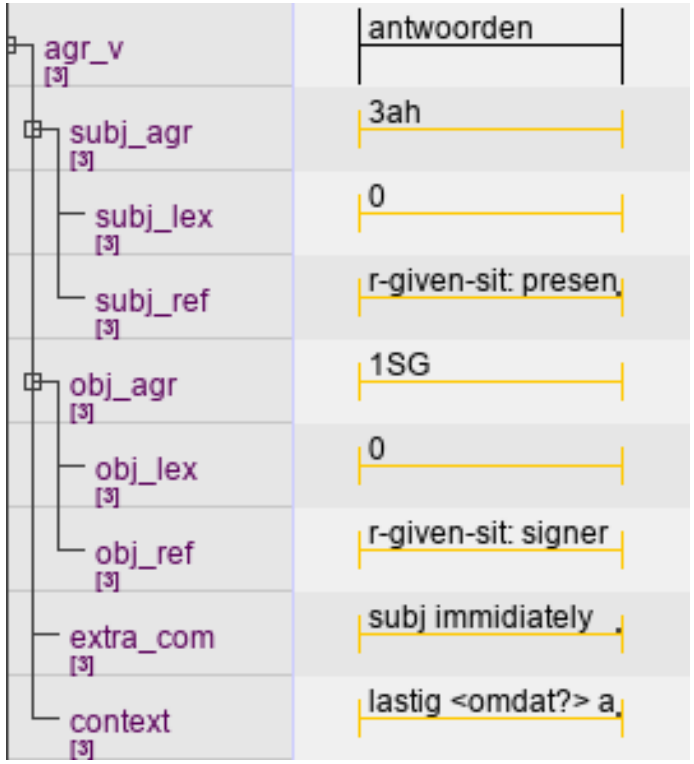
(= first-person agreement based on Russian and other SLs)

- **Results:** 5 signers preferred **full agreement (b)**
  3 signers allowed **both (a) and (b)**
  1 signer slightly preferred **default agreement (a)**

- **Factor?**
  - Age
  - Lexical predicates

ANTWOORDEN > HELPEN>LEREN> PESTEN> BELLEN

Agreement/indexing in NGT: corpus



- Corpus NGT: https://www.corpusngt.nl/
- mostly recorded in 2007
- 27 signer in the sample; 72 tokens

Search: ANTWOORDEN (answer), HELPEN (help), LESGEVEN (teach), BELLEN (call), PESTEN (bully)

Tiers in ELAN for both subject and object:

- agreement form (subj/obj_agr): 1; 2; 3a; 3b; 0
- argument expression (subj/obj_lex)
- referential information status/ giveness (subj/obj_ref) (based on RefLex (Riester & Baumann 2017)

Agreement/indexing in NGT: corpus study

Token frequency

Verb	Frequency
ANTWOORDEN (answer)	11
HELPEN (help)	36
LESGEVEN (teach)	14
BELLEN (call)	10
~~PESTEN (bully)~~	0

Challenges:
V or N?

Frequency of the predicate does not correlate with its agreement properties in NGT.

