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 Ann Arbor.
             Berta: I'm not in Ann Arbor.

cf. (2)   [Context: Anna and Berta are watching a televised speech together.]
           Anna: The speaker is in Ann Arbor.
           Berta: The speaker is not in Ann Arbor.

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

(3)   Anna: Casey thinks I'm in Ann Arbor.
      Berta: Casey doesn't think I'm in Ann Arbor.

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(3) Anna: Casey thinks I'm in Ann Arbor.
     Berta: Casey doesn't think I'm in Ann Arbor.

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

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Indexicality and indexical shift

Nez Perce

(3)   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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(4) 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$_i$ say she$_i$ was calling?

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[phone-with   1SG   1SUBJ/3OBJ-call-IMPERF-PRES _]

  a. Who did Angel say I was calling?

  b. Who did Angel$_i$ say she$_i$ 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 broader descriptive literature:

- Aghem (Bantu; Hyman 1979)

- Havyaka Kannada (Dravidian; Bhat 2004)

- Kobon (Trans-New Guinea; Davies 1981)

- Manambu (Ndu; Aikhenvald 2008)

- Wan (Mande; Nikitina 2012)

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

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Variation in indexical shift

Three major dimensions (of which, today, I'll talk about two):

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 verbs are involved in shifting?

- Zazaki: only *say*

  (5) Hɛseni va   kɛ   ɛz dɛwletia   [Zazaki]
       Hesen said that I   rich.be-PRES
       Hesen said that { I am, Hesen is } rich (Anand and Nevins, 2004)
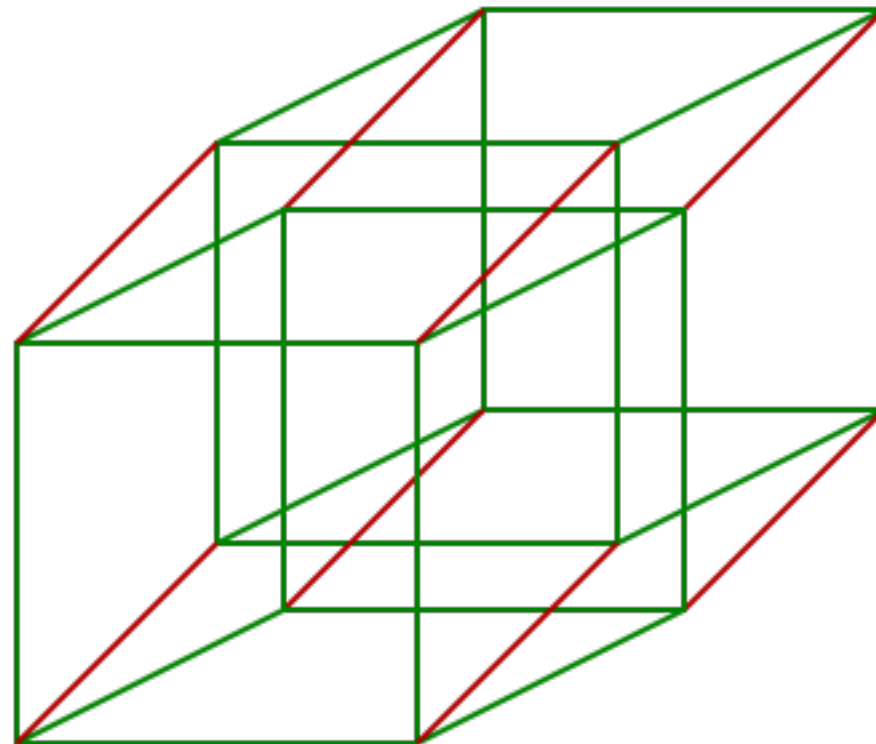
  (6) Hɛsen termine kɛno kɛ   ɛz newɛsha
       Hesen believe does that I   sick.be-PRES
       Hesen believes that { I am, *Hesen is } sick (Anand and Nevins, 2004)

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

  (7) 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?

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

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- 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: Sundaresan (2011, 2012))

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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

The argument from Kaplan (1989): *I ≠ the speaker*

(8)   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

(9) a.   ke mawa Tatlo hi-c'iiq-tetu-∅,
           whenever Tatlo 3SUBJ-speak-HAB.SG-PRES
           c'iix̂-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. . . ?!"

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>   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. . . ?!"

