

Shifty Asymmetries: Universals and Variation in Shifty Indexicality



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Indexicality and indexical shift

In unembedded environments, the reference of indexical elements (*I, you, tomorrow, here*) is dependent on the utterance event.

(1) Anna: I'm in Potsdam.

Berta: I'm not in Potsdam.

cf. (2) [Context: Anna and Berta are watching a televised speech together.]

Anna: The speaker is in Potsdam.

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In English, this pattern extends to indexicals embedded under speech and attitude verbs.

(3) Anna: Casey thinks I'm in Potsdam.

Berta: Casey doesn't think I'm in Potsdam.

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In English, this pattern extends to indexicals embedded under speech and attitude verbs.

(3) Anna: Casey thinks I'm in Potsdam.

Berta: Casey doesn't think I'm in Potsdam.

But not all languages are like English in this respect. . .

Indexicality and indexical shift

Indexical shift

The phenomenon of embedded indexicals depending for their reference on an attitude event, rather than the utterance event

Indexicality and indexical shift

Nez Perce (Penutian family; Idaho, USA)

- (4) Unembedded 1st person: reference to the speaker

'Isii-ne	cew'cew'inis-ki	pro	'e-muu-ce-∅	_?
who-ACC	phone-with	1SG	1SUBJ/3OBJ-call-IMPERF-PRES	_

Who am I calling?

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 who-ACC phone-with 1SG 1SUBJ/3OBJ-call-IMPERF-PRES _

Who am I calling?

- (5) Embedded 1st person: reference *either* to the speaker or to the attitude holder

'lsii-ne Angel hi-i-caa-qa
 who-ACC Angel 3SUBJ-say-IMPERF-REC.PAST
 [cew'cew'inis-ki pro 'e-muu-ce- \emptyset _]?
 [phone-with 1SG 1SUBJ/3OBJ-call-IMPERF-PRES _]

- a. Who did Angel say I was calling?
- b. Who did Angel_i say she_j was calling?

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 who-ACC Angel 3SUBJ-say-IMPERF-REC.PAST
 [cew'cew'inis-ki pro 'e-muu-ce- \emptyset _]?
 [phone-with 1SG 1SUBJ/3OBJ-call-IMPERF-PRES _]

- a. Who did Angel say I was calling?
- b. Who did Angel_i say she_j was calling?

Reading (b) is the shifty reading: the embedded 1st person indexical draws its reference from the speaking event involving Angel, not from the overall utterance (and the clause isn't a quote)

Languages reported to show indexical shift

- Amharic (Semitic; Leslau 1995, Schlenker 1999, Anand 2006)
- Ancient Greek (Maier 2012)
- Dhaasanac (Cushitic; Nishiguchi 2012, 2016)
- (nonstandard) English (Anderson 2015)
- Japanese (McCready 2007, Sudo 2012, Maier 2014a)
- Korean (Park 2016)
- Laz (Kartvelian; Demirok and Öztürk 2015)
- Malayalam (Dravidian; Anand 2006)
- Matses (Panoan; Munro et al. 2012)
- Mishar Tatar (Turkic; Podobryaev 2014)
- Navajo (Athabaskan; Platero 1974, Schauber 1979, Speas 2000)
- Nez Perce (Penutian; Deal 2014)
- Slave (Athabaskan; Rice 1986, 1989)
- Tamil (Dravidian; Sundaresan 2011, 2012)
- Tsez (Nakh-Dagestanian; Polinsky 2015)
- Turkish (Gültekin Şener and Şener 2011, Özyıldız 2012)
- Uyghur (Turkic; Sudo 2012)
- Zazaki (Indo-Iranian; Anand and Nevins 2004, Anand 2006)

(Plus a long list of sign languages, though cf. Davidson (2015), Maier (2016, 2017))

Languages reported to show indexical shift

Additional languages are analyzed in partially similar terms in non-formal literature:

- Aghem (Bantu; Hyman 1979)
- Havyaka Kannada (Dravidian; Bhat 2004)
- Kobon (Trans-New Guinea; Davies 1981)
- Manambu (Ndu; Aikhenvald 2008)
- Wan (Mande; Nikitina 2012a)

And I hear rumors of more analyses potentially to come. . .

- Cayuga (Iroquoian; Mike Barrie, p.c.)
- Magahi (Indo-Aryan; Mark Baker, p.c.)
- Sakha (Turkic; Mark Baker, p.c.)

So, in view of all that. . .

The question

What theory of indexical shift can account for both commonalities and variation across the set of languages instantiating the phenomenon?

Outline

- 1 Dimensions of variation
- 2 Basic composition
- 3 Accounting for variation
- 4 Conclusions

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Variation in indexical shift

Three major dimensions:

1. Which verbs are involved in shifting
2. Which indexicals shift (which which verbs)
3. Which indexicals must be read *de se* when shifted

Which verbs are involved in shifting?

- Zazaki: only verbs of speech (say)

(6) Hεseni va κε εZ dεwletia

[Zazaki]

Hesen said that I rich.be-PRES

Hesen said that { I am, Hesen is } rich (Anand and Nevins, 2004)

(7) Hεsen termine κeno κε εZ newεsha

Hesen believe does that I sick.be-PRES

Hesen believes that { I am, *Hesen is } sick (Anand and Nevins, 2004)

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 Hesen believes that { I am, *Hesen is } sick (Anand and Nevins, 2004)

- Navajo, Amharic, Korean, Japanese, Laz, Matses: verbs of speech and cognition (*say, think*)

(8) a. Háágóó_i=lá Jáan [*pro* _{*i*} deesháát] ní? [Navajo]
 where.to=Q John [*pro* 1-fut.go] 3.say
 Where does John_k say he_k is going? (Schauber, 1975)

b. Ha'át'íí=sh Jáan [*pro* _{*i*} nahideeshnih] nízin?
 what=Q John [*pro* 1.fut.buy] 3.think
 What does John_k think he_k will buy? (Schauber, 1975)

Which verbs are involved in shifting?

- Zazaki: *say*
- Navajo, Amharic, Korean, Japanese, Laz, Matses: *say*, *think*

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- Zazaki: *say*
- Navajo, Amharic, Korean, Japanese, Laz, Matses: *say, think*
- Nez Perce: *say, think, know*

Which verbs are involved in shifting?

G1. A generalization about verbs

Verbs of **speech** are more likely to allow indexical shift in their complement than are verbs of **thought**, which in turn are more likely to allow indexical shift in their complement than are verbs of **knowledge**.

	Shift takes place under verbs of . . .		
	Speech	Thought	Knowledge
Nez Perce	✓	✓	✓
Navajo, Laz, Korean	✓	✓	–
Zazaki	✓	–	–

(Origin of this generalization: Sundaesan (2011, 2012))

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Variation in indexical shift

Three major dimensions:

1. Which verbs are involved in shifting
2. Which indexicals shift (with which verbs)
 - > Prior question: which elements are actually indexical?
(Spoiler: there *is* variation here, even among apparent translation equivalents.)
3. Which indexicals must be read *de se* when shifted

Diagnosing indexicality

An argument from Kaplan (1989): $I \neq$ *the speaker*

- (9) a. Whenever Obama is speaking, the speaker is a person from Chicago.
b. # Whenever Obama is speaking, I am a person from Chicago.