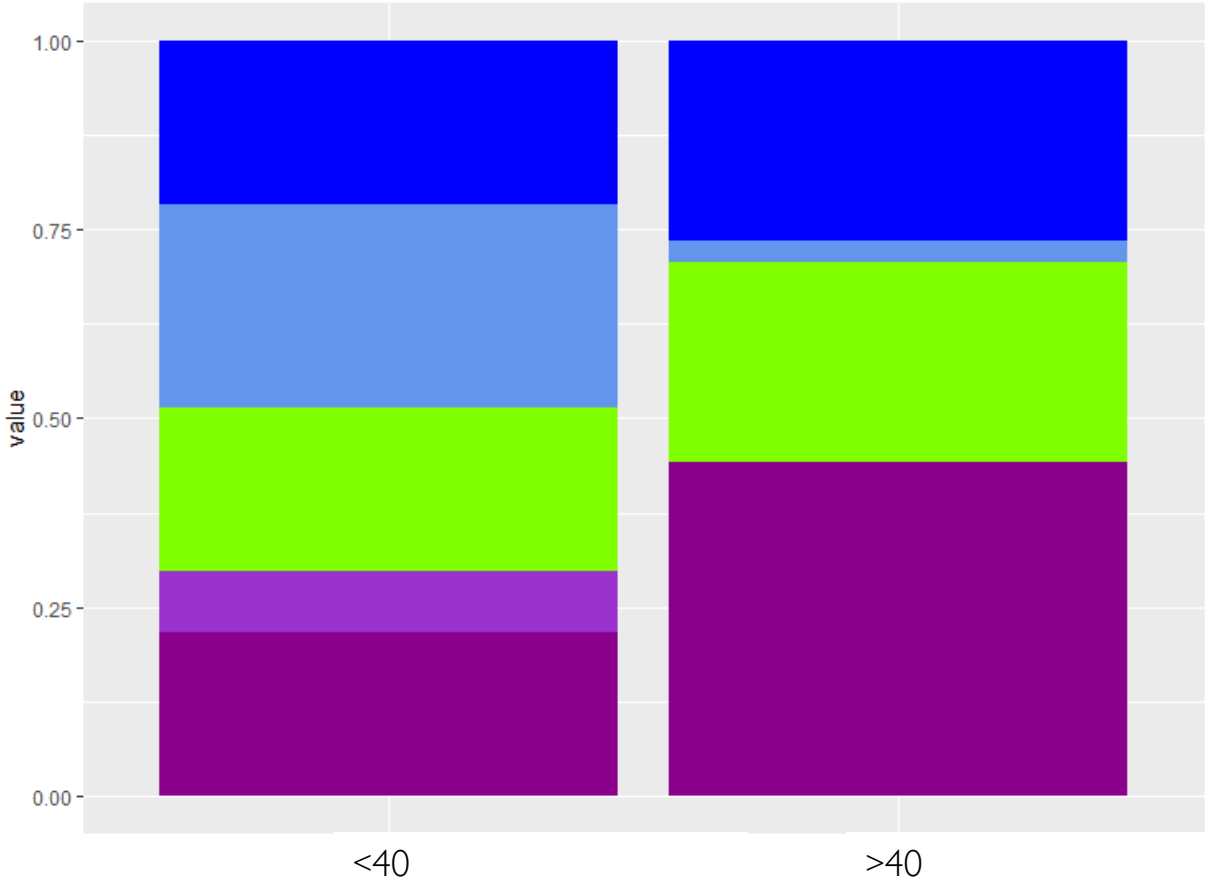
Agreement/indexing in NGT: corpus study

agreement type	entries	
full	28	39%
full:2/3	17	
full:1	11	
default (def)	18	25%
locative (loc)	3	4%
none	23	32%
Total:	72	

Because default agreement and first-person agreement coincide, first-person agreement with first-person referent is ambiguous between default and full agreement

Both default agreement and full agreement have movement component; null agreement ("none") does not have any.