>   > Same facts for 2nd person

Diagnosing indexicality

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

(10) # ke mine   Obama hi-c'iiq-tetu-∅,
      wherever Obama 3SUBJ-speak-HAB.SG-PRES
      'ilx̂nii-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*)

(11)   a.   **watiisx**   *pro$_{subj}$*   ciq'aamqal-niin 'itamyaanwas-x ∅-pe-ki-yu'
           1.day.away PRO.1SG dog-with   town-to   1SUBJ-S.PL-go-PROSP
           Tomorrow I'm going into town with my dog.

       b.   kex mawa   *pro$_{subj}$*   ∅-capaakayx-tato-∅   '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:

(12)

	Indexical	Non-indexical
Person	1st, 2nd	3rd
Locative adverb	*kine* 'here'	*kona* 'there'
Temporal adverb	–	*watiisx* '1 day away', *kii taqc* '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

  (Deal 2015: pragmatic issues in the language being translated into play a significant role in translation tasks)

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  (Deal 2015: 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*

  (Munro et al. 2012, Deal 2014, Anand 2006)

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(13)   kii   hiiwes 'iniit   yox̂   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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(14) Manaa we'nikt 'uus haama-nm,   [Nez Perce]
       how   name   has man-GEN

       ke ko-nya   T.-nm pee-∅-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?)

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(15)   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$_i$ _ can call from here$_i$ but not from there$_j$?)

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    (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.

    a. Men   UCLA-gha bar-dim.   [Uyghur]
       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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  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)

Two 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

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Outline

The mechanism of indexical shift

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

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> 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

(29) Isii-ne   Angel hi-i-caa-qa   [Nez Perce]
      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?

Unshifted reading, (a):

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

How shifty operators work

(29) 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-∅   _]
            [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

- $[\![pro.1\text{SG}]\!]^c = Author(c)$

Shifted reading, (b):

- OP is present on the edge of the embedded clause

- $[\![pro.1\text{SG}]\!]^{c'} = Author(c')$=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,
  wholely or in part

  $$[\![OP_\forall \; \alpha]\!]^{c,i} = [\![\alpha]\!]^{i,i}$$

  $$[\![OP_\text{AUTH} \; \alpha]\!]^{<Author_c,...>,i} = [\![\alpha]\!]^{<Author_i,...>,i}$$

  (Categorematic versions are in the paper)

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  (Categorematic versions are in the paper)

- 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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- 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, wholely or in part

$$\llbracket OP_\forall \ \alpha \rrbracket^{c,i} = \llbracket \alpha \rrbracket^{i,i}$$

$$\llbracket OP_{\text{AUTH}} \ \alpha \rrbracket^{<Author_c,...>,i} = \llbracket \alpha \rrbracket^{<Author_i,...>,i}$$

  (Categorematic versions are in the paper)

- 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:

(30)   [(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

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	–	–	–

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

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Slave *say*	✓	–	–
English	–	–	–
unattested	–	–	✓

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unattested	–	–	✓

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

(31)   (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-∅   kíne
but   not   3SG   3SUBJ-arrive-IMPERF-PRES here
He$_i$ says I$_i$ am arriving here, but he$_i$ is not arriving here.

- $[\![pro.1\text{SG}]\!]^{c'} = \text{Author}(c')=\text{my friend}$ $\neq \text{Author}(c)$
- $[\![kine\ 'here']\!]^{c} = \text{Lapwai}$ $\neq$ Location of my friend's speaking event

✓ $[\![TP]\!]^{<Author_i,...,Loc_c>,i}$

NO locative shift without person shift

(32)   Elicited in Lapwai, ID

'in-lawtiwaa   keeleepoonya$_i$-pa   hi-neki-se-∅
my-friend   California-LOC   3SUBJ-think-IMPERF-PRES
['iin ∅-weku'   koná$_i$ / *kíne$_i$ halx̂paawit-pa]
[1SG 1SUBJ-be.FUT there / *here   Sunday-LOC   ]

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

✗   ⟦TP⟧$^{<Author_c,...,Loc_i>,i}$

Accounting for person/locative asymmetry

The asymmetry

$$\checkmark \,[\![TP]\!]^{<Author_i,...,Loc_c>,i} \qquad \text{vs.} \qquad \text{✗}\,[\![TP]\!]^{<Author_c,...,Loc_i>,i}$$

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: (Deal 2014)

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

  (33) $[\![OP_{pers}\ \alpha]\!]^{<Author_c, Addr_c...>,i} = [\![\alpha]\!]^{<Author_i, Addr_i...>,i}$

  (34) $[\![OP_{loc}\ \alpha]\!]^{<...Loc_c...>,i} = [\![\alpha]\!]^{<...Loc_i...>,i}$

- 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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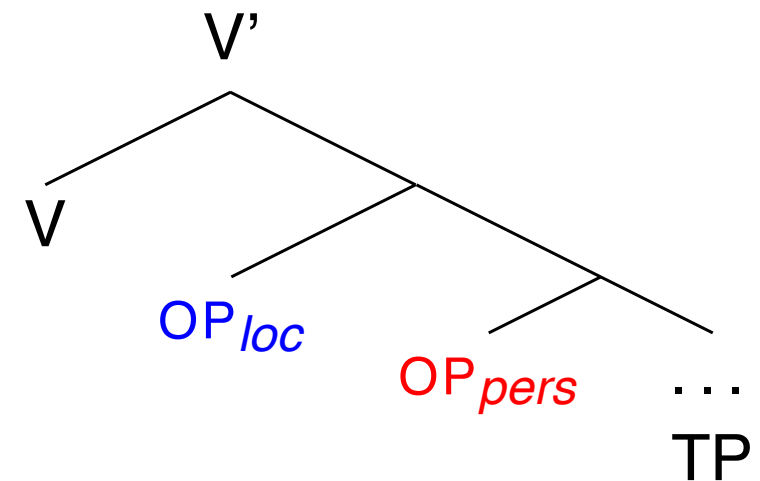
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- Complement clauses come in different sizes (e.g. vP vs. TP vs. CP)

