Dynamic Semantics (3) Indexicality

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Theoretical background

- The reference of an **indexical** is determined by the utterance context—e.g. if someone says '**I am hungry**', the indexical pronoun '**I**' refers to the speaker, while the indexical present tense of the verb '**am**' refers to the speech time.
- Since the seminal work by Kaplan 1979 context-dependence has been analyzed in terms of two formally unrelated parameters:
  - *utterance context* (static) for indexical reference
  - *variable assignment* (static or dynamic) for anaphoric reference.

  On this **static view**, indexical reference does not involve any context change, and it bears no relation to anaphora. This view still prevails not only in static theories (e.g. Schlenker 2003), but also in most dynamic theories (e.g. Kamp's *DRT*, where anaphors refer to *current* values of variables, while indexicals refer to *static* contextual anchors).
- A more unified **dynamic view** is implicit in the *commonplace effect* of Stalnaker 1978 and explicit in *Update with Centering* (Bittner 2007, 2011). On this view, speaking up makes that very *speech event* available for discourse reference, e.g. by indexicals. Thus, indexical reference crucially involves not only context dependence, but also *context change*—just like anaphora.

Dynamic view in a nutshell

- **Unifying generalization**: Both anaphors and indexicals refer to currently salient discourse entities:
  - mentioning something focuses attention on the *mentioned entity* and thereby makes that entity available for discourse reference by *anaphors* (see Grosz et al. 1995, Bittner 2001)
  - speaking up focuses attention on that *speech event* and thereby makes that event available for discourse reference by *indexicals* (see Stalnaker 1978, Bittner 2007)
- **No Kaplan dichotomy**: Both indexicals and anaphors refer to discourse entities (drefs) made salient by prior updates.
- **Unified formal analysis**: Instead of two formally unrelated parameters, the same dynamically updated dref hierarchy accounts for both indexical and anaphoric reference.

Today's lecture

Main goal: Argue for the DYNAMIC VIEW, based on cross-linguistic evidence:

- In *Kalaallisut*, grammatical centering system marks **indexical** persons (1st and 2nd) **as 'inherent topics'**. This is a mystery on the static view, but can be explained on the DYNAMIC VIEW.
- In *Slavey*, certain **indexicals** in the scope of certain attitude verbs (e.g. yeni̹wę 'want') can take the **perspective of the attitude holder** instead of the speaker. This, too, can be explained on the DYNAMIC VIEW, under plausible assumptions:
  - by *universal default*, indexicals are interpreted from the perspective of the current *speech event* (speaker's perspective).
  - *Slavey lexicon* includes:
    - perspective-shifting attitude verbs, which can update the top-ranked perspectival dref to the *attitudinal state* of the subject (attitude holder's perspective) for the duration of the complement.
    - shiftable indexicals, interpreted from the perspective of the currently top-ranked perspectival dref.

Outline

- Anaphora & indexicality: Kalaallisut puzzle
- Anaphoric reference to top entities (UC_0)
- Indexical reference to top view points (UC_ε)
- Puzzle solved: Indexicals as ‘inherent topics’
- Attitude states as top view points: Slavey data
- Conclusion

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Kalaallisut: Anaphoric inflections

In Kalaallisut **pronominal arguments** (subjects, objects, and possessors) are expressed by means of person inflections. Anaphoric inflections refer to the currently top-ranked individual in the center or background of attention, as specified by three gramm. systems

- form of **3rd person inflection** specifies centering status of antecedent dref, e.g.
  - -ni '$3S_{\top}$' v. -a(t) '$3S_{\bot}$' anaphora to topical v. background 3rd person
- **matrix clause moods** specify illocutionary force in relation to ⊤-subject, e.g.
  - -pu '$DEC_{\top}$' assertion of *at-issue fact* about ⊤-subject
  - -pa '$DEC_{\top\bot}$' assertion of *at-issue fact* abt ⟨⊤-subject, ⊥-object⟩
- **dependent clause moods** specify centering status of dependent subject, e.g.
  - -ga '$FCT_{\top}$' v. -mm '$FCT_{\bot}$' *not-at-issue fact* about ⊤-subject v. ⊥-subject
  - -gu '$HYP_{\top}$' v. -pp '$HYP_{\bot}$' *hypothesis* about ⊤-subject v. ⊥-subject
  - -ganga '$HAB_{\top}$' v. -gang '$HAB_{\bot}$' *habit* of ⊤-subject v. ⊥-subject
  - -llu '$ELA_{\top}$' v. -tu '$ELA_{\bot}$' *elaboration* of ⊤-subject v. ⊥-subject

3rd person noun phrases are interpreted as *recentering updates,* i.e. updates that (re)introduce ⊤- or ⊥-antecedents for anaphoric $3_{\top}$ or $3_{\bot}$ inflections.