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Nez Perce: same result

- (10) a. Ke mawa Tatlo hi-c'iiq-tetu- \emptyset ,
 whenever Tatlo 3SUBJ-speak-HAB.SG-PRES
c'ii \dot{x} -new'eet hii-wes haama.
 speak-AGT 3SUBJ-be.PRES man
 Whenever Tatlo speaks, the speaker is a man.
- b. # Ke mawa Tatlo hi-c'iiq-ce- \emptyset , 'iin \emptyset -wees haama.
 whenever Tatlo 3SUBJ-speak-IMPERF-PRES I 1SUBJ-be.PRES man
 Consultant (female): "Whenever Tatlo is speaking, I am a man. . . ?!"

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> Same facts for 2nd person

Diagnosing indexicality

kine 'here' \neq *the location of speaking*

- (11) # Ke mine Obama hi-c'iiq-tetu-Ø,
 wherever Obama 3SUBJ-speak-HAB.SG-PRES
 'il̥xnii-we **kíne** hi-wsiix titooqan.
 many-HUMAN here 3SUBJ-be.PRES.PL person
 Wherever Obama speaks, many people are here.

Consultant: "I don't think you say *kíne* [here]... you're saying *ke mine*, 'wherever', so I think you have to say *koná* [there]."

Diagnosing indexicality

But Nez Perce temporal adverbials are different.

watiisx 'tomorrow' = *the next day* (\neq *tomorrow*)

- (12) a. **Watiisx** *pro_{subj}* ciq'aamqal-niin 'itamyaaⁿwas-x 0-pe-ki-yu'.
 1.day.away PRO.1SG dog-with town-to 1SUBJ-S.PL-go-FUT
 Tomorrow I'm going into town with my dog.

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- b. Kex mawa *pro_{subj}* \emptyset -capaakayx-tato- \emptyset 'atamooc,
 whenever-1 PRO.1SG 1SUBJ-wash-HAB.SG-PRES car
 kaa **watiisx** hi-weqi-yo'qa.
 then 1.day.away 3SUBJ-rain-MODAL
 Whenever I wash my car, the next day (#tomorrow) it rains.

(Same finding for all other known temporal adverbials.)

Diagnosing indexicality

Summary of Nez Perce findings:

		Indexical	Non-indexical
(13)	Person	1st, 2nd	3rd
	Locative adverb	<i>kine</i> 'here'	<i>kona</i> 'there'
	Temporal adverb	–	<i>watiisx</i> '1 day away', <i>kii taqc</i> 'same day'

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Upshot for crosslinguistic investigation:

- Translation of α into English (or some other language) with an indexical word does not mean that α is itself indeed indexical

(A general point of methodology: pragmatic issues in the language being translated into play a significant role in translation tasks)

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- Particularly outside of the domain of person, we can generalize only over cases where tests for indexicality are in place.

Which indexicals shift (with which verbs)?

- Matses, Nez Perce, Zazaki, all shifty verbs: 1st person, 2nd person, locative *here*
(Munro et al. 2012, Deal 2014, Anand 2006)

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(14) kii hiiwes 'iniit yoŋ ke [Nez Perce]
 this is house REL.PRON C
 Jack { hi-hi-ce-∅ / hi-neki-se-∅ }
 Jack { 3SUBJ-say-IMPERF-PRES / 3SUBJ-think-IMPERF-PRES }
 ['iin ∅-haanii-∅-ya _]
 [1SG 1SUBJ-make-P-REM.PAST _]

This is the house that Jack_i says / thinks he_i built.

(lit. This is the house that Jack_i says / thinks I_i built.)

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(15) Manaa we'nikt 'uus haama-nm, [Nez Perce]

how name has man-GEN

ke ko-nya T.-nm pee- \emptyset -ne R.-ne ['ee] 'o-opayata-yo'qa _] ?

C RP-ACC T-ERG 3/3-tell-TAM R-ACC [2SG LOCAL.SUBJ/3OBJ-help-MODAL _]

What is the name of the man that T told R_i that he_i should help?

(lit. What is the name of the man that T told R_i that you_i should help?)

Which indexicals shift (with which verbs)?

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(16) Context: Elicited in Lapwai, ID. Lewiston is the closest major city. [Nez Perce]

Miniku cew'cew'in'es *pro* hi-i-caqa Simiinikem-pe
 which phone 3SG 3SUBJ-say-TAM Lewiston-in

[_ hi-muu-no'qa ki-nix
 [_ 3SUBJ-call-MODAL here-from

met'u weet'u _ hi-muu-no'qa ko-nix] ?
 but not _ 3SUBJ-call-MODAL there-from] ?

Which phone did they say in Lewiston can call from Lewiston but not from Lapwai?

(lit. Which phone did they say in Lewiston_{*i*} _ can call from here_{*j*} but not from there_{*j*}?)

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(Demirok and Öztürk 2015, Polinsky 2015, Sudo 2012)

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- Slave, *tell*: 1st person, 2nd person

(Rice, 1986)

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Slave, *tell*: 1st person, 2nd person (Rice, 1986)
- Slave, *say* and *want/think*: 1st person only (Rice, 1986)

Which indexicals shift (with which verbs)?

G2. A generalization about indexicals

Within and across languages, the possibility of indexical shift is determined by the hierarchy 1st > 2nd > HERE. Indexicals of a certain class may shift only if indexicals of classes farther to the left shift as well.

	Shifty 1st	Shifty 2nd	Shifty HERE
Zazaki say	✓	✓	✓
Uyghur say	✓	✓	–
Slave say	✓	–	–
English say	–	–	–

(This generalization is original; see Anand 2006 on 1st > 2nd)

Variation in indexical shift

Three major dimensions:

1. Which verbs are involved in shifting
2. Which indexicals shift (with which verbs)
3. Which indexicals must be read *de se* when shifted

Which shifty indexicals must be read *de se*?

- In every language investigated so far where 1st person indexicals shift, shifty 1st person indexicals impose a *de se* requirement.

(Amharic: Anand 2006; Korean: Park 2016; Malayalam: Anand 2006; Nez Perce: Deal 2014; Uyghur: Sudo 2012; Zazaki: Anand 2006)

- > It is not enough that the shifty 1st person indexical refer to (a counterpart of) the attitude holder; it must refer to an individual that the attitude holder identifies as (a counterpart of) herself.

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- (18) [Nez Perce] Context: A lady gets very sick and then recovers. Her recovery is so miraculous that they mention it on TV. They show the lady in a very ill condition; she looks awful. She sees this TV report later and she doesn't even recognize herself, she was so sickly at that time.

'Aayat hi-neki-se- \emptyset [\boxed{pro} \emptyset -k'oomay-n-a].
 woman 3SUBJ-think-IMPERF-PRES [1_{SG} 1SUBJ-be.sick-P-REM.PAST]
 The woman_i thinks I_j was sick.

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(Anand 2006)

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(Anand 2006)

(19) Heseni va Ali-ra ke ti newεsha.
 Hesen.OBL said Ali-to that you be-sick-PRES
 Hesen said to Ali that he was sick.