- 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:
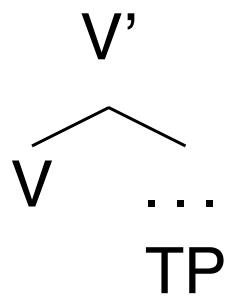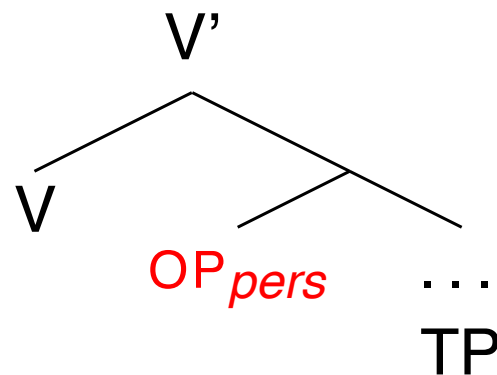
$[\![TP]\!]^{<Auth_c,Addr_c,Loc_c>,i}$ $[\![TP]\!]^{<Auth_i,Addr_i,Loc_c>,i}$ $[\![TP]\!]^{<Auth_i,Addr_i,Loc_i>,i}$
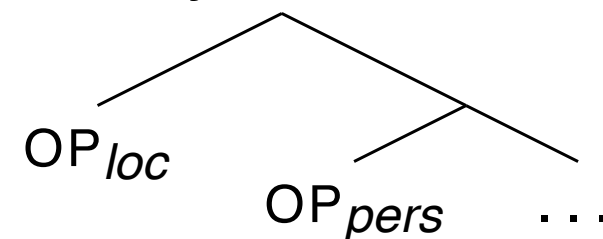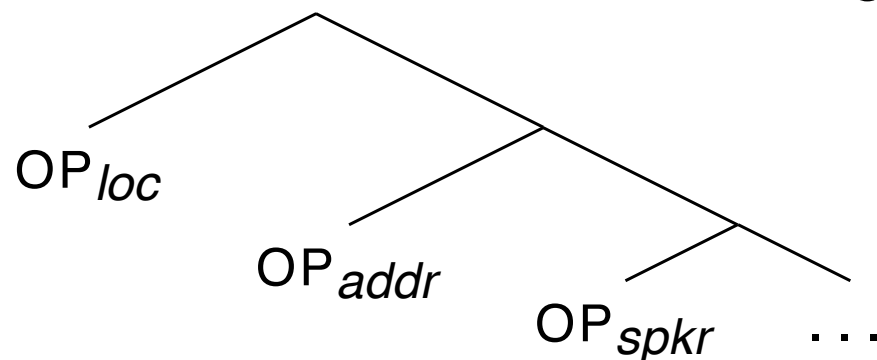
Explaining generalization 2

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.

OP_{loc}

OP_{addr}

OP_{spkr} . . .

OP_{loc}

OP_{pers} . . .

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	–	–	–
unattested	–	–	✓

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

(35) [V [OP_{loc} [OP_{addr} [OP_{spkr} ...[$_{TP}$

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

(36) [V   [OP_{addr} [OP_{spkr} ...[$_{TP}$

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

(37) [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 SAY > THINK > KNOW 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

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 SAY > THINK > KNOW 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: verbs that allow more verbal structure in their complements are more able to host shifty operators   (Sundaresan 2011, 2012)

Explaining generalization 1

	Shift under SAY	Shift under THINK
Nez Perce, Uyghur	✓	✓
Zazaki	✓	–
unattested	–	✓