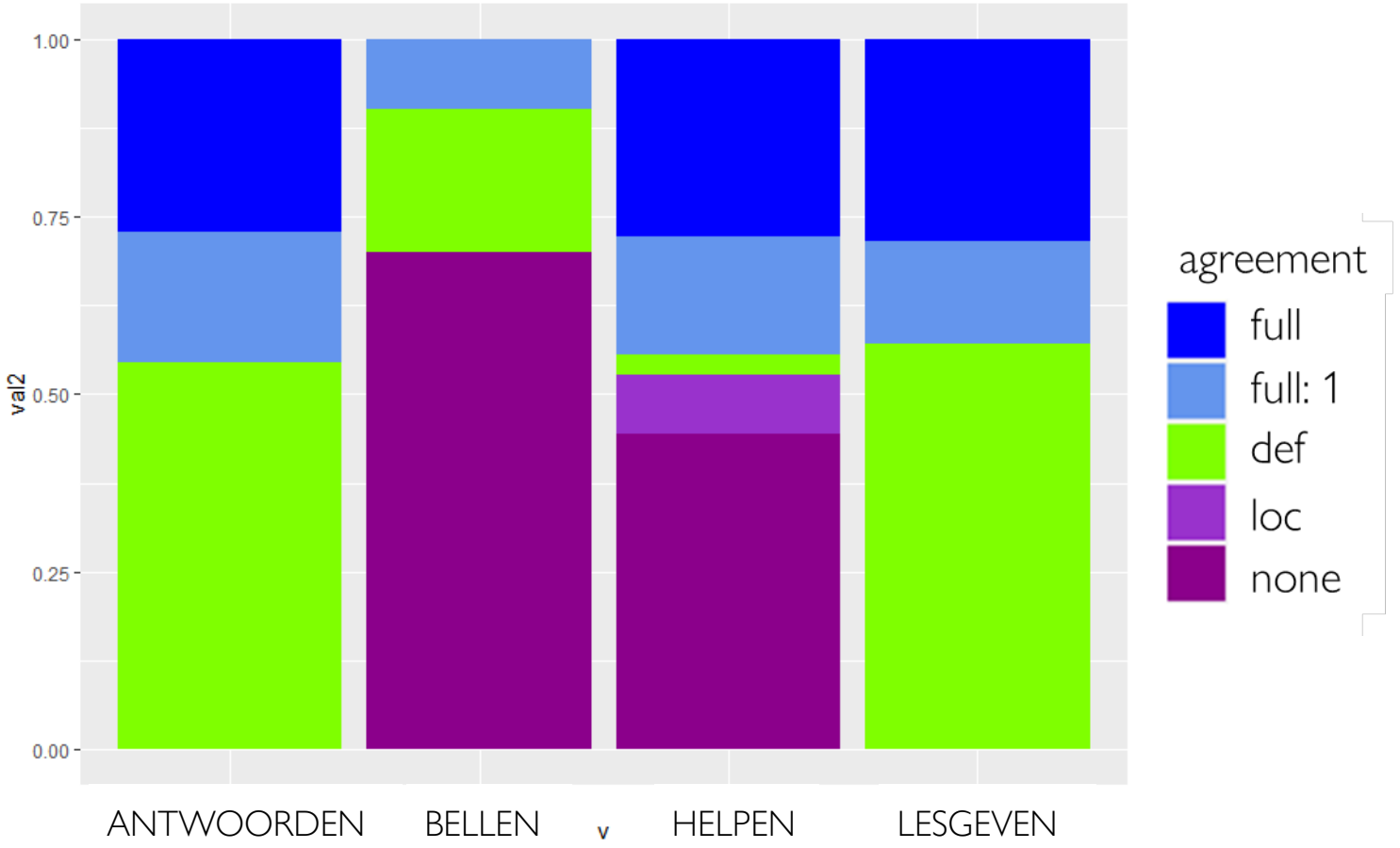
Agreement/indexing in NGT: age factor



Younger generation use more agreement than older one (statistical significance to be determined).