Kalaallisut: Top-level anaphora

(1) i. Ippassaq atuartut qimussir-llu-tik sukkanniut-pu-t.
yesterday school.kids$^{\top}$ drive.dog.sled-ELA$_{\top}$-3P$_{\top}$ race.each.other-DEC$_{\top}$-3P
(*elaboration* of $\top$) (*at-issue fact* abt $\top$)

Yesterday the school kids$^{\top}$ had a dogsled race.

ii. Ole-p ikinnguta-a ajugaa-ga-mi nuannaar-pu-q.
[Ole-ERG$^{\bot}$ friend-3S$_{\bot}$]$^{\top}$ win-FCT$_{\top}$-3S$_{\top}$ happy-DEC$_{\top}$-3S
(*not-a.i. fact* abt $\top$) (*at-issue fact* abt $\top$)

Ole$^{\bot}$'s friend$^{\top}$ won, so he$_{\top}$ (= friend) was happy.

ii'. Ole-p ikinngun-ni ajugaa-mm-at nuannaar-pu-q.
[Ole-ERG$^{\top}$ friend-3S$_{\top}$]$^{\bot}$ win-FCT$_{\bot}$-3S$_{\bot}$ happy-DEC$_{\top}$-3S
(*not-a.i. fact* abt $\bot$) (*at-issue fact* abt $\top$)

Ole$^{\top}$'s friend$^{\bot}$ won, so he$_{\top}$ (= Ole) was happy.

Kalaallisut: Indexicals as 'inherent topics'

Observation 1

In dependent clauses, $3_{\top}$ or $3_{\bot}$ subjects select $\top$-moods or $\bot$-moods, respectively (see (1ii, ii')), whereas *indexical subjects* (1st, 2nd person) always select $\top$-moods (see (2)).

e.g.

CONTEXT: Yesterday the school kids$^{\top}$ had a dogsled race.

(2) a. Ajugaa-**ga**-ma nuannaar-**pu**-nga. — ditto for HYP/HAB-
win-**FCT**$_{\top}$-1S happy-DEC$_{\top}$-1S -1/2
I won, so I was happy.

b. Ajugaa-**ga**-ma Ole nuannaar-**pu**-q. — ditto for HYP/HAB-
win-**FCT**$_{\top}$-1S Ole$^{\top}$ happy-DEC$_{\top}$-3S -1/2
I won, so Ole$^{\top}$ was happy.

c.* Ajugaa-**mm**-ma … — ditto for HYP/HAB-
win-**FCT**$_{\bot}$-1S -1/2

Kalaallisut: Indexicals as 'inherent topics'

Observation 2

In dependent transitives, *anaphoric arguments* (3rd person) compete for ⊤-status, whereas …

e.g.

CONTEXT: Yesterday the school kids$^{\top}$ had a dogsled race.

(3) a. Aka-p Bo ajugaa-vvigi-ga-mi-uk nuannaar-pu-q. ditto for HYP/HAB-
Aka-ERG$^{\top}$ Bo$^{\perp}$ win-tv-FCT$_{\top}$-3S$_{\top}$-3S$_{\perp}$ happy-DEC$_{\top}$-3S
Aka$^{\top}$ beat Bo$^{\perp}$, so he$_{\top}$ (= Aka) was happy.

b. Bo Aka-p ajugaa-vvigi-mm-a-ni nuannaar-nngit-la-q. ditto for HYP/HAB-
Bo$^{\top}$ Aka-ERG$^{\perp}$ win-tv-FCT$_{\perp}$-3S$_{\perp}$-3S$_{\top}$ happy-not-DEC$_{\top}$-3S
Aka$^{\perp}$ beat Bo$^{\top}$, so he$_{\top}$ (= Bo) wasn't happy.

c.* … ajugaa-vvigi-ga-mi-ni … ditto for HYP/HAB-
win-tv-FCT$_{\top}$-3S$_{\top}$-3S$_{\top}$

Kalaallisut: Indexicals as 'inherent topics'

Observation 2

… indexical arguments (1st, 2nd person) do not compete for ⊤-status.

e.g. compare *(3c) v. ✓(4), (4')

CONTEXT: Yesterday the school kids$^{\top}$ had a dogsled race.

