Shifty Asymmetries: Universals and Variation in Shifty Indexicality

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Sinn und Bedeutung 22
Berlin / Potsdam

September 7, 2017
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.
Berta: The speaker is not in Potsdam.
Indexicality and indexical shift

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   Berta: The speaker is not in Potsdam.

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.
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.
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    Anna: The speaker is in Potsdam.
    Berta: The speaker is not in Potsdam.

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-∅ 1SG 1SUBJ/3OBJ-call-IMPERF-PRES _?
who-ACC phone-with Who am I calling?
Indexicality and indexical shift

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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

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

a. Who did Angel say I was calling?
b. Who did Angel, say she, was calling?
Indexicality and indexical shift

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’Isii-ne  cew’cew’inis-ki  pro  ’e-muu-ce-∅
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Who am I calling?

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

’Isii-ne  Angel  hi-i-caa-qa
who-ACC  Angel  3SUBJ-say-IMPERF-REC.PAST

[ cew’cew’inis-ki  pro  ’e-muu-ce-∅
[ phone-with  1SG  1SUBJ/3OBJ-call-IMPERF-PRES ]]

a. Who did Angel say I was calling?

b. Who did Angel say she 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

- Ancient Greek (Maier 2012)
- Dhaasanac (Cushitic; Nishiguchi 2012, 2016)
- (nonstandard) English (Anderson 2015)
- 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)

(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
Outline

1. Dimensions of variation
2. Basic composition
3. Accounting for variation
4. Conclusions
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 \textit{de se} when shifted
Which verbs are involved in shifting?

- Zazaki: only verbs of speech (*say*)

(6) Hesen va kə ĕz dəwletia
Hesen said that I rich.be-PRES
Hesen said that { I am, Hesen is } rich (Anand and Nevins, 2004)

(7) Hesen termine kəno kə ĕz neweša
Hesen believe does that I sick.be-PRES
Hesen believes that { I am, *Hesen is } sick (Anand and Nevins, 2004)
Which verbs are involved in shifting?

- **Zazaki**: only verbs of speech (*say*)

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Hesen said that I rich.be-PRES
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(7) \text{Hesen termine ke no ke ez newesh}a
Hesen believe does that I sick.be-PRES
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. \text{H\text{\textael}g\text{\textael}o}_i=\text{l\text{\textael} J\text{\textael}an} [ \text{pro } _{i} \text{ deesh\text{\textael}at } ] \text{n}\text{\textin}?
where.to=Q John [ \text{pro } 1-\text{fut.go } ] 3.say
Where does John\textsubscript{\textk} say he\textsubscript{\textk} is going? (Schauber, 1975)

b. \text{H\text{\textael}\text{\textael}t\text{\textael}i\text{\textael}i}=\text{s}h \text{J\text{\textael}an} [ \text{pro } _{i} \text{ nahideeshnih } ] \text{n}\text{\textin}\text{\textin}?
what=Q John [ \text{pro } 1-\text{fut.buy } ] 3.think
What does John\textsubscript{\textk} think he\textsubscript{\textk} will buy? (Schauber, 1975)
Which verbs are involved in shifting?

- Zazaki: *say*
- Navajo, Amharic, Korean, Japanese, Laz, Matses: *say, think*
Which verbs are involved in shifting?

- 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.

<table>
<thead>
<tr>
<th></th>
<th>Speech</th>
<th>Thought</th>
<th>Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nez Perce</td>
<td>✓</td>
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<tr>
<td>Navajo, Laz, Korean</td>
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<td>–</td>
</tr>
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<td>Zazaki</td>
<td>✓</td>
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(Origin of this generalization: Sundaresan (2011, 2012))
Dimensions of variation

Variation in indexical shift

Three major dimensions:

1. Which verbs are involved in shifting
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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): \( I \neq \text{the speaker} \)