Acceptability judgment data seems to be confirmed.

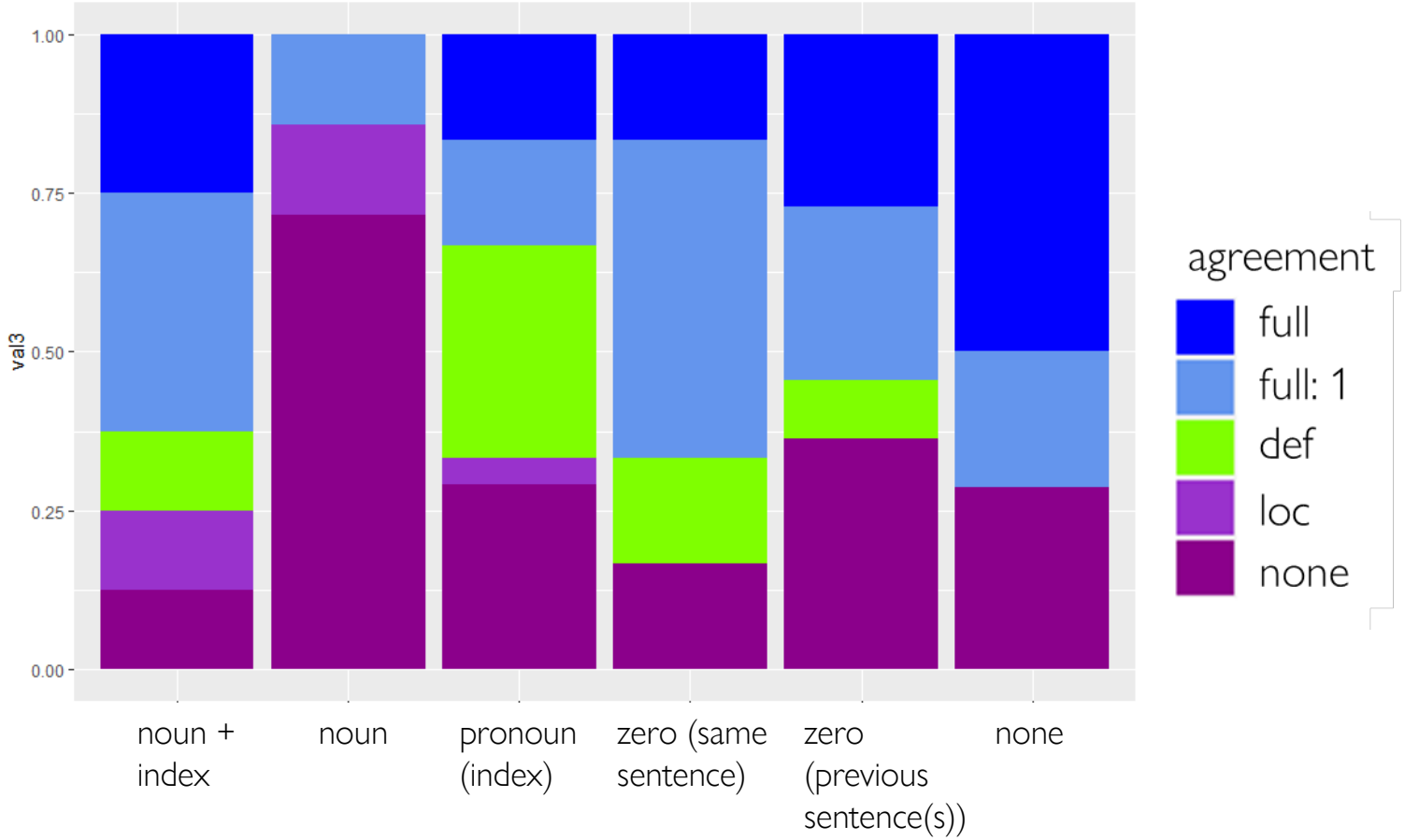
Agreement/indexing in NGT: lexical restrictions