(3) c.* … ajugaa-vvigi-**ga**-**mi**-**ni** … ditto for HYP/HAB-
win-tv-FCT$_{\top}$-3S$_{\top}$-3S$_{\top}$

(4) Aka ajugaa-vvigi-**ga**-n-**ni** nuannaar-nngit-la-q. ditto for HYP/HAB-
Aka$^{\top}$ win-tv-**FCT**$_{\top}$-1S-3S$_{\top}$ happy-not-DEC$_{\top}$-3S -1/2
I defeated Aka$^{\top}$, so he$_{\top}$ (= Aka) wasn't happy.

(4') Ajugaa-vvigi-**ga**-kkit nuannaar-nngit-la-tit. ditto for HYP/HAB-
win-tv-**FCT**$_{\top}$-1S.2S happy-not-DEC$_{\top}$-2S -1/2
I defeated you, so you aren't happy.

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Simple Update with Centering (UC_0)

Update semantics (Veltman 1990/1996):

"You know the meaning of a sentence if you know the change it brings about in the information state of anyone who accepts the news conveyed by it."

Centering-based anaphora (Bittner 2001ff; cf. Grosz et al 1995, Dekker 1994)

update keeps track of ranked dref entities in the center and background of attention

- *entity-level* anaphoric terms: $\top$ (ctr), $\top'$ (2^{nd} ctr), $\bot$ (bck), $\bot'$ (2^{nd} bck)
- *set-level* anaphoric terms: $\top^{\Rightarrow}$ (ctr set), $\bot^{\Rightarrow}$ (bck set)

central drefs — backgr. drefs

$\langle \quad \langle a_1, a_2, \ldots, a_n \rangle, \quad \langle b_1, b_2, \ldots, b_m \rangle \quad \rangle$ *structured list*

$\top \quad \top' \qquad \bot \quad \bot'$

$\top^{\Rightarrow} \qquad \bot^{\Rightarrow}$

Info-state (about current dref entities & current ranking) is a set of structured lists

- *minimal* info-state (no drefs) $\{\langle\langle\rangle, \langle\rangle\rangle\}$
- *absurd* info-state (e.g. false discourse) $\varnothing$

Kalaallisut $3_{\top}$ v. $3_{\bot}$ in UC_0: (1ii)

Sample **model**, $\mathcal{M}$:

$[\![ole]\!] = ☺$

$[\![win]\!] = \{☻\}$

$[\![friend]\!] = \{\langle ☻, ☺\rangle, \langle ☹, ☺\rangle, \langle ☺, ☹\rangle\}$

$[\![happy]\!] = \{☻\}$

Updates of minimal info-state c_0 (no relevant drefs) by **(1ii)** on $\mathcal{M}$:

c_0

$\langle\langle\rangle, \langle\rangle\rangle$

(1ii) Ole$^{\bot}$'s friend$^{\top}$ won, so he$_{\top}$ (= friend) was happy.

[Ole-ERG$^{\bot}$	friend-3S$_{\bot}$]$^{\top}$	win-FCT$_{\top}$-3S$_{\top}$	happy-DEC$_{\top}$-3S
$[x \mid x = ole]$;	$^{\top}[x \mid friend\langle x, \bot\rangle]$;	$[win\langle\top\rangle]$;	$[happy\langle\top\rangle]$
c_1	c_2	c_3	c_4
$\langle\langle\rangle, \langle ☺\rangle\rangle$	$\langle\langle ☻\rangle, \langle ☺\rangle\rangle$	$\langle\langle ☻\rangle, \langle ☺\rangle\rangle$	$\langle\langle ☻\rangle, \langle ☺\rangle\rangle$
	$\langle\langle ☹\rangle, \langle ☺\rangle\rangle$		

$c_4 \neq \emptyset$,

so (1ii) is **true** in c_0 on $\mathcal{M}$

Kalaallisut $3_{\top}$ v. $3_{\bot}$ in UC_0: (1ii')

Same **model**, $\mathcal{M}$:

$[\![ole]\!]$ = ☺

$[\![friend]\!]$ = {⟨☻, ☺⟩, ⟨☹, ☺⟩, ⟨☺, ☹⟩}

$[\![win]\!]$ = {☻}

$[\![happy]\!]$ = {☻}

Updates of same input c_0 (no relevant drefs) by (1ii') on $\mathcal{M}$:

c_0

⟨⟨⟩, ⟨⟩⟩

(1ii') Ole$^{\top}$'s friend$^{\bot}$ won, so he$_{\top}$ (= Ole) was happy.