- a. ✓ Hesen says to his patient Ali, "you are sick today."
- b. # Hesen is examining two twins, Ali and Ali-baba, at the same time, though in different rooms. He walks into Ali's room to talk to him about his results, and starts explaining the results, but then thinks that he's actually in the wrong room, talking to Ali-baba. He apologizes, and just before leaving tells Ali, "Well, I shouldn't have told you all that, but, in summary, Ali is sick."

(Anand 2006: 80)

Shifty 2nd must refer to an individual that the attitude holder identifies as (a counterpart of) his addressee.

Which shifty indexicals must be read *de se*?

- Zazaki: 1st person, 2nd person, locative here

(Anand 2006)

- (20) Waxto κε ο London-de bime Pierri va κε ο ita rindεka.
 when that he London-at be-PAST Pierre.OBL said that it here be-pretty-PRES
 When he was in London, Pierre said that it is pretty there.
- ✓ Pierre says in London, "It is pretty here."
 - # Pierre is walking around London, which is drab and rather disappointing. He says, "I wish I were in Londres. Londres is pretty."

(Anand 2006: 80)

Shifty HERE must refer to a location that the attitude holder identifies as (a counterpart of) his location.

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(21) Context: Costco is a prominent store in Clarkston. Everyone knows where it is.

'Aayat hii-wes Clarkston-pa
 woman 3SUBJ-be.PRES Clarkston-LOC
 The woman is in Clarkston_{*j*},

met'u *pro* hi-neki-se-∅ Asootin-pa
 but 3SG 3SUBJ-think-IMPERF-PRES Asotin-LOC
 but she thinks (she is) in Asotin,

kaa *pro* hi-neki-se-∅ [Costco hii-wes kine].
 and 3SG 3SUBJ-think-IMPERF-PRES [Costco 3SUBJ-be.PRES here]
 and she thinks Costco is here_{*j*}.

- Utterance location: Lapwai
- **Thinker's location:** Clarkston
- Thinker's self-ascribed location: Asotin

Shifty HERE refers to a location (Clarkston) that the attitude holder **does not** identify as (a counterpart of) her location!

Which shifty indexicals must be read *de se*?

- Zazaki: 1st person, 2nd person, locative *here*
- Nez Perce: 1st person, 2nd person, NOT locative *here*
- Uyghur: 1st person, NOT 2nd person

- (22) Context: Muhemmet is hosting a party. He hears that a certain waiter named John is being a nuisance. Muhemmet tells the nearest waiter, “John should go home.” Unbeknownst to him, he’s talking to John.

Muhemmet John-gha [pro öy-ge kit-sh-ing kirek] di-di.
 Muhemmet John-DAT [2_{SG} home-DAT leave-GER-2SG should] say-PAST.3
 Muhemmet told John_i that he_i should go home.

(Sudo 2012: 225)

*Shifty 2nd refers to an individual (John) that the attitude holder **does not** identify as (a counterpart of) his addressee!*

Which shifty indexicals must be read *de se*?

G3. A generalization about *de se*

Shifty 1st person is always *de se*.

Requirements for *de se* interpretation conform to the hierarchy 1st > 2nd > HERE

	1st always <i>de se</i>	2nd always <i>de se</i>	HERE always <i>de se</i>
Zazaki	✓	✓	✓
Nez Perce	✓	✓	–
Uyghur	✓	–	n/a

(This generalization is original)

The explananda

G1. A generalization about verbs

Verbs of speech are more likely to allow indexical shift in their complement than are verbs of thought, which in turn are more likely to allow indexical shift in their complement than are verbs of knowledge.

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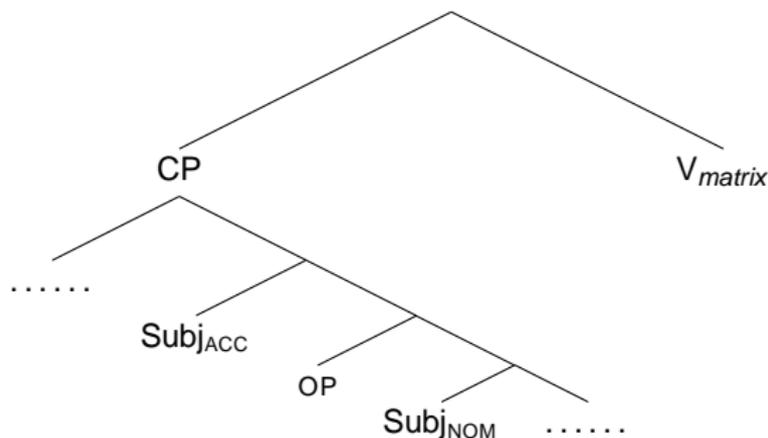
I adopt a basic approach to indexical shift that draws on two major conclusions:

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 - Uyghur, Japanese, Korean, Navajo: indexicals can be shifted in finite complement clauses, but not in nonfinite or nominal complements (Schauber 1979, Sudo 2012, Park 2016)

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2. Indexical shift is not strictly a matter of quotation, whether at the clausal level or at the level of individual indexical items (partial quotation)

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 - Uyghur: person indexicals low in the embedded clause must be shifted, but those higher up in the embedded clause cannot be (Sudo 2012, Shklovsky and Sudo 2014)
 - Uyghur, Japanese, Korean, Navajo: indexicals can be shifted in finite complement clauses, but not in nonfinite or nominal complements (Schauber 1979, Sudo 2012, Park 2016)
2. Indexical shift is not strictly a matter of quotation, whether at the clausal level or at the level of individual indexical items (partial quotation)
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 - Nez Perce and many other languages:
 - ▶ Clauses with indexical shift are not grammatically opaque
 - ▶ Indexicals of the same type must shift together
- > The most successful account in responding to these desiderata is the **shifty operator view** (Anand and Nevins 2004, Anand 2006, Sudo 2012, Deal 2014, Shklovsky and Sudo 2014, Park 2016)

How shifty operators work

- (23) Isii-ne Angel hi-i-caa-qa [Nez Perce]
 who-ACC Angel 3SUBJ-say-IMPERF-REC.PAST
 (OP) [cew'cew'inis-ki **pro** 'e-muu-ce- \emptyset _]
 [phone-with 1SG 1SUBJ/3OBJ-call-IMPERF-PRES _]
- a. Who did Angel say I was calling?
 b. Who did Angel say she was calling?

Unshifted reading, (a):

- No OP is present in the clause
- $[[pro.1SG]]^{c,i} = Author(c)$

Shifted reading, (b):

- OP is present on the edge of the embedded clause
- $[[pro.1SG]]^{c',i} = Author(c')=Angel$

Anand and Nevins 2004

- Speech and attitude verbs quantify over indices (author-addressee-time-location-world tuples)
- Shifty operators, in the scope of that quantification, overwrite context with index, wholly or in part

$$(24) \quad \llbracket OP_{\forall} \alpha \rrbracket^{c,i} = \llbracket \alpha \rrbracket^{i,i}$$

$$(25) \quad \llbracket OP_{\text{AUTH}} \alpha \rrbracket^{\langle \text{Author}_c, \dots \rangle, i} = \llbracket \alpha \rrbracket^{\langle \text{Author}_i, \dots \rangle, i}$$

(Categoromatic versions can be given assuming Monstrous Function Application)

Anand and Nevins 2004

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- Explanation for syntactic effects:
 - Only material in the sister of the operator is shiftable.
 - Shifty operators are part of the finite C system

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(Categorematic versions can be given assuming Monstrous Function Application)

- Explanation for syntactic effects:
 - Only material in the sister of the operator is shiftable.
 - Shifty operators are part of the finite C system
- Explanation for shift together:
 - When OP overwrites (a particular parameter of) context, all indexicals dependent on that (parameter of) context will shift.