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

An argument from Kaplan (1989): $I \neq \text{the speaker}$

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Nez Perce: same result

(10) a. Ke mawa Tatlo hi-c’iiq-tetu-∅,
     whenever Tatlo 3SUBJ-speak-HAB.SG-PRES
     c’iiix-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-∅,                              ’iin ∅-wees haama.
      whenever Tatlo 3SUBJ-speak-IMPERF-PRES I 1SUBJ-be.PRES man
      Consultant (female): “Whenever Tatlo is speaking, I am a man. . . ?!”
Diagnosing indexicality

An argument from Kaplan (1989): \( I \neq \text{the speaker} \)

(9)  
\begin{enumerate}
  \item Whenever Obama is speaking, the speaker is a person from Chicago.
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Nez Perce: same result

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  \item Ke mawa Tatlo hi-c’iiq-tetu-\( \emptyset \),
    whenever Tatlo 3\text{SUBJ}-\text{speak-HAB}\cdot\text{SG-PRES}
    c’iiix-new’eet hii-wes haama.
    Whenever Tatlo speaks, the speaker is a man.
  \item \# Ke mawa Tatlo hi-c’iiq-ce-\( \emptyset \),
    'iin \( \emptyset \)-wees haama.
    whenever Tatlo 3\text{SUBJ}-\text{speak-IMPERF}\cdot\text{PRES} 1\text{SUBJ}\cdot\text{be-PRES}\cdot\text{man}
    Consultant (female): “Whenever Tatlo is speaking, I am a man. . . ?!”
\end{enumerate}

> Same facts for 2nd person
Diagnosing indexicality

*kíne* ‘here’ ≠ *the location of speaking*

(11) # Ke mine Obama hi-c’iiq-tetu-∅, wherever Obama 3SUBJ-speak-HAB.SG-PRES ’ilxnii-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.

\textit{watiisx} ‘tomorrow’ = \textit{the next day} ($\neq$ \textit{tomorrow})

\(\text{(12) a. Watiisx} \text{ pro}_{\text{subj}} \text{ ciq’aamqal-niin } \text{’itamyaanwas-x } 0\text{-pe-ki-yu’}. \)

\[
\begin{array}{llllll}
1\text{.day.away} & \text{PRO.1SG} & \text{dog-with} & \text{town-to} & 1\text{SUBJ-S.PL-go-FUT}\\
\text{Tomorrow I’m going into town with my dog.}
\end{array}
\]
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But Nez Perce temporal adverbials are different.

*watiisx* ‘tomorrow’ = *the next day* (≠ *tomorrow*)

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Tomorrow I’m going into town with my dog.

b.  

\[
\begin{array}{ll}
\text{Kex mawa} & \text{pro}_{\text{subj}} \quad \emptyset\text{-capaakayx-tato-} \emptyset \quad \text{’atamooc,} \\
\text{whenever-1} & \text{PRO.1SG} \quad \text{1SUBJ-wash-HAB.SG-PRES car} \\
\text{kaa} & \text{watiisx} \quad \text{hi-weqi-yo’qa.} \\
\text{then 1.day.away} & \text{3SUBJ-rain-MODAL} \\
\end{array}
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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:

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Upshot for crosslinguistic investigation:

- Translation of $\alpha$ into English (or some other language) with an indexical word does not mean that $\alpha$ is itself indeed indexical
  
  (A general point of methodology: pragmatic issues in the language being translated into play a significant role in translation tasks)
Diagnosing indexicality

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- 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)

- 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*

Which indexicals shift (with which verbs)?

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(14) kii hiiwel ’iniit yo̱x ke

*This is the house* REL.PRON C

Jack { hi-hi-ce-∅ / hi-neki-se-∅ }  
Jack { 3SUBJ-say-IMPERF-PRES / 3SUBJ-think-IMPERF-PRES }

[ ’iin 0-haanii-0-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. )
Which indexicals shift (with which verbs)?