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

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

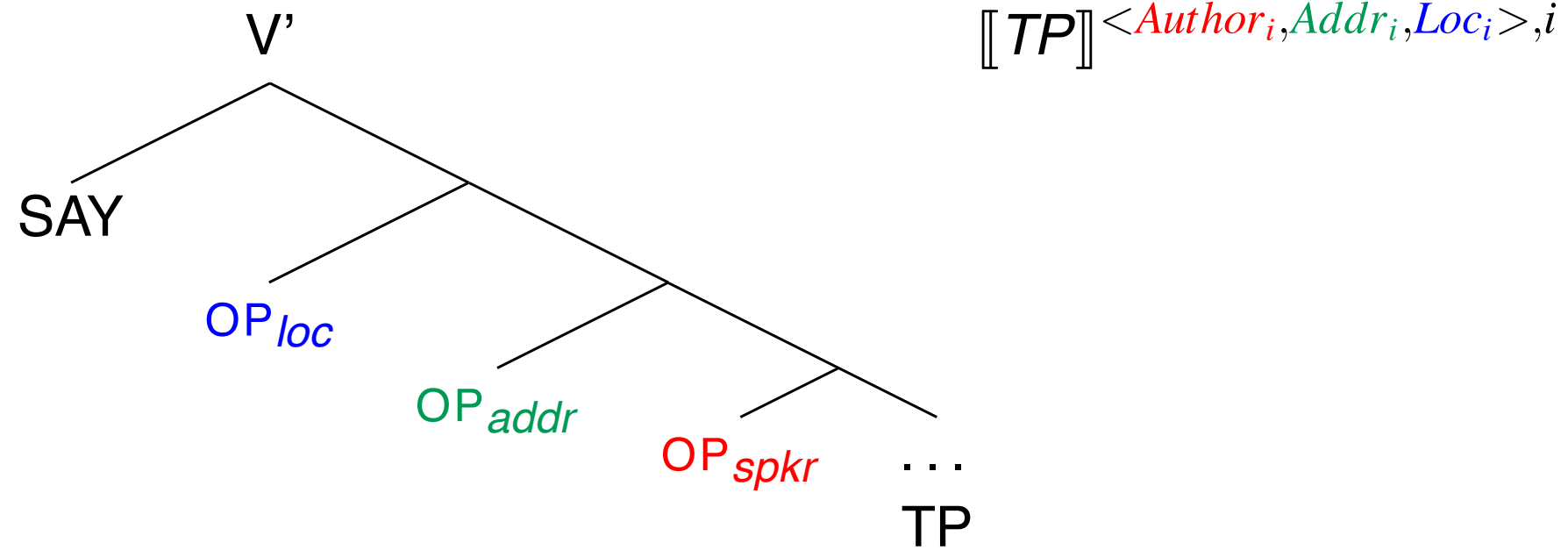Possible: SAY takes a larger complement than THINK (Zazaki,. . .)

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

Impossible: SAY takes a smaller complement than THINK (unattested)
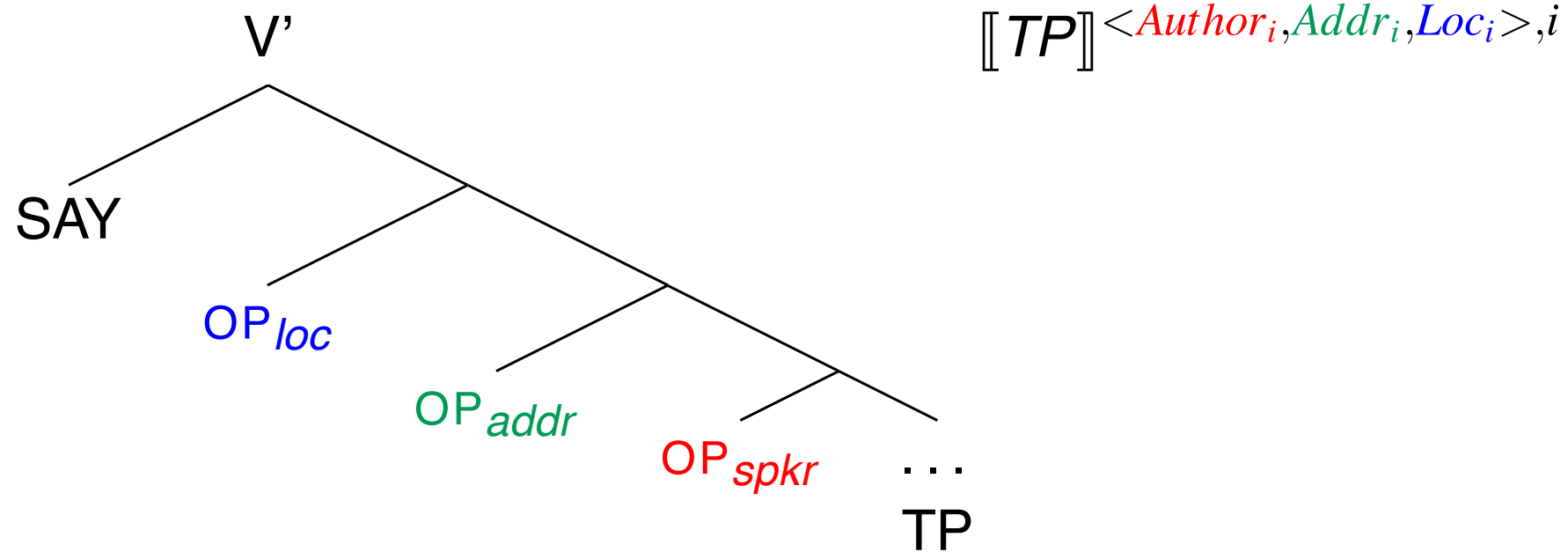
(40) a. SAY [TP   b. THINK [OP [TP