Shift together in action

Slave 1st person indexicals:

- (26) [(OP) Sehlégé segha goníhkie rárulu] yudeli. [Slave]
 [1sg.friend 1sg.for slippers 3sg.will.sew] 3sg.want.4sg
- a. She_i wants her_i friend to sew slippers for her_i. (OP present)
 b. She_i wants my friend to sew slippers for me. (OP absent)
 c. ✗ She_i wants my friend to sew slippers for her_i.
 d. ✗ She_i wants her_i friend to sew slippers for me.

(Rice 1986, 56, Anand 2006, 99)

- (Do we expect that ALL indexicals will have to shift together, or just 1st-with-1st, 2nd-with-2nd? That depends on the operators we posit.)

Outline

- 1 Dimensions of variation
- 2 Basic composition
- 3 Accounting for variation**
- 4 Conclusions

Starting with generalization 2

G2. A generalization about indexicals

Within and across languages, the possibility of indexical shift is determined by the hierarchy 1st > 2nd > HERE

	Shifty 1st	Shifty 2nd	Shifty HERE
Nez Perce, Zazaki	✓	✓	✓
Uyghur	✓	✓	–
Slave say	✓	–	–
English	–	–	–

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<i>unattested</i>	–	–	✓

If an attitude complement allows locative shift, it allows person shift.

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<i>unattested</i>	–	–	✓

If an attitude complement allows locative shift, it allows person shift.

> Nez Perce shows the crosslinguistic generalization in microcosm:

- Person shift is possible without locative shift (like in Uyghur)
- Locative shift is impossible without person shift

Person shift without locative shift

(27) (Elicited in Lapwai, ID)

Context: my friend is calling me on his cellphone and describing his location. He is trying to make it to Lapwai, but he is lost.

pro hi-hi-ce- \emptyset [*pro* *kíne* \emptyset -pay-ca- \emptyset]
 3SG 3SUBJ-say-IMPERF-PRES [1SG here 1SUBJ-arrive-IMPERF-PRES]

met'u weet'u *pro* hi-pay-ca- \emptyset *kíne*
 but not 3SG 3SUBJ-arrive-IMPERF-PRES here

He_{*i*} says I_{*i*} am arriving here, but he_{*i*} is not arriving here.

- $[[pro.1SG]]^{c',i} = \text{Author}(c') = \text{my friend} \neq \text{Author}(c)$
 - $[[kine 'here']]^{c,i} = \text{Lapwai} \neq \text{Location of my friend's speaking event}$
- ✓ $[[TP]] \langle \text{Author}_i, \dots, \text{Loc}_c \rangle, i$

NO locative shift without person shift

(28) Elicited in Lapwai, ID

'in-lawtiwaa keelepoonya_i-pa hi-neki-se- \emptyset
 my-friend California-LOC 3SUBJ-think-IMPERF-PRES

['iin \emptyset -weku' koná_i / *kíne_i halxpaawit-pa]
 [1SG 1SUBJ-be.FUT there / *here Sunday-LOC]

My friend in California_i thinks I will be there_i / * here_i on Sunday

X [[TP]]_{<Author_C,...,Loc_i>,i}

Accounting for person/locative asymmetry

The asymmetry

$$\checkmark \llbracket TP \rrbracket \langle Author_i, \dots, Loc_c \rangle, i \quad \text{vs.} \quad \times \llbracket TP \rrbracket \langle Author_c, \dots, Loc_i \rangle, i$$

Unlikely that this asymmetry is to be explained pragmatically:

- *It's clear what the missing meaning would be:*
A shifted value is always well-defined for the locative indexical (since attitudes have locations) regardless of whether the person indexicals are shifted
- *"Consistent perspective" isn't otherwise required:*
There's no constraint against "improper contexts", not corresponding to any attitude event [or concrete situation of utterance]; it's ok to have only person indexicals shifted but not locatives

Accounting for person/locative asymmetry

Proposal:

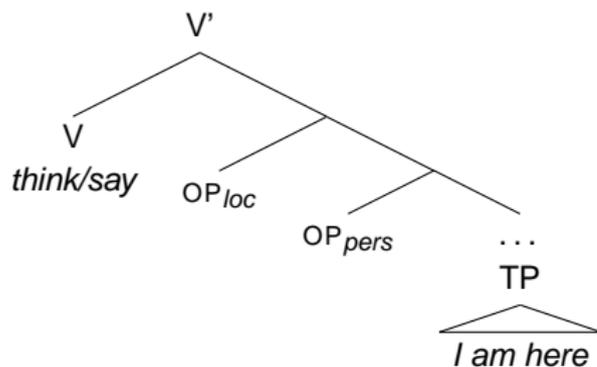
(Deal 2014)

- Nez Perce has two shift operators, OP_{loc} and OP_{pers}

(29) $[[OP_{pers} \alpha]] \langle Author_c, Addr_c \dots \rangle, i = [[\alpha]] \langle Author_i, Addr_i \dots \rangle, i$

(30) $[[OP_{loc} \alpha]] \langle \dots Loc_c \dots \rangle, i = [[\alpha]] \langle \dots Loc_i \dots \rangle, i$

- OP_{loc} occurs higher in the CP domain than OP_{pers}



Accounting for person/locative asymmetry

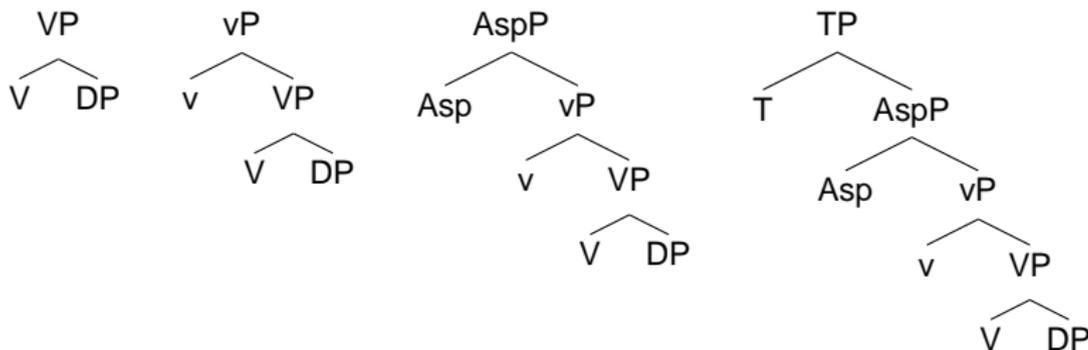
We know about the syntax of embedded clauses that

- Complement clauses come in different sizes (e.g. vP vs. TP vs. CP)
- Clause size variation is generally monotonic; the difference is where in the sequence of projections the embedded clause ends (i.e. “is truncated”)