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(15) Manaa we’nikt ’uus haama-nm, [Nez Perce]
    how name has man-GEN
    ke ko-nya T.-nm pee-Ø-ne R.-ne [’ee ’o-opayata-yo’qa _ ] ?

What is the name of the man that T told R that he should help?
(lit. What is the name of the man that T told R that you should help?)
Which indexicals shift (with which verbs)?

- Matses, Nez Perce, Zazaki, all shifty verbs: 1st person, 2nd person, locative here

(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-níx ] ?
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; _ can call from here; but not from there?)
Which indexicals shift (with which verbs)?

- Matses, Nez Perce, Zazaki, all shifty verbs: 1st person, 2nd person, locative *here*
- Laz, Tsez, Uyghur, all shifty verbs: 1st person, 2nd person, NOT locative *here*

(Demirok and Öztürk 2015, Polinsky 2015, Sudo 2012)
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(17) Context: This summer, I went to UCLA and met Muhemmet there. He told me “I’m going to study here from this September.” Now I’m back in Cambridge, MA, talking to Ahmet.

   1SG.NOM UCLA-to go-PAST.1SG  
   I went to UCLA.

b. Muhemmet manga  [ toqquzinji ay-din bašla-p (men) ]  
   Muhemmet 1SG.DAT [ 9th month-from start-ing 1SG.NOM  
   {u jer-de / #bu jer-de} uqu-imen ] di-di.  
   {there-LOC / #here-LOC} study-IMPERF.1SG ] say-PAST.3  
   Muhemmet told me that he would study there/#here from September.

(Sudo 2012: 244)
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(Rice, 1986)
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  Slave, *tell*: 1st person, 2nd person

- Slave, *say* and *want/think*: 1st person only

(Rice, 1986)
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.

<table>
<thead>
<tr>
<th>Language</th>
<th>Shifty 1st</th>
<th>Shifty 2nd</th>
<th>Shifty HERE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zazaki</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Uyghur</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
</tr>
<tr>
<td>Slave</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>English</td>
<td>–</td>
<td>–</td>
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</table>

(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.


> 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-∅  
woman 3SUBJ-think-IMPERF-PRES[ pro 0-k’oomay-n-a 1SG 1SUBJ-be.sick-P-REM.PAST ].

The woman, thinks I was sick.
Which shifty indexicals must be read *de se*?

Which shifty indexicals must be read *de se*?

- Zazaki: 1st person, **2nd person**, locative *here*  
  (Anand 2006)

(19) Heseni va Ali-ra ke ti newešha.  
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

(20) Waxto kɛ o London-de bime Pierri va kɛ o [ita] rindɛka.

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.

a. ✔ Pierre says in London, "It is pretty here."

b. # 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.
Which shifty indexicals must be read *de se*?

- Zazaki: 1st person, 2nd person, locative *here*
- Nez Perce: 1st person, 2nd person, **NOT locative** *here*
Which shifty indexicals must be read *de se*?

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

’Aayat hii-wes Clarkston-pa
woman 3\textit{SUBJ}-be.\textit{PRES} Clarkston-\textit{LOC}
The woman is in Clarkston,

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

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

- 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 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

<table>
<thead>
<tr>
<th>Language</th>
<th>1st always <em>de se</em></th>
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(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.

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
Outline

1. Dimensions of variation
2. Basic composition
3. Accounting for variation
4. Conclusions
The mechanism of indexical shift

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

1. Indexical shift cannot be a purely pragmatic affair; it has a crucial interface with the syntax
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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
    who-ACC Angel 3SUBJ-say-IMPERF-REC.PAST
    [ cew’cew’inis-ki pro ’e-muu-ce-Ø
      [ phone-with 1SG 1SUBJ/3OBJ-call-IMPERF-PRES ] ]

a. Who did Angel say I was calling?