Only HELPEN and BELLEN have null agreement forms; probably, due to phonology.

Except for BELLEN, corpus results do not exactly confirm lexical restriction on the amount of agreement amount these five predicates.

Argument expression ~ agreement/indexing

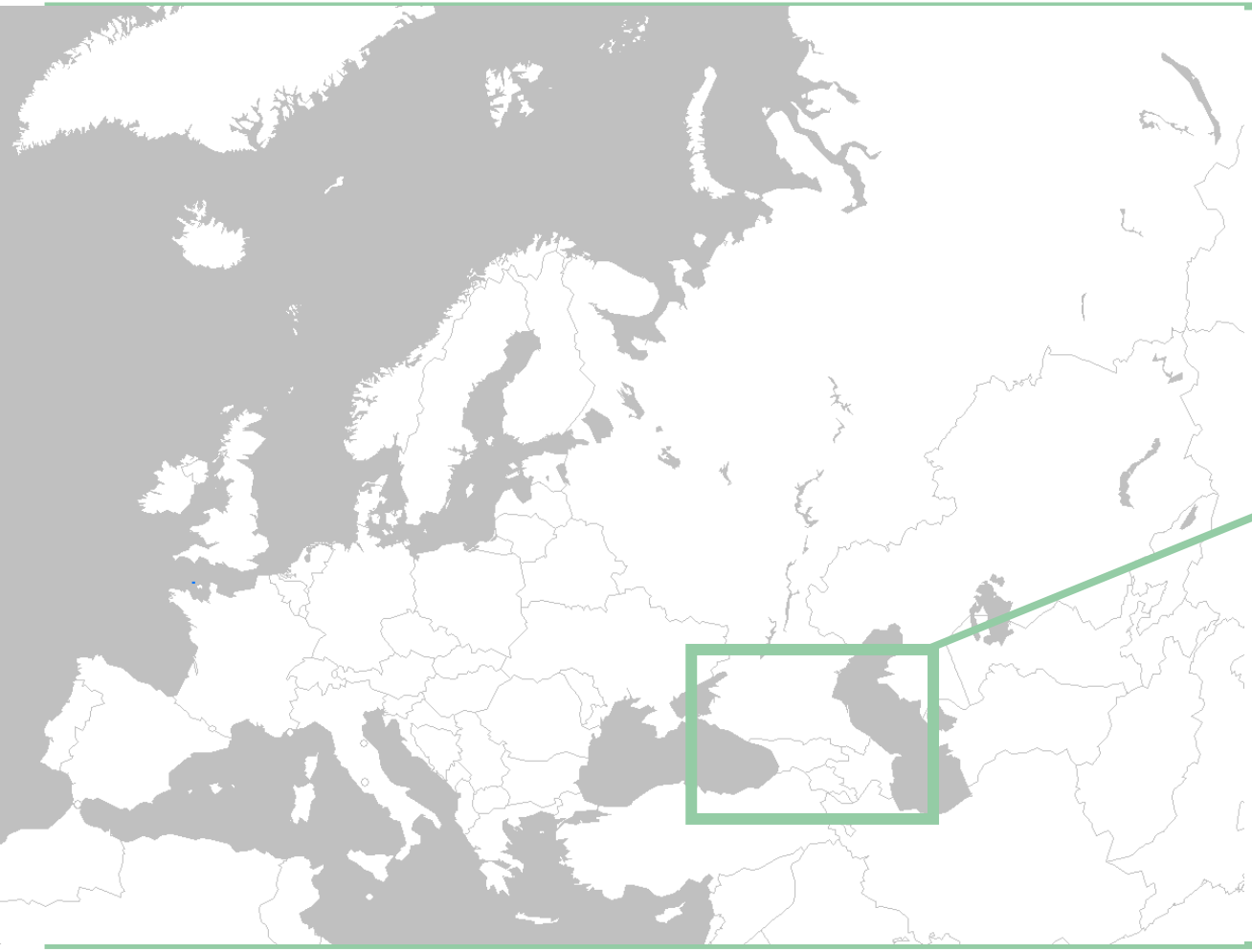


Argument expression	entries
noun + index	8
noun	7
pronoun (index)	24
zero (same sentence)	6
zero (previous sentence)	11
none	14

Profile: Chechen

- Nakh-Daghestanian language
- Spoken in the northern Caucasus in Russia (official language of the Chechen Republic)
- Speakers: 1.28 million (Dobrushina, Daniel, Koryakov 2021)

Profile: Chechen



- ERG/ABS language
- 'pro drop'
- Verb-final
- Limited gender indexing

Chechen: Indexing

- Nakh-Dagestanian languages are well-known for their unusual indexing systems
  - Features indexed: gender (and number)
  - Some languages index person in a separate set of markers (not Chechen)

Gender class	Singular	Plural
Human masculine	V	B
Human feminine	J	B
(various non-human)	D	D
(various non-human)	B	B
(various non-human)	B	D
(various non-human)	J	J

(Nichols 2007: 1181)

Chechen: Indexing

(A)	*as*	*beepig*	*d-u'u*
	1SG.ERG	bread(D).ABS	D-eat.PRS
	'I eat bread.'		
(B)	*as*	*muq*	*b-u'u*
	1SG.ERG	barley(B).ABS	B-eat.PRS
	'I eat barley.'		

Chechen: agreement/indexing

(C)	*vaa*	*naani*	*jaj*	*micha*	*hottuo*	*as*
	VOC	mother	pot(B).ABS	where	put.PRS	1SG.ERG

'Mother, where should I put the pot?

Chechen: Indexing

- Approx. 30% verbs index the gender of the ABS (S/P) argument
  - Lexical constraint: no identifiable groups in terms of conjugation class, valence pattern, or semantic class (Nichols 2007: 1180)
- Agreeing verbs are more common in discourse
  - i.e., low type frequency, high token frequency
  - Approx. 50% of verbs in running text take an index (Komen et al. 2021)

Complementarity hypothesis

- 'the hypothesis that verb agreement and overt arguments are in complementary distribution' (Nichols 2018).
- Cross-linguistic *tendency* for languages with verbal indexing to allow pro-drop (i.e., non-overt arguments)
- BUT several studies on DAI fail to find a correlation between use of an index and non-overt arguments (Nichols (2018): Ingush; Forker (2018): Lak, Hinuq, Avar (Nakh-Daghestanian))
- (BUT in our Kamang study, we found a slight tendency for indexes not to appear with overt arguments)