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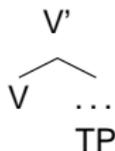


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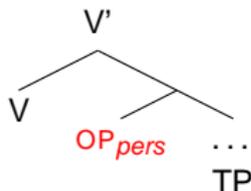
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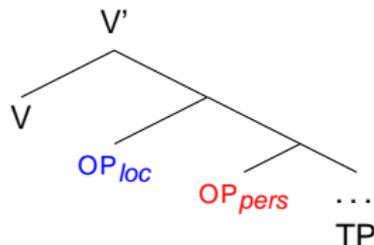
Suppose Nez Perce attitude verbs embed clauses of three sizes:



$\llbracket TP \rrbracket \langle Auth_c, Addr_c, Loc_c \rangle, i$



$\llbracket TP \rrbracket \langle Auth_i, Addr_i, Loc_c \rangle, i$



$\llbracket TP \rrbracket \langle Auth_i, Addr_i, Loc_i \rangle, i$

Explaining generalization 2

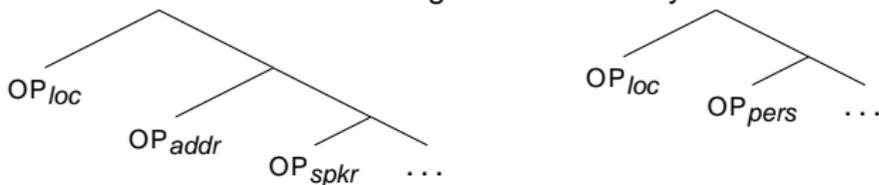
G2. A generalization about indexicals

The possibility of indexical shift is determined by the hierarchy 1st > 2nd > HERE

	Shifty 1st	Shifty 2nd	Shifty HERE
Zazaki	✓	✓	✓
Uyghur	✓	✓	–
Slave say	✓	–	–
English	–	–	–

A familiar type of functional sequencing effect:

Shifty operators occur on the clause edge in a universally determined hierarchical order.



Language variation is determined by the size of the complements that attitude verbs allow.

Explaining generalization 2

	Shifty 1st	Shifty 2nd	Shifty HERE
Zazaki	✓	✓	✓
Uyghur	✓	✓	–
Slave say	✓	–	–
English	–	–	–
<i>unattested</i>	–	–	✓

Possible: Attitude complements include OP_{loc} , OP_{addr} and OP_{spkr} (Zazaki)

(31) [V [OP_{loc} [OP_{addr} [OP_{spkr} ...] TP

Possible: Attitude complements include OP_{addr} and OP_{spkr} only (Uyghur)

(32) [V [OP_{addr} [OP_{spkr} ...] TP

Impossible: Attitude complements include OP_{loc} only (unattested)

(33) [V [OP_{loc} ...] TP

Explaining generalization 1

G1. A generalization about verbs

Verbs of speech are more likely to allow indexical shift in their complement than are verbs of thought, which in turn are more likely to allow indexical shift in their complement than are verbs of knowledge.

	Shift takes place under verbs of ...		
	Speech	Thought	Knowledge
Nez Perce	✓	✓	✓
Navajo, Laz, Korean	✓	✓	–
Zazaki	✓	–	–

- The same speech > thought > knowledge hierarchy is relevant for finite complementation; finite complements tend to include more verbal structure than non-finite ones

Explaining generalization 1

G1. A generalization about verbs

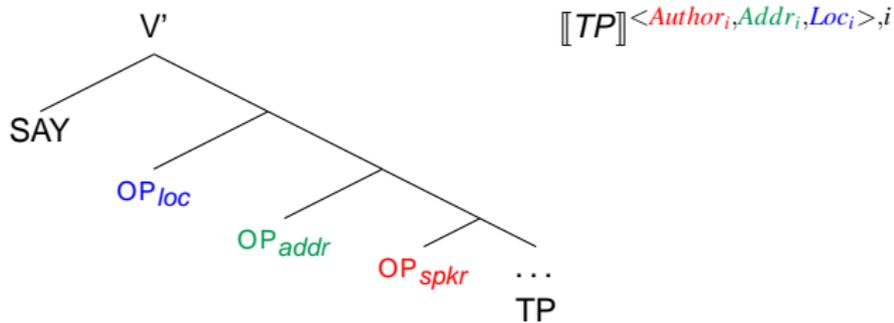
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- The same speech > thought > knowledge hierarchy is relevant for finite complementation; finite complements tend to include more verbal structure than non-finite ones
- > Crosslinguistic variation in indexical shift is (again) determined by the size of the complements that attitude verbs allow: predicates that allow more verbal structure in their complements are more able to host shifty operators (Sundaresan 2011, 2012)