Unshifted reading, (a):
- No OP is present in the clause
- $[pro.1SG]^{c,i} = Author(c)$
How shifty operators work

(23) Isii-ne Angel hi-i-caa-qa
     who-ACC Angel 3SUBJ-say-IMPERF-REC.PAST
     (OP) [ cew’cew’inis-ki pro ’e-muu-ce-∅
     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
• $[pro.1\text{SG}]^{c,i} = Author(c)$

Shifted reading, (b):
• OP is present on the edge of the embedded clause
• $[pro.1\text{SG}]^{c',i} = Author(c')=Angel$
• 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

\[
(24) \quad [OP_\vee \alpha]^{c,i} = [\alpha]^{i,i}
\]
\[
(25) \quad [OP_{AUTH} \alpha]^{<Author_c,\ldots>,i} = [\alpha]^{<Author_i,\ldots>,i}
\]

(Categoriematic versions can be given assuming Monstrous Function Application)
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\[
\text{(24)} \quad \left[ OP_{\forall} \alpha \right]^{c,i} = \left[ \alpha \right]^{i,i} \\
\text{(25)} \quad \left[ OP_{\text{AUTH}} \alpha \right]^{\langle \text{Author}_{c,\ldots},i} = \left[ \alpha \right]^{\langle \text{Author}_{i,\ldots},i}
\]

(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
Anand and Nevins 2004

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\[(24) \; \llbracket OP \forall \alpha \rrbracket^c,i = \llbracket \alpha \rrbracket^{i,i}\]

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(Categorematic versions can be given assuming Monstrous Function Application)

- Explanation for syntactic effects:
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- 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) \[
\begin{array}{l}
\text{(OP)} \text{Sehlégé segha goníhkie rárulu } \text{yudeli.} \\
\text{[1sg.friend 1sg.for slippers 3sg.will.sew] 3sg.want.4sg}
\end{array}
\]

a. She\(_i\) wants her\(_i\) friend to sew slippers for her\(_i\). \hspace{1cm} \text{(OP present)}

b. She\(_i\) wants my friend to sew slippers for me. \hspace{1cm} \text{(OP absent)}

c. \times \text{She}\(_i\) wants my friend to sew slippers for her\(_i\).

d. \times \text{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

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G2. A generalization about indexicals

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

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If an attitude complement allows locative shift, it allows person shift.
Starting with generalization 2

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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
(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-∅  
\[pro\] kíne  ∅-pay-ca-∅  
3SG 3SUBJ-say-IMPERF-PRES[1SG here 1SUBJ-arrive-IMPERF-PRES]  

met’u weet’u \[pro\] hi-pay-ca-∅  
but not 3SG 3SUBJ-arrive-IMPERF-PRES here  
He \(i\) says \(I_j\) am arriving here, but he \(i\) is not arriving here.

- \([pro.1SG]^{c,i} = \text{Author}(c') = \text{my friend} \neq \text{Author}(c)\)
- \([\text{kíne ‘here}]^{c,i} = \text{Lapwai} \neq \text{Location of my friend’s speaking event}\)

\(\checkmark\) \([TP] <\text{Author},...,\text{Loc}_c>^{i}\)
NO locative shift without person shift

(28) Elicited in Lapwai, ID

\[ \begin{align*}
\text{in-lawtiwaa} & \quad \text{keeleepoonya}_{i}-\text{pa} & \quad \text{hi-neki-se-}\emptyset \\
\text{my-friend} & \quad \text{California-LOC} & \quad 3\text{SUBJ-think-IMPERF-PRES} \\
& \quad \text{\\text{\[ 'iin \emptyset-weku' koná}_{i} / *\text{kíne}_{i} \text{halxpaawit-pa ]} \\
& \quad \text{\[ 1\text{SG 1SUBJ-be.FUT there} / *\text{here Sunday-LOC } \]}
\end{align*} \]

My friend in California, thinks I will be there / * here, on Sunday

\[ \times \quad [TP]<Author_{c},...,Loc_{i}>,i \]
Accounting for variation

Accounting for person/locative asymmetry

The asymmetry

\[ \sqrt{TP} <Author_i, ..., Loc_c>, i \quad \text{vs.} \quad \times [TP] <Author_c, ..., Loc_i>, i \]