Variation within and across languages
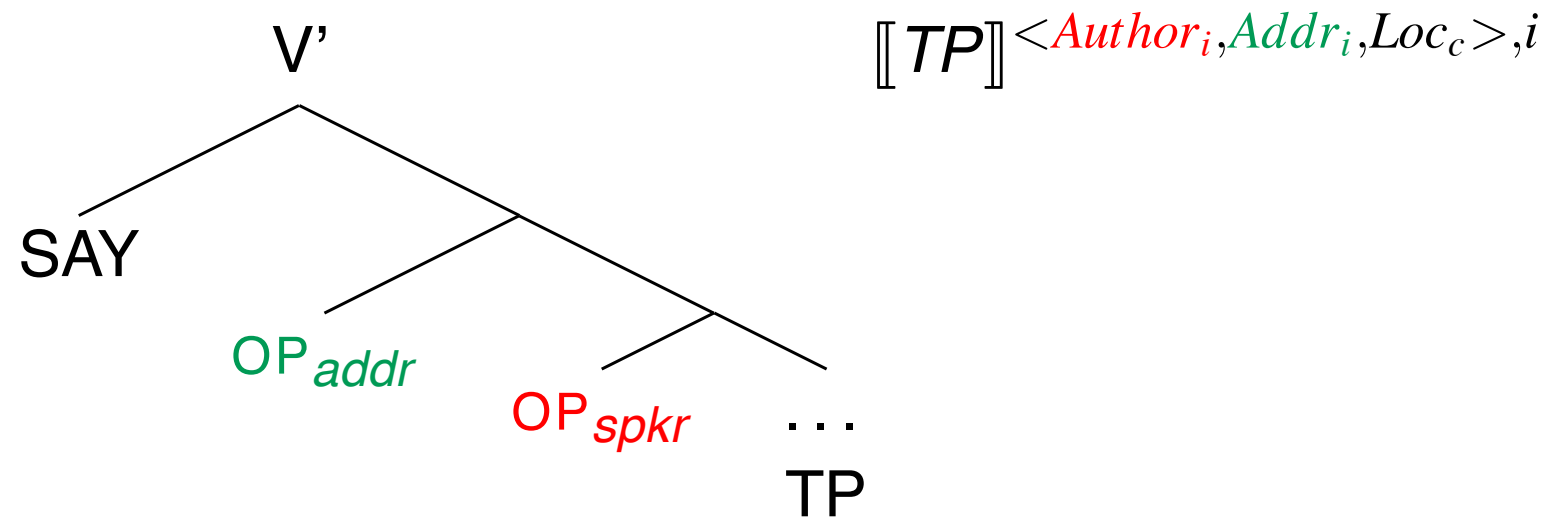
• Zazaki: 1st, 2nd, HERE all shift under SAY

$$\llbracket TP \rrbracket^{<Author_i, Addr_i, Loc_i>, i}$$

V'
SAY
OP$_{loc}$
OP$_{addr}$
OP$_{spkr}$ . . .
TP

Variation within and across languages

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

$$[\![TP]\!]^{<Author_i, Addr_i, Loc_i>, i}$$

V'
SAY
OP$_{loc}$
OP$_{addr}$
OP$_{spkr}$
. . .
TP

- Uyghur: only 1st and 2nd shift

$$[\![TP]\!]^{<Author_i, Addr_i, Loc_c>, i}$$

V'
SAY
OP$_{addr}$
OP$_{spkr}$
. . .
TP

Variation within and across languages

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

$$[\![TP]\!]^{<Author_i, Addr_i, Loc_i>, i}$$

```
        V'
       /  \
    SAY    \
          OP_loc
           /  \
        OP_addr \
           /  \
       OP_spkr  \
            /  ...
           TP
```