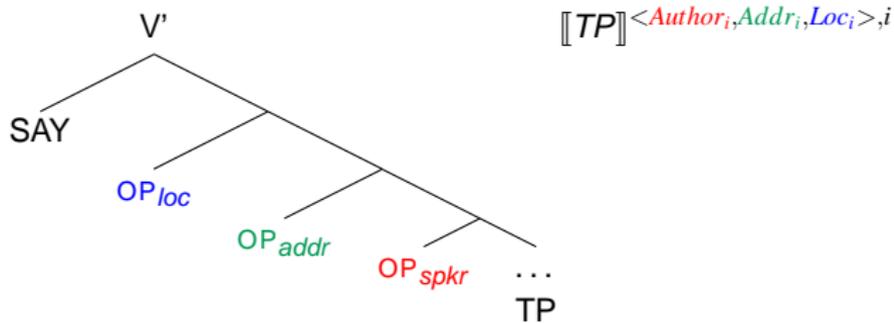
Variation within and across languages

- Zazaki: 1st, 2nd, HERE all shift under SAY

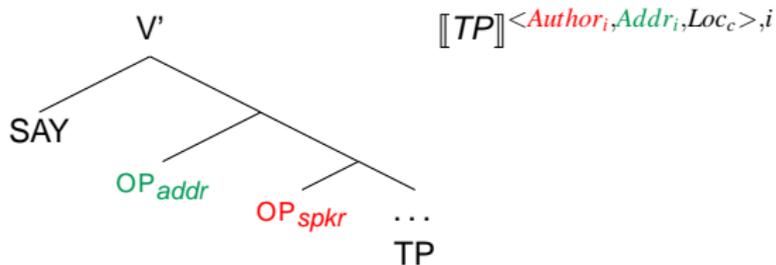


Variation within and across languages

- Zazaki: 1st, 2nd, HERE all shift under SAY

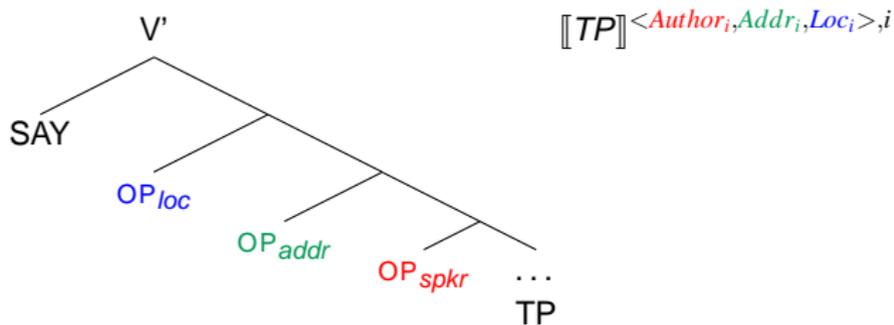


- Uyghur: only 1st and 2nd shift

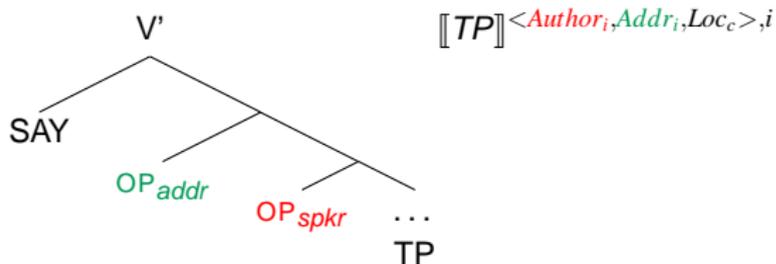


Variation within and across languages

- Zazaki: 1st, 2nd, HERE all shift under SAY



- Uyghur: only 1st and 2nd shift



- Nez Perce: optionally either Zazaki-like or Uyghur-like? Not quite.

Back to the *de se*

G3. A generalization about *de se*

Shifty 1st person is always *de se*.

Requirements for *de se* interpretation conform to the hierarchy 1st > 2nd > HERE

	1st always <i>de se</i>	2nd always <i>de se</i>	HERE always <i>de se</i>
Zazaki	✓	✓	✓
Nez Perce	✓	✓	–
Uyghur	✓	–	n/a

De se interpretation à la Anand and Nevins 2004

- Speech and attitude verbs quantify over indices (centered tuples), e.g.:

$$(37) \quad \llbracket TELL \alpha \rrbracket^{c,i} = \lambda x. \forall i' \in R_{say}(x, i) \llbracket \alpha \rrbracket^{c,i'}$$

where $i' \in R_{say}(x, i)$ iff

- $w_{i'}$ is compatible with what x says in w_i
 - $auth_{i'}$ is an individual in $w_{i'}$ that x identifies $_{w_i}$ as herself
 - $addr_{i'}$ is an individual in $w_{i'}$ that x identifies $_{w_i}$ as her addressee
 - $loc_{i'}$ is a location in $w_{i'}$ that x identifies $_{w_i}$ as her location
- *De hic* shifter (Zazaki)

$$(38) \quad \llbracket OP_{LOC} \alpha \rrbracket^{<\dots Loc_c \dots>, i} = \llbracket \alpha \rrbracket^{<\dots Loc_i \dots>, i}$$

- *De te* shifter (Nez Perce)

$$(39) \quad \llbracket OP_{ADDR} \alpha \rrbracket^{<\dots Addr_c \dots>, i} = \llbracket \alpha \rrbracket^{<\dots Addr_i \dots>, i}$$

Accounting for non-*de se* shifty indexicals

- If coordinates of the index are always *de se* coordinates, Nez Perce locative and Uyghur 2nd person shifters must overwrite with something other than a coordinate of the index.

Accounting for non-*de se* shifty indexicals

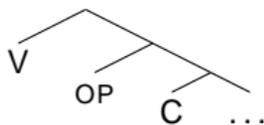
- If coordinates of the index are always *de se* coordinates, Nez Perce locative and Uyghur 2nd person shifters must overwrite with something other than a coordinate of the index.
- Proposal: Non-*de se* shifters overwrite contextual parameters with values drawn from an event argument

Accounting for non-*de se* shifty indexicals

- If coordinates of the index are always *de se* coordinates, Nez Perce locative and Uyghur 2nd person shifters must overwrite with something other than a coordinate of the index.
- Proposal: Non-*de se* shifters overwrite contextual parameters with values drawn from an event argument
 - Shifters sit in a verb's complement; this allows the verb to control (via subcategorization) how much of the OP-sequence is projected.
 - If (certain) shifters have access to an event argument associated with the attitude verb, then we will require a slightly decompositional take on attitude complementation – e.g. one where event arguments are introduced not by verbs, but by C

(Cp. Kratzer 2006, Anand and Hacquard 2008, Moulton 2009, 2015)

(42)



The setup: events and meaningful complementizers

- Attitudes are eventualities with content
 - Saying-event content: the set of worlds compatible with what is said
 - Thinking-state content: the set of worlds compatible with what is thought
- Complementizers quantify over content; verbs merely restrict event arguments

$$(43) \quad \llbracket hi \text{ 'say'} \rrbracket^{c,i} = \lambda e. saying(e)$$

$$(44) \quad \llbracket C^0 \alpha \rrbracket^{c,i} = \lambda e. \forall i' \in RCON(e) \llbracket \alpha \rrbracket^{c,i'}$$

where $i' \in RCON(e)$ iff

- $w_{i'}$ is a member of the content of e
- $auth_{i'}$ is an individual in $w_{i'}$ that $EXT(e)$ identifies in w_e as a counterpart of herself
- $addr_{i'}$ is an individual in $w_{i'}$ that $EXT(e)$ identifies in w_e as a counterpart of her addressee, if any; otherwise $addr_{i'}$ is \emptyset
- $loc_{i'}$ is a location in $w_{i'}$ that $EXT(e)$ identifies in w_e as a counterpart of her spatial location

Overwriting the context with event parameters

- Non *de se* shifters directly use the event argument associated with the attitude to overwrite the context

Where $\llbracket \alpha \rrbracket^{c,i}$ is a predicate of events:

(45) Nez Perce locative shifter (non *de se*)

$$\llbracket \text{OP}_{\text{LOC}} \alpha \rrbracket^{\langle \dots \text{Loc}_c \dots \rangle, i} = \lambda e. \llbracket \alpha \rrbracket^{\langle \dots \text{LOC}(e) \dots \rangle, i}(e)$$

(46) Uyghur addressee shifter (non *de se*)

$$\llbracket \text{OP}_{\text{ADDR}} \alpha \rrbracket^{\langle \dots \text{Addr}_c \dots \rangle, i} = \lambda e. \llbracket \alpha \rrbracket^{\langle \dots \text{ADDR}(e) \dots \rangle, i}(e)$$

Two types of shifty operators

1. *De se*

(47) Zazaki locative shifter

$$\llbracket \text{OP}_{\text{LOC}} \alpha \rrbracket \langle \dots \text{Loc}_c \dots \rangle, i = \llbracket \alpha \rrbracket \langle \dots \text{Loc}_i \dots \rangle, i$$

(48) Nez Perce addressee shifter

$$\llbracket \text{OP}_{\text{ADDR}} \alpha \rrbracket \langle \dots \text{Addr}_c \dots \rangle, i = \llbracket \alpha \rrbracket \langle \dots \text{Addr}_i \dots \rangle, i$$

2. *Non de se*

(49) Nez Perce locative shifter

$$\llbracket \text{OP}_{\text{LOC}} \alpha \rrbracket \langle \dots \text{Loc}_c \dots \rangle, i = \lambda e. \llbracket \alpha \rrbracket \langle \dots \text{LOC}(e) \dots \rangle, i(e)$$