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:

- Nez Perce has two shifty operators, $\text{OP}_{loc}$ and $\text{OP}_{pers}$

\[
\begin{align*}
\text{(29)} & \quad [\text{OP}_{pers} \alpha] <\text{Author}_c,\text{Addr}_c...>,i = [\alpha] <\text{Author}_i,\text{Addr}_i...>,i \\
\text{(30)} & \quad [\text{OP}_{loc} \alpha] <...\text{Loc}_c...>,i = [\alpha] <...\text{Loc}_i...>,i
\end{align*}
\]

- $\text{OP}_{loc}$ occurs higher in the CP domain than $\text{OP}_{pers}$
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”)

Accounting for person/locative asymmetry

We know about the syntax of embedded clauses that

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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

Suppose Nez Perce attitude verbs embed clauses of three sizes:

\[
\begin{align*}
\text{TP} & <\text{Auth}_c, \text{Addr}_c, \text{Loc}_c>, i \\
\text{TP} & <\text{Auth}_i, \text{Addr}_i, \text{Loc}_c>, i \\
\text{TP} & <\text{Auth}_i, \text{Addr}_i, \text{Loc}_i>, i
\end{align*}
\]
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

<table>
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Possible: Attitude complements include OP$_{loc}$, OP$_{addr}$ and OP$_{spkr}$ (Zazaki)

(31) \[
\begin{array}{llll}
V & \left[ O P_{loc} \right] & \left[ O P_{addr} \right] & \left[ O P_{spkr} \right] & \ldots [T P]
\end{array}
\]

Possible: Attitude complements include OP$_{addr}$ and OP$_{spkr}$ only (Uyghur)

(32) \[
\begin{array}{llll}
V & \left[ O P_{addr} \right] & \left[ O P_{spkr} \right] & \ldots [T P]
\end{array}
\]

Impossible: Attitude complements include OP$_{loc}$ only (unattested)

(33) \[
\begin{array}{llll}
V & \left[ O P_{loc} \right] & \ldots [T P]
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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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- 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)
Explaining generalization 1

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Possible: SAY and THINK take complements of equal size (Nez Perce, . . . )

(34)  a. SAY [ OP [ TP  
      b. THINK [ OP [ TP

Possible: SAY takes a larger complement than THINK (Zazaki, . . . )

(35)  a. SAY [ OP [ TP  
      b. THINK [ TP

Impossible: SAY takes a smaller complement than THINK (unattested)

(36)  a. SAY [ TP  
      b. THINK [ OP [ TP
Variation within and across languages

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

\[
\begin{array}{c}
V' \\
\text{SAY} \\
\text{OP}_{\text{loc}} \\
\text{OP}_{\text{addr}} \\
\text{OP}_{\text{spkr}} \\
\text{TP}
\end{array}
\]
\[
\left[ \text{TP} \right] < \text{Author}_i, \text{Addr}_i, \text{Loc}_i >, i
\]
Variation within and across languages

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

```
V'
  \--- SAY
     \--- OP_{loc}
         \--- OP_{addr}
             \--- OP_{spkr}
                 \--- \ldots
                     \--- TP
```

\[ [TP] <Author_i, Addr_i, Loc_i>, i \]

- Uyghur: only 1st and 2nd shift

```
V'
  \--- SAY
     \--- OP_{addr}
         \--- OP_{spkr}
             \--- \ldots
                 \--- TP
```

\[ [TP] <Author_i, Addr_i, Loc_c>, i \]
Variation within and across languages

- Zazaki: 1st, 2nd, HERE all shift under SAY
  \[ TP \langle Author_i, Addr_i, Loc_i \rangle, i \]

- Uyghur: only 1st and 2nd shift
  \[ TP \langle Author_i, Addr_i, Loc_c \rangle, i \]