- Uyghur: only 1st and 2nd shift

$$[\![TP]\!]^{<Author_i, Addr_i, Loc_c>, i}$$

```
        V'
       /  \
    SAY    \
         OP_addr
           /  \
       OP_spkr \
            /  ...
           TP
```
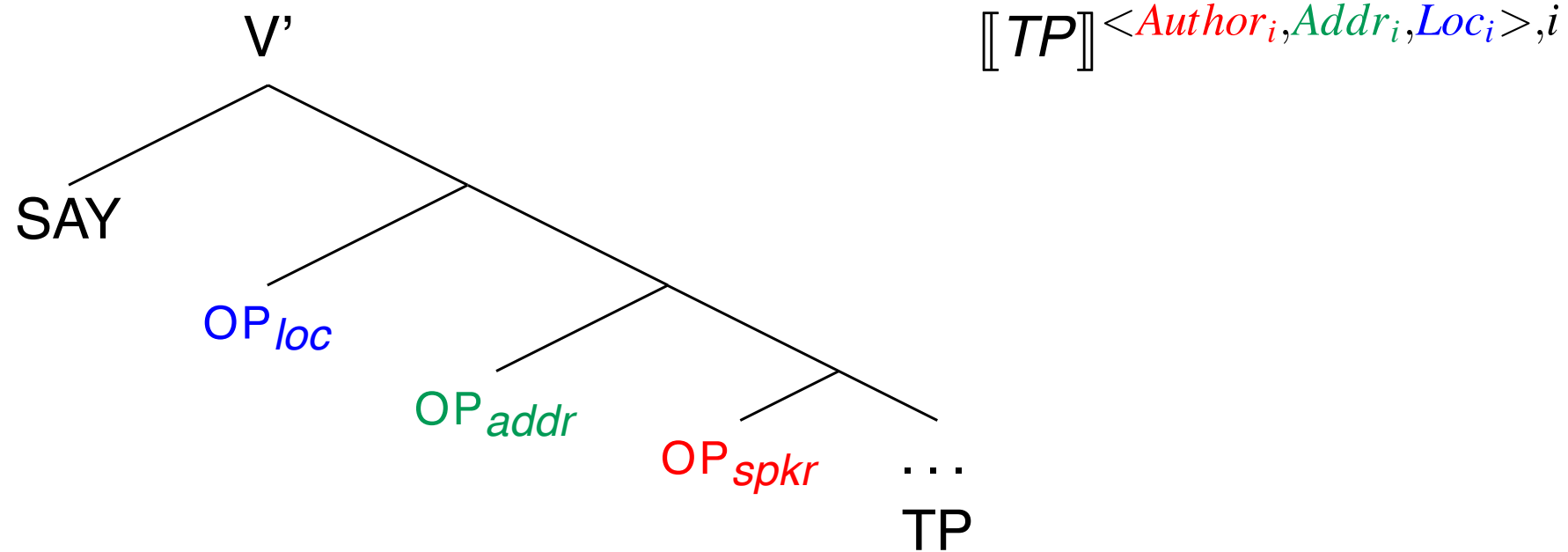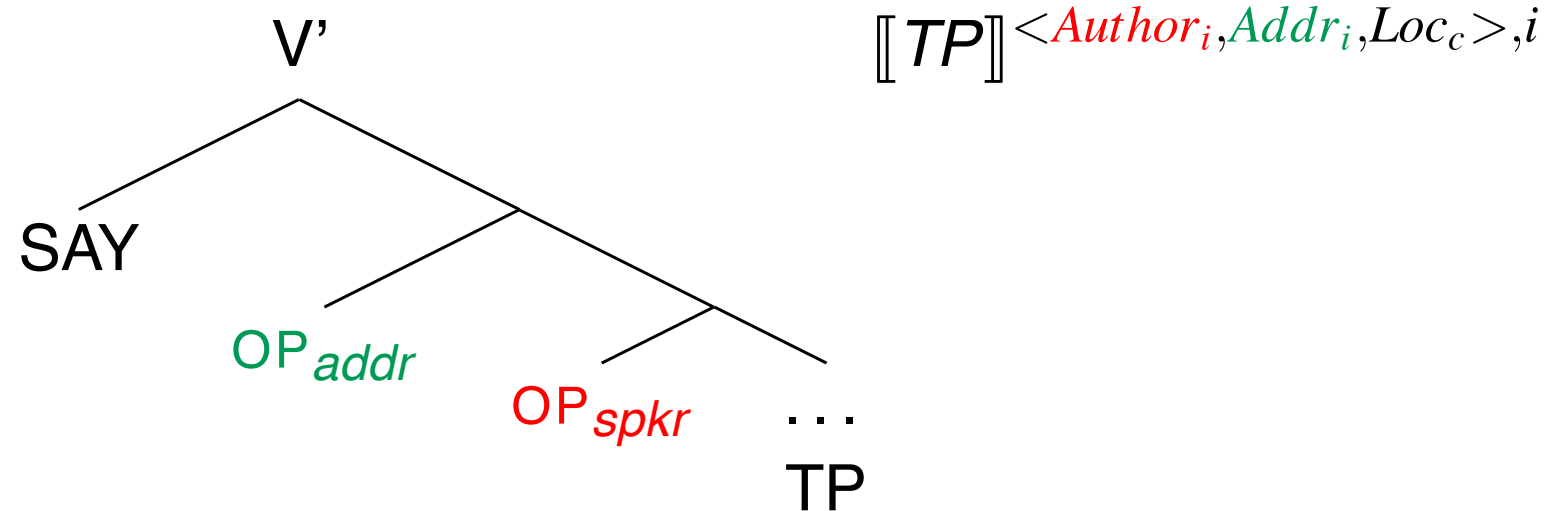
- Nez Perce: optionally either Zazaki-like or Uyghur-like

Outline

Summary of empirical coverage

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

G1. A generalization about verbs

SAY is more likely to allow indexical shift than any other verb, e.g. THINK

G2. A generalization about indexicals

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

(In the paper version of this talk, I show that a third generalization concerns *de se* interpretation – it, too, is regulated by the hierarchy 1st > 2nd > HERE – and that a small extension of the same system can capture this as well)