(50) Uyghur addressee shifter

$$\llbracket \text{OP}_{\text{ADDR}} \alpha \rrbracket \langle \dots \text{Addr}_c \dots \rangle, i = \lambda e. \llbracket \alpha \rrbracket \langle \dots \text{ADDR}(e) \dots \rangle, i(e)$$

Deriving the hierarchy

- C^0 introduces both the attitude event argument and quantification over centered indices

$$(51) \quad \llbracket C^0 \alpha \rrbracket^{c,i} = \lambda e. \forall i' \in \text{RCON}(e) \llbracket \alpha \rrbracket^{c,i'}$$

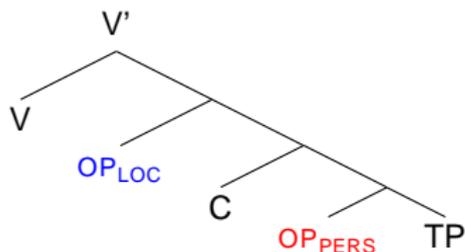
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 - $loc_{i'}$ is a location in $w_{i'}$ that $\text{EXT}(e)$ identifies in w_e as a counterpart of her spatial location
- *De se* shifters must occur below C (in order to have access to the indices quantified over)
 - Non *de se* shifters must occur above C (in order to have access to the event argument)

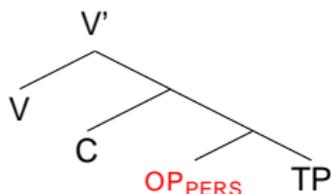
Nez Perce embedded clauses

The sequence of operators spans CP.

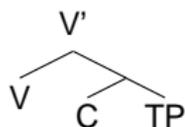
C is located between OP_{LOC} and OP_{PERS}



$\llbracket TP \rrbracket \langle Auth_i, Addr_i, LOC(e) \rangle, i$



$\llbracket TP \rrbracket \langle Auth_i, Addr_i, Loc_c \rangle, i$



$\llbracket TP \rrbracket \langle Auth_c, Addr_c, Loc_c \rangle, i$

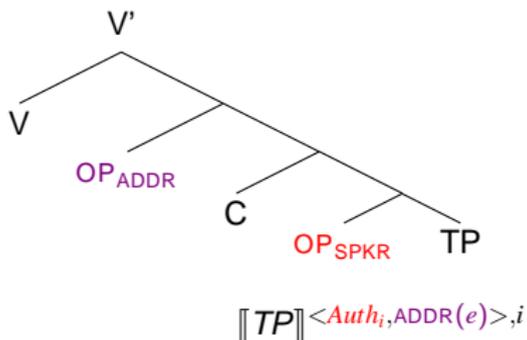
$$(52) \llbracket OP_{LOC} \alpha \rrbracket \langle \dots Loc_c \dots \rangle, i = \lambda e. \llbracket \alpha \rrbracket \langle \dots LOC(e) \dots \rangle, i(e)$$

$$(53) \llbracket OP_{PERS} \alpha \rrbracket \langle Auth_c, Addr_c \dots \rangle, i = \llbracket \alpha \rrbracket \langle Auth_i, Addr_i \dots \rangle, i$$

$$(54) \llbracket C^0 \alpha \rrbracket^{c,i} = \lambda e. \forall i' \in RCON(e) \llbracket \alpha \rrbracket^{c,i'}$$

Uyghur embedded clauses

2nd person shifty indexicals are not *de se* but 1st persons are. So, C must be located between OP_{ADDR} and OP_{SPKR}



$$(55) \quad [[OP_{ADDR} \alpha] \langle \dots Addr_c \dots \rangle, i] = \lambda e. [[\alpha] \langle \dots ADDR(e) \dots \rangle, i](e)$$

$$(56) \quad [[OP_{SPKR} \alpha] \langle Auth_c, \dots \rangle, i] = [[\alpha] \langle Auth_i, \dots \rangle, i]$$

$$(57) \quad [[C^0 \alpha]^{c,i}] = \lambda e. \forall i' \in RCON(e) [[\alpha]^{c,i'}]$$

Explaining generalization 3

G3. A generalization about *de se*

Shifty 1st person is always *de se*.

Requirements for *de se* interpretation conform to the hierarchy 1st > 2nd > HERE

	1st always <i>de se</i>	2nd always <i>de se</i>	HERE always <i>de se</i>
Zazaki	✓	✓	✓
Nez Perce	✓	✓	–
Uyghur	✓	–	n/a

- OP_{SPKR} , if present, is always below C.

(If OP_{SPKR} and OP_{ADDR} are bundled together, *both* are below C.)

- Otherwise, C may appear anywhere in the sequence of shifters $OP_{LOC} > OP_{ADDR} > OP_{SPKR}$. All shifters below C impose *de se* requirements (index parameters overwrite context) and all shifters above C do not (event parameters overwrite context).

Outline

- 1 Dimensions of variation
- 2 Basic composition
- 3 Accounting for variation
- 4 Conclusions**

Summary of empirical coverage

I have provided an explanation of three crosslinguistic generalizations about indexical shift:

G1. A generalization about verbs

Verbs of speech are more likely to allow indexical shift in their complements than are verbs of thought, which in turn are more likely to allow indexical shift in their complement than are verbs of knowledge.

G2. A generalization about indexicals

Within and across languages, the possibility of indexical shift is determined by the hierarchy 1st > 2nd > HERE

G3. A generalization about *de se*

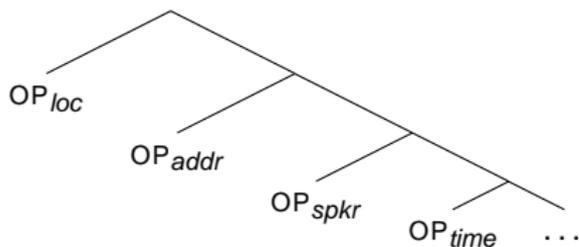
Shifty 1st person is always *de se*.

Requirements for *de se* interpretation conform to the hierarchy 1st > 2nd > HERE

Summary of empirical coverage

In the paper (available on my website):

- The framework provides the tools to understand a pattern of variation in how person indexicals behave in reports of mental attitude (as opposed to speech):
 - Slave: 1st person can shift; 2nd person refers to the overall addressee
 - Nez Perce: 1st person can shift; 2nd person can refer to the overall addressee, but only if 1st person *doesn't* shift
 - Uyghur: 1st person must shift; 2nd person is ungrammatical on any interpretation
- The framework provides the tools to understand temporal indexical shift in Korean and non-standard English. Temporal adverbial indexicals are shifted by an operator that is quite low in the sequence:



Summary of main claims

Shifters of the speaker, addressee, location, and time coordinates of context occur in a fixed order at the edge of the clause

- They project syntactic structures which may or may not meet the selectional requirements imposed by verbs
 - Together with independent evidence on the variable size of complement clauses, and the relative size of speech and thought reports, yields the generalization about verbs (G1)
- Incomplete projection of the series results in partial indexical shift
 - Incomplete projections standardly remove layers from the top of a projection series, yielding the generalizations about indexicals (G2)
- Shifters above C overwrite with event parameters (non *de se*); shifters below C overwrite with index parameters (*de se*). OP_{SPKR} is always below C.
 - Yields an account of the previously unrecognized hierarchy effect in *de se* interpretation (G3)

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What about logophors?