Accounting for variation

Back to the *de se*

G3. A generalization about *de se*

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

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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

a. \(w_i\) is compatible with what \(x\) says in \(w_i\)

b. \(auth_{i'}\) is an individual in \(w_{i'}\) that \(x\) identifies_{\(w_i\)} as herself

c. \(addr_{i'}\) is an individual in \(w_{i'}\) that \(x\) identifies_{\(w_i\)} as her addressee

d. \(loc_{i'}\) is a location in \(w_{i'}\) that \(x\) identifies_{\(w_i\)} as her location

- *De hic* shifter (Zazaki)

\[(38) \quad \llbracket OP_{LOC} \alpha \rrbracket^{\langle...Loc_c...>,i} = \llbracket \alpha \rrbracket^{\langle...Loc_i...>,i}\]

- *De te* shifter (Nez Perce)

\[(39) \quad \llbracket OP_{ADDR} \alpha \rrbracket^{\langle...Addr_c...>,i} = \llbracket \alpha \rrbracket^{\langle...Addr_i...>,i}\]
Accounting for non-\textit{de se} shifty indexicals

- If coordinates of the index are always \textit{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


(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

\[
\begin{align*}
&\text{[hi ‘say’]}^{c,i} = \lambda e.\text{saying}(e) \\
&\text{[C}$^0$\text{ α]}^{c,i} = \lambda e.\forall i' \in \text{RCON}(e)[α]^{c,i'}
\end{align*}
\]

where \(i' \in \text{RCON}(e)\) iff

a. \(w_{i'}\) is a member of the content of \(e\)
b. \(auth_{i'}\) is an individual in \(w_{i'}\) that \(\text{EXT}(e)\) identifies in \(w_e\) as a counterpart of herself
c. \(addr_{i'}\) is an individual in \(w_{i'}\) that \(\text{EXT}(e)\) identifies in \(w_e\) as a counterpart of her addressee, if any; otherwise \(addr_{i'}\) is \(\emptyset\)
d. \(loc_{i'}\) is a location in \(w_{i'}\) that \(\text{EXT}(e)\) 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 $\llbracket \alpha \rrbracket_{c,i}^{c}$ is a predicate of events:

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

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

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

$$\llbracket \text{OP}_{\text{ADDR}} \alpha \rrbracket^{\ldots \text{Addr}_c \ldots}, i = \lambda e. \llbracket \alpha \rrbracket^{\ldots \text{ADDR}(e) \ldots}, i(e)$$
Two types of shifty operators

1. *De se*

(47) Zazaki locative shifter
\[
[\text{OP}_{\text{LOC}} \alpha] <\ldots \text{Loc}_c \ldots>, i = [\alpha] <\ldots \text{Loc}_i \ldots>, i
\]

(48) Nez Perce addressee shifter
\[
[\text{OP}_{\text{ADDR}} \alpha] <\ldots \text{Addr}_c \ldots>, i = [\alpha] <\ldots \text{Addr}_i \ldots>, i
\]

2. *Non de se*

(49) Nez Perce locative shifter
\[
[\text{OP}_{\text{LOC}} \alpha] <\ldots \text{Loc}_c \ldots>, i = \lambda e. [\alpha] <\ldots \text{LOC}(e) \ldots>, i(e)
\]

(50) Uyghur addressee shifter
\[
[\text{OP}_{\text{ADDR}} \alpha] <\ldots \text{Addr}_c \ldots>, i = \lambda e. [\alpha] <\ldots \text{ADDR}(e) \ldots>, i(e)
\]
Deriving the hierarchy