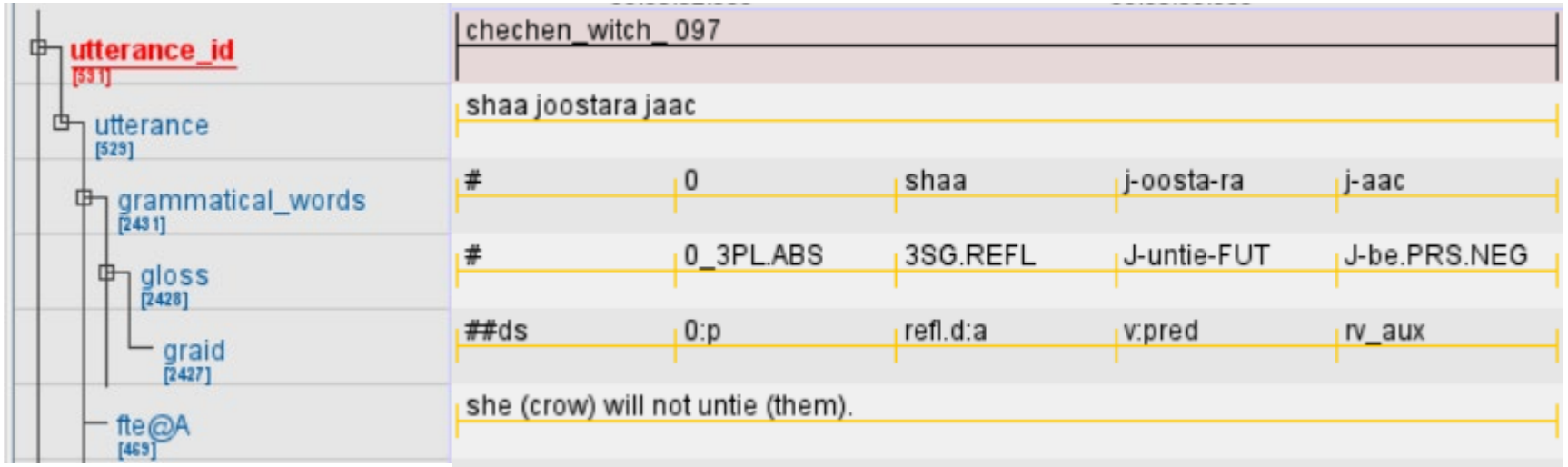
Method: quantitative corpus study

- Approx. 1,000 clauses of spoken Chechen
  - 4 narrative monologues by 2 speakers (female, 70+)
- Transcribed and annotated in ELAN (2020) with
  - GRAID = Grammatical Relations and Animacy in Discourse (Haig & Schnell 2014)
  - MultiCAST project: https://multicast.aspra.uni-bamberg.de/
- All recording, transcription, glossing and annotation by Zarina Molochieva (thank you!)

Chechen GRAID corpus

- Argument:
  - Form: 'pro' = pronoun
  - Animacy: 'd' = deity
  - Argument role = S
- Predicate: agreement in 'gloss' tier
- Particles (go ~~away~~) & TAM are ignored

Chechen GRAID corpus



- Argument: zero, inanimate, P role
- Predicate: agreement in 'gloss' tier, AUX ignored (for now!)

Results: Chechen

- 115 verb types
  - 49 have index = 43% (expected: 33%)
- 918 verb tokens
  - 511 have index = 56% (expected: approx. 50%)

Results: Chechen

- Are more frequent verbs more likely to have an index?
  - Frequency is the greatest predictor of agreeing or not (except for 'say')

	Indexing	**Non-indexing**
Mean freq.	8.3	5.7
Mean freq. minus outlier	7.4	3.5
Range	1-60 (1-49)	1-130 (1-17)
Mode	'go' = 60	'say' = 130
Hapaxes (attested once)	16	24

Results: Chechen

- Now out of 754
- Proportion of NP, PRO and zero indexed arguments
- Rate of co-occurring indexes: similar for the overt arguments, different for the zero arguments

RLZ/Index	Count	%
np	306	40.6%
n	116	37.9%
y	190	62.1%
pro	166	22.0%
n	65	39.2%
y	101	60.8%
zero	282	37.4%
n	156	55.3%
y	126	44.7%
Grand Total	754	100.0%

Results: Chechen

- Now out of 754
- Proportion of NP, PRO and zero indexed arguments
- Rate of co-occurring indexes: similar for the overt arguments, different for the zero arguments
- Lowest indexing rate with zero (!)

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Grand Total	754	100.0%

Results: Chechen

- Effect of argument role
- Lowest indexing rate:
  - Zero P

RLZ/Index	Count: P	%: P	Count: S	%: S
Overt	260	62.2%	212	63.1%
n	116	44.6%	65	30.7%
y	144	55.4%	147	69.3%
zero	158	37.8%	124	36.9%
n	109	69.0%	47	37.9%
y	49	31.0%	77	62.1%
Total	**418**	**100.0%**	**336**	**100.0%**

Results: Chechen

Animacy/ Index	P	S	P	S
anim	17.7%	75.6%	74	254
n	21.6%	33.9%	16	86
y	78.4%	66.1%	58	168
inan	82.3%	24.4%	344	82
n	59.6%	31.7%	205	26
y	40.4%	68.3%	139	56
Total	**100.0%**	**100.0%**	**418**	**336**

- DAI associated with tracking topical referents (Iemmolo 2011)
  - Animate = topical