Summary of empirical coverage

In the paper:

- 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} . . .
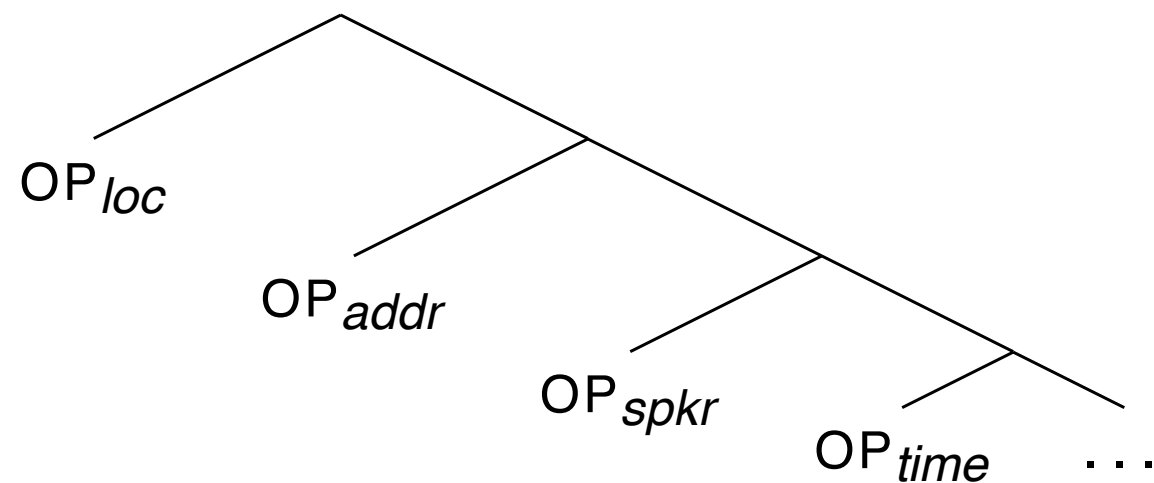
Summary of main claims

Shifters of the speaker, addressee, and location 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 generalization about indexicals (G2)

Testing the theory: getting started

A demonstration that language L has indexical shift should feature:

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1. Evidence that L allows indexicals to have non-utterance-based reference in certain complements (e.g. complements of *say, think, want, believe*)

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2. Evidence that the relevant complements aren't quotations, e.g. from the fact that...

 - They are permeable to A' movement

   (41)   'Isii-ne   Angel   hi-i-caa-qa   *Nez Perce*
          who-ACC   Angel   3SUBJ-say-IMPERF-REC.PAST
          [cew'cew'inis-ki | *pro* | 'e-muu-ce-∅   _]?
          [phone-with   1SG   1SUBJ/3OBJ-call-IMPERF-PRES _]
          Who did Angel$_i$ say she$_i$ was calling?
          (cp. **Who did Angel say, "I am calling _"?*)

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2. Evidence that the relevant complements aren't quotations, e.g. from the fact that...

    *   They are permeable to A' movement
    *   They are permeable for NPI licensing

        (42)   Tursun [men **hichkim-ni**   kör-dim   ] di-**mi**-di.   *Uyghur*
               Tursun [1SG anybody-ACC see-PAST.1SG] say-NEG-PAST.3
               Tursun didn't say that he saw anyone. (Sudo, 2012, 205)
               (cp. *#Tursun didn't say "I saw anyone."*)

Testing the theory: getting started

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1. Evidence that L allows indexicals to have non-utterance-based reference in certain complements (e.g. complements of *say, think, want, believe*)

2. Evidence that the relevant complements aren't quotations, e.g. from the fact that...

   - They are permeable to A' movement
   - They are permeable for NPI licensing
   - They permit *de re* descriptions (i.e. descriptions of individuals from the *speaker's* perspective, not the subject's)

   (43)   Context: Kii does not know that Hastiin Begay is a singer. He says to me, *Hastiin Begay Tóta'di bidééh niséyá* [lit. 'I went to meet Mr. Begay in Farmington']. Later, at a ceremony at which Hastiin Begay is singing, I say to you: *Navajo*

   Kii [hataałii Tóta'di   bidééh   niséyá   ] ní.
   Kii [singer   Farmington-at 3sg-go:toward Perf.1sgS.go] 3sgS.say
   Kii said he went to meet the singer in Farmington. (Speas, 2000)
   (cp. Kii said, "I went to meet the singer in Farmington.")

Testing the theory: getting started

A demonstration that language L has indexical shift should feature:

1. Evidence that L allows indexicals to have non-utterance-based reference in certain complements (e.g. complements of *say, think, want, believe*)

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   - They are permeable to A' movement
   - They are permeable for NPI licensing
   - They permit *de re* descriptions (i.e. descriptions of individuals from the *speaker's* perspective, not the subject's)

3. Evidence that the elements in question are indeed indexical (rather than simply anaphoric): show that they can't be bound in *whenever/wherever* clauses:

   (44) kex mawa   *pro*$_{subj}$ ∅-capaakayx-tato-∅   'atamooc,
         whenever-1 PRO.1SG 1SUBJ-wash-HAB.SG-PRES car

         kaa **watiisx**   hi-weqi-yo'qa   [Nez Perce]
         then 1.day.away 3SUBJ-rain-MODAL
         Whenever I wash my car, the next day (#tomorrow) it rains.