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

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

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

a. $w_{i'}$ is a member of the content of $e$

b. $auth_{i'}$ is an individual in $w_{i'}$ that $EXT(e)$ identifies in $w_e$ as a counterpart of herself

c. $addr_{i'}$ 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 $\emptyset$

d. $loc_{i'}$ is a location in $w_{i'}$ that $EXT(e)$ 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 \(OP_{\text{LOC}}\) and \(OP_{\text{PERS}}\)

\[
\begin{align*}
\text{[TP]} < \text{Auth}_i, \text{Addr}_i, \text{LOC}(e)> , i &= \lambda e. \text{[TP]} < \text{LOC}(e)... , i(e) > , i \\
\text{[OP}_{\text{LOC}}\alpha] < \text{Auth}_c, \text{Addr}_c... , i &= \text{[OP}_{\text{PERS}}\alpha] < \text{Auth}_i, \text{Addr}_i... > , i \\
\text{[C}^0 \alpha]^c_{i} &= \lambda e. \forall i' \in \text{RCON}(e) \text{[TP]} < \text{Auth}_c, \text{Addr}_c, \text{Loc}_c > , i \\
\end{align*}
\]
Uyghur embedded clauses

2nd person shifty indexicals are not *de se* but 1st persons are. So, C must be located between OPADDR and OPSPKR

\[
\begin{align*}
    \left[ TP \right] &\langle Auth_i, ADDR(e), i \rangle \\
    \left[ OP_{ADDR} \right] &\langle ..., Addr_c, ..., i \rangle = \lambda e. \left[ \alpha \right] \langle ..., ADDR(e), ..., i \rangle (e) \\
    \left[ OP_{SPKR} \right] &\langle Auth_c, ..., i \rangle = \left[ \alpha \right] \langle Auth_i, ..., i \rangle \\
    \left[ C^0 \right] &\langle c, i \rangle = \lambda e. \forall i' \in RCON(e) \left[ \alpha \right]_{c, i'}
\end{align*}
\]
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

<table>
<thead>
<tr>
<th>Language</th>
<th>1st always <em>de se</em></th>
<th>2nd always <em>de se</em></th>
<th>HERE always <em>de se</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Zazaki</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Nez Perce</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
</tr>
<tr>
<td>Uyghur</td>
<td>✓</td>
<td>–</td>
<td>n/a</td>
</tr>
</tbody>
</table>

- **OP\textsubscript{SPKR},** if present, is always below C.
  (If **OP\textsubscript{SPKR}** and **OP\textsubscript{ADDR}** are bundled together, both are below C.)

- **Otherwise,** C may appear anywhere in the sequence of shifters **OP\textsubscript{LOC} > OP\textsubscript{ADDR} > OP\textsubscript{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:

```
OP_{loc} → OP_{addr} → OP_{spkr} → OP_{time} → ...
```
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)
References I


References II


References III


Özyıldız, Deniz. 2012. When I is not me: a preliminary case study of shifted indexicals in Turkish. Ms, École Normale Superieure.


What about logophors?

- Logophors are pronouns bound by a logophoric operator $\text{OP}^{\text{log}}$ – its traditional name notwithstanding, this is a $\lambda$, 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 $\text{de se}$ element (e.g. a logophor) must be $\text{de re}$ 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

\[
\begin{align*}
\text{John} & \left[ \text{pro}_{\text{subj}} \text{pro}_{\text{obj}} \text{al-ittazzoza-NN} \right] \text{ala.} \\
\text{John} & \left[ \text{NEG.1s-obey.mkimperf-1sO} \right] \text{say.PERF.3sm}
\end{align*}
\]

  a. ✓ John$_i$ says he$_i$ will not obey me.
  b. ✗ 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.

```
OP_{time} \rightarrow OP_{spkr} \rightarrow OP_{addr} \rightarrow OP_{loc} \ldots
```
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.

  ![Diagram]

- 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$_i$, 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 $O_{addr}$ and $O_{spkr}$ into one operator, $O_{per}$ (like Nez Perce)
  - It also bundles $O_{loc}$ and $O_{time}$ into a single operator, $O_{adv}$ (following Park)
  - The bundled operator $O_{adv}$ may occupy the position of either of its component pieces, $O_{loc}$ or $O_{time}$, in the functional sequence

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