Results: Chechen

Animacy/ Index	P	S	P	S
anim	17.7%	75.6%	74	254
n	21.6%	33.9%	16	86
y	78.4%	66.1%	58	168
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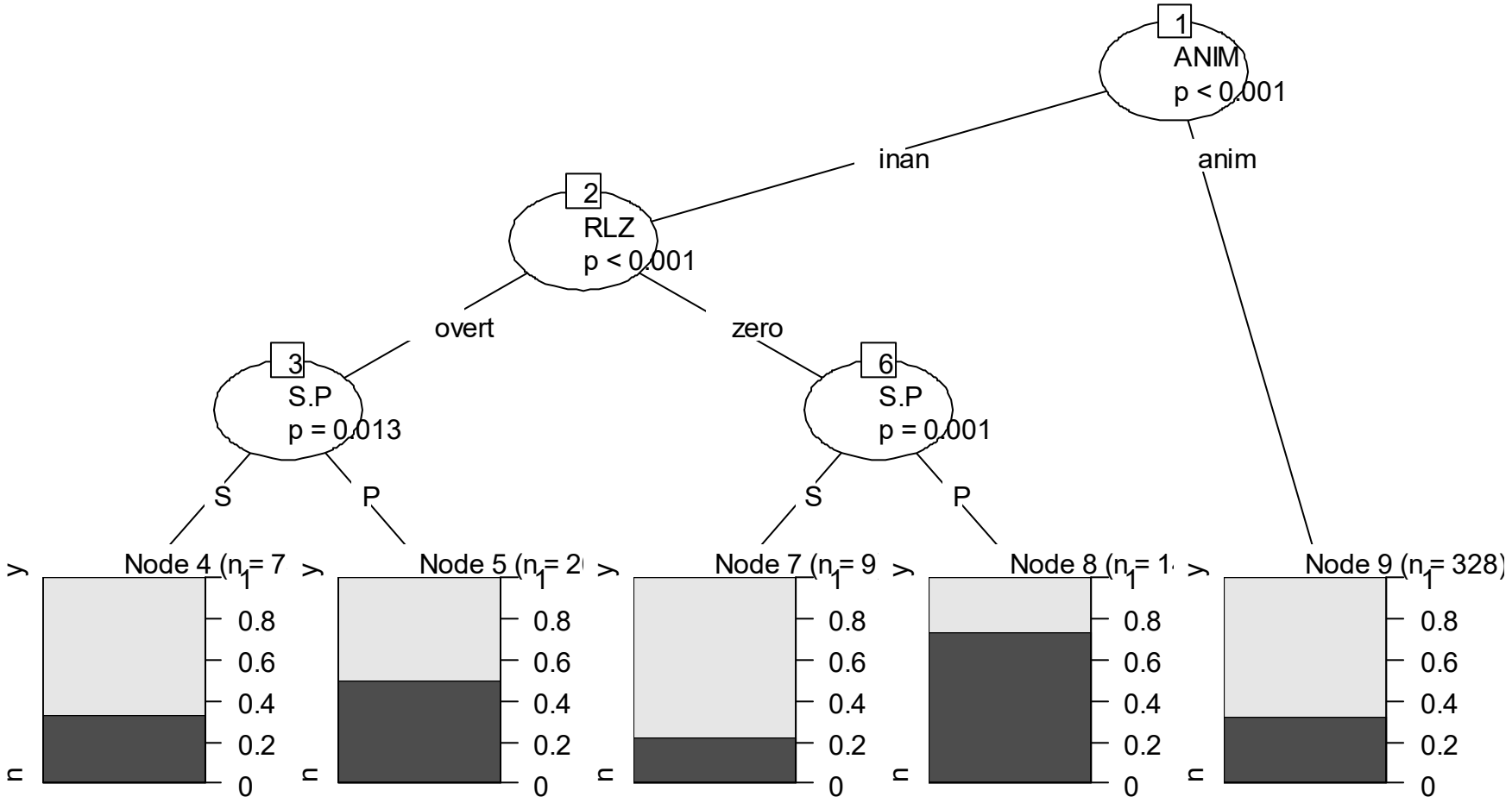
n	59.6%	31.7%	205	26
y	40.4%	68.3%	139	56
Total	**100.0%**	**100.0%**	**418**	**336**