Testing the theory: the core approach

- In what types of complements is shift possible? Can we test whether some of these complements are syntactically bigger than others?

- What classes of indexicals shift? Does indexical shift follow the hierarchy 1 > 2 > LOC?

- What classes of indexicals must be interpreted *de se* when shifted? Does *de se* interpretation follow the hierarchy 1 > 2 > LOC?

Paper available at http://linguistics.berkeley.edu/~ardeal/research.html

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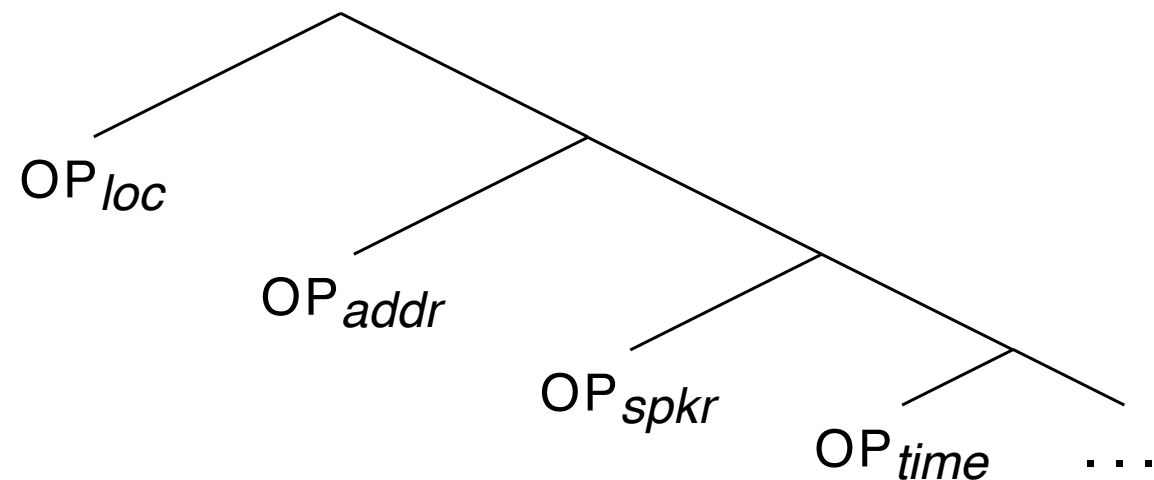
What about time?

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

    (45) He said$_t$ a week ago he would deliver it tomorrow$_{t+1}$.

    (46) # Every time$_t$ I wash my car, it rains tomorrow$_{t*+1}$.

- Shifty temporal indexicals must be read *de se* for these speakers.
- 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$_{loc}$

OP$_{addr}$

OP$_{spkr}$

OP$_{time}$ . . .

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.

  (47)   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" (§6.2)

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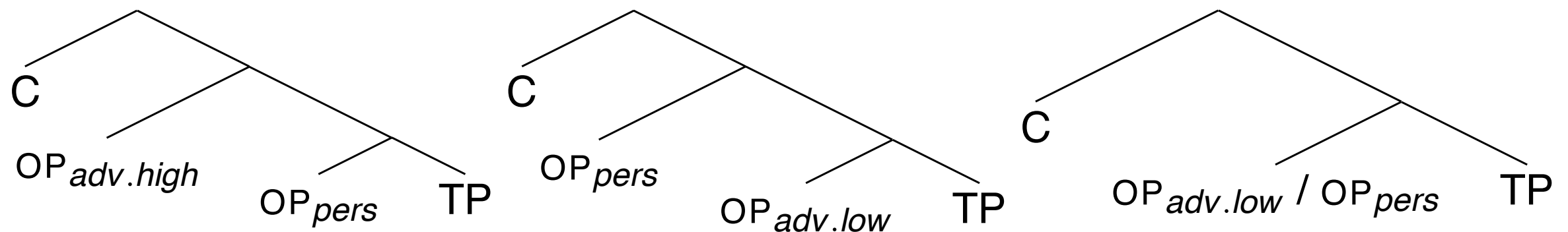
- THINK only allows a complement big enough to include the lower position of OP_{adv}

What about free indirect discourse?

• Locative indexicals shift in FID:

  (48) 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:

  (49) 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

    (50) 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

    (51) 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?

  (52) a. As she looked at my picture, Anna thought: "Yes, I should invite her over here."

  b. As she looked at my picture, Anna thought that she wanted to invite me over there.

  c. ?? Anna looked at my picture. Yes(, she thought,) she wanted to invite me over here.

  (53) 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}.