- Logophors are pronouns bound by a logophoric operator OP^{log} – its traditional name notwithstanding, this is a λ , not a context shifter
- Logophors are not shifty indexicals:
 - Logophors must be 3rd person in their context (Korean: if the context is shifted, a logophor cannot corefer with a shifted 1st person indexical, Park 2016)
 - Logophors need not shift together
 - Logophors but not shifty indexicals are constrained by the De Re Blocking Effect (Anand, 2006): a bound *de se* element (e.g. a logophor) must be *de re* free
- But logophors in some languages can control what looks like 1st person agreement in their clause (Culy 1994) – so it is not always immediately obvious what is a logophor vs. a shifted indexical

What about logophors?

- Prima facie counterexamples to the Shift Together constraint show signs of involving (1st-person-agreeing) logophors, rather than shifty indexicals, as Anand (2006) showed for Amharic
- Such cases do not feature total freedom in how 1st-person-agreeing elements are interpreted; rather, they systematically feature subjects that are “shifty” vs. objects that are not

(58) Amharic

John [*pro*_{subj} *pro*_{obj} al-ittazzoza-NN] ala.
 John [NEG.1s-obey.mkimperf-1sO] say.PERF.3sm

- ✓ John_i says he_i will not obey me.
- ✗ John_i says I will not obey him_i.

> Anand (2006): Reading (b) is out by De Re Blocking

- Similar facts hold in several Papuan languages (Dani, Dom, Gahuku, Golin, Manambu, and Usan), as described by Evans (2006), Aikhenvald (2008), and Nikitina (2012b)

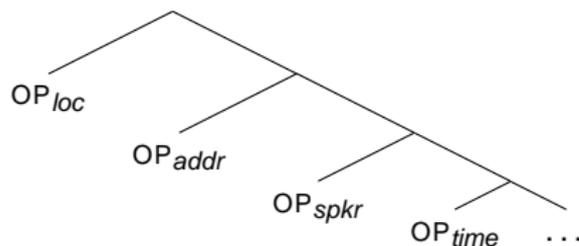
What about time?

- For some English speakers, temporal indexicals may shift (C. Anderson, p.c.)

(59) He said_t a week ago he would deliver it tomorrow_{t+1}.

(60) # Every time_t I wash my car, it rains tomorrow_{t*+1}.

- Person and locative indexicals do not shift for these speakers.
- These facts suggest an OP_{time} operator that is lowest in the projection series; some English dialects allow projection of this lowest operator.



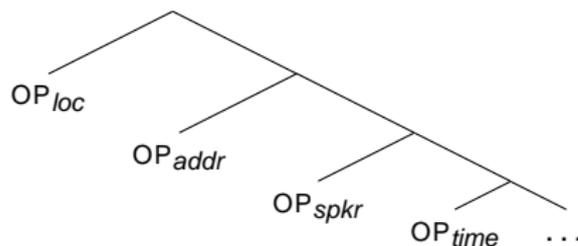
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- Notably, Anderson reports that shifty temporal indexicals do not require *de se* interpretation. This means that the position of C must be even more free than I have said thus far (and thus that there should be cases of non-*de se* shifty 1st person)

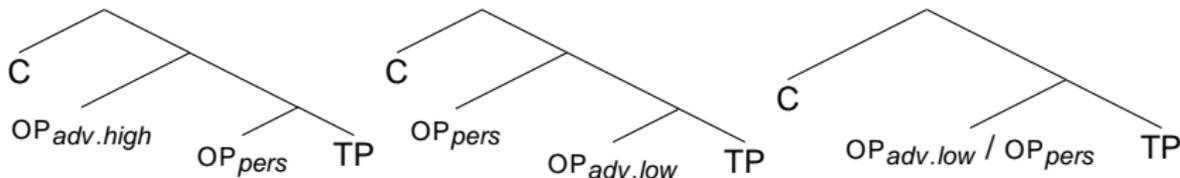
What about tense?

- In many languages, embedded tenses always locate a topic time with respect to the attitude time, not the overall utterance time
- > Obligatory indexical shift, or binding of a temporal argument in T?
- The necessary test: in languages where embedded tenses are always relative to attitude time, do independent temporal indexicals also have to be shifted?
If not, tense and temporal adverbials do not shift together and therefore do not depend on the same parameter of context.

- (61) On Monday_{*j*}, Mary said_{*i*} [that the plan for today_{*t**} is_{*i*} in progress.]
- a. Good: embedded tense does not depend on the time parameter of the context
 - b. Bad: embedded tense does depend on the time parameter of the context

What about Korean?

- Korean has indexical shift for 1st, 2nd, HERE, and temporal indexicals (Park, 2016)
 - All shifty indexicals are interpreted *de se*
 - Person indexicals shift together
 - Temporal and locative indexicals shift together
 - BUT the two classes shift independently of one another
- Analysis: a “paradox of bundling”
 - Korean bundles OP_{addr} and OP_{spkr} into one operator, OP_{per} (like Nez Perce)
 - It also bundles OP_{loc} and OP_{time} into a single operator, OP_{adv} (following Park)
 - The bundled operator OP_{adv} may occupy the position of either of its component pieces, OP_{loc} or OP_{time} , in the functional sequence



- THINK only allows a complement big enough to include the lower position of OP_{adv}

What about free indirect discourse?

- Locative indexicals shift in FID:

(62) John pondered all that had transpired in the past year. After the move, he thought they'd be happy in Tulsa, but he'd been wrong, terribly wrong. Living **here**, in this house, was part of the problem! **Now** he had to reconsider all their options. (lightly modified from Roberts 2015)

- Person indexicals don't shift in FID:

(63) This woman left me a voice mail, asking all kinds of questions about you. How well do I know you? Where have we met? Have I ever noticed anything strange about you? (Maier, To appear)

- There is an active debate about whether FID should be analyzed with some sort of monstrous operator (Sharvit 2008, Schlenker 2011, Eckardt 2014, Maier 2014b, 2015, To appear)

What about free indirect discourse?

- Emar Maier (2014b, 2015, To appear): FID is quotation with ‘holes punched in it’ – unquoted pronouns and tenses
 - FID shows verbatim requirements
 - (64) a. Tomorrow Peter or Sam would come, Ann thought.
 - b. Tomorrow Sam or Peter would come, Ann thought.
 - (Schlenker 2011: these aren’t mutually entailing)
 - FID clauses demonstrate aspects of an original thought or utterance that go beyond content
 - (65) Ah well, her fathaire would shoorly help her out, she told John in her thick French accent.
- Maier proposes that tenses and personal pronouns are unquoted in FID precisely due to the special pragmatics of narratives.

What about free indirect discourse?

- Can we construct FID sentences with shifty locatives but unshifted persons?
 - (66) a. As she looked at my picture, Anna thought: “Yes, she will like the weather here.”
 - b. As she looked at my picture, Anna thought that I would like the weather there.
 - c. ?? Anna looked at my picture. Yes(, she thought,) I would like the weather here.

- > This suggests that however we analyze FID, we should not posit just OP_{loc} without OP_{pers} .