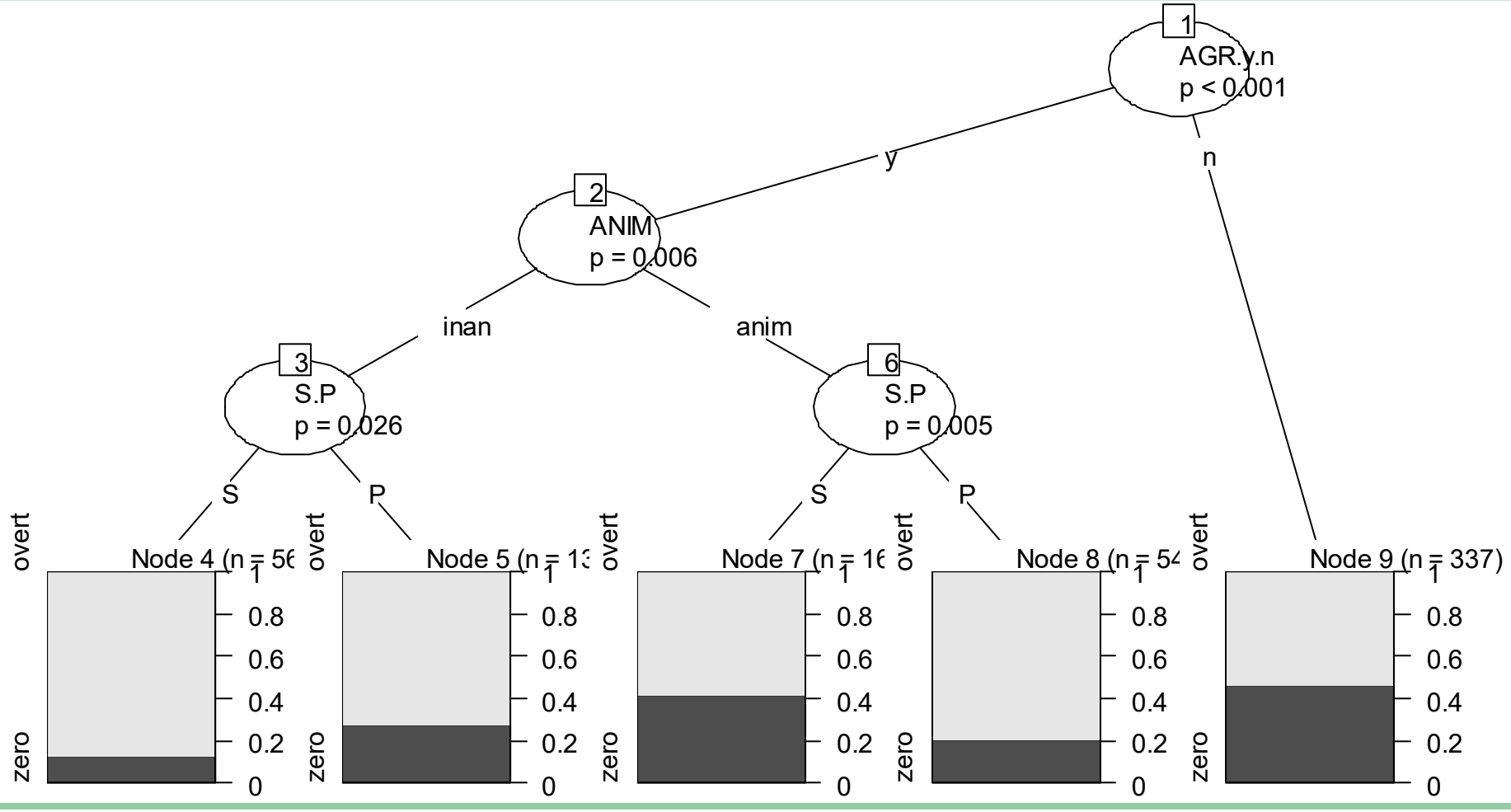
- DAI associated with tracking topical referents (Iemmolo 2011)
  - Animate = topical
- Highest rates of indexing
  - Animate P
  - Inanimate S (!)

Results: Chechen



Conditional inference tree created with ctree() function (Hothorn et al. 2006) in R environment (R Core Team 2021)

Results: Chechen



Conditional inference tree created with ctree() function (Hothorn et al. 2006) in R environment (R Core Team 2021)

Comparison

	NGT	CHECHEN
TYPES	4	115
	Answer, help, call.by.phone, teach	n/a
TOKENS	72	754 (918)
Freq. in discourse	-	56%
Freq. in discourse vs. freq. of index	No correlation (verb-level)	Index more likely on frequent verbs
Age	younger speakers agree more	No correlation (anecdotally)
Alternation	39% full agreement	No alternation (some IMP forms, etc.)
Argument realisation	Agreement MORE likely with zero	Agreement LESS likely with zero
Complementarity hypothesis	Partially confirmed in weak form	Opposite

Next steps?

- Compare (agreement) auxiliary in NGT and Chechen
- Impact of animacy/definiteness/etc. in NGT?
- Object agreement in NGT?
- How has agreement changed over time in NGT?
- Semantic classes in NGT and Chechen?
- Jenia: Interaction of agreement and subordination
- Katherine: Typological comparison of (differential) indexing

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