[Ole-ERG$^{\top}$	friend-3S$_{\top}$]$^{\bot}$	win-FCT$_{\bot}$-3S$_{\bot}$	happy-DEC$_{\top}$-3S
$^{\top}[x \mid x = ole]$;	$[x \mid friend.of\langle x, \top\rangle]$;	$[win\langle\bot\rangle]$;	$[happy\langle\top\rangle]$
c'_1	c'_2	c'_3	c'_4
⟨⟨☺⟩, ⟨⟩⟩	⟨⟨☺⟩, ⟨☻⟩⟩	⟨⟨☺⟩, ⟨☻⟩⟩	∅
	⟨⟨☺⟩, ⟨☹⟩⟩		

$c'_4 = \emptyset$,

so (1ii') is **false** in c_0 on $\mathcal{M}$

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UC_0 with eventuality drefs (UC_ε)

Typed dref entities (see Bittner 2001ff)

type:	δ	ε	σ
dref entity:	x (individual)	e (event)	s (state)
UC *variable*:	x	e	s

Centering-based anaphora (see Bittner 2001ff), e.g.

ctr. of attn. bckg. of attn.

$\langle\langle s_1, x_1, e_0\rangle, \langle e_2, e_1, s_2\rangle\rangle$ *dref hierarchy*

$\top\sigma$ $\top\delta$ $\top\varepsilon$ $\bot\varepsilon$ $\bot'\varepsilon$ $\bot\sigma$ *typed anaphors*

Reference to functionally dependent entities (á la Moens & Steedman 1988)

Introducing a dref entity licenses discourse reference to certain *ƒ-values*, e.g.:

ϑe	*time* of event e	ϑs	*time* of state s
$\triangleright$e	*consequent state* of event e	($\triangleright$s	undefined)
$\uparrow$e	*central individual* in event e	$\uparrow$s	*central individual* in state s
$\downarrow$e	*background individual* in event e	$\downarrow$s	*background individual* in state s

Minimal info-state in UC_{ε}

Start-up update (Bittner 2011)

Speaking up (e_0) focuses attention, giving rise to (e_0-)*minimal info-state*:

$\{\langle\langle e_0\rangle, \langle\rangle\rangle\}$

cf. *commonplace effect* of speech acts (Stalnaker 1978, p. 323; MB *emphasis*):

"… when I speak, I presuppose that others know I am speaking […]. This fact, too, can be exploited in the conversation, as when Daniels says **I am bald**, taking it for granted that his audience can figure out who is being said to be bald. I mention this *commonplace* way that assertions change the context in order to make clear that the context on which an assertion has its *essential effect* is not defined by what is presupposed before the speaker begins to speak, but will include any information which the speaker assumes his audience can infer from the performance of the speech act."

English indexicals in UC_ε

Basic ideas (Bittner 2007)

Indexicals refer to f-values of *central view point* (discourse initially, value of $\top\varepsilon$):

1S refers to $\top\varepsilon$-speaker ($\uparrow\top\varepsilon$), 2S to $\top\varepsilon$-addressee ($\downarrow\top\varepsilon$), PRS to $\top\varepsilon$-time ($\vartheta\top\varepsilon$), …

e.g. c_0

$\langle\langle e_0\rangle, \langle\rangle\rangle$ e_0-speaker speaks up

(5) I am hungry.
1S be.PRS hungry.
$[s|\ \vartheta\top\varepsilon \subseteq \vartheta s, \mathit{hungry}\langle s, \uparrow\top\varepsilon\rangle]$

c_1

$\langle\langle e_0\rangle, \langle s_1\rangle\rangle$

Model for (5)

Dref entity	*Symbol*: *Conditions*
•	$^\top e_0$: e_0-speaker ($\uparrow e_0$) speaks up
———	s_1 : s_1-time includes e_0-time ($\vartheta e_0 \subseteq \vartheta s_1$),
	s_1 is a state of e_0-speaker ($\uparrow e_0$) being hungry

View point shifts by direct quotes

Basic idea (Bittner 2007)

Opening quote "… shifts central view point to quoted speech event

Closing quote …" restores just demoted central view point

e.g. c_0

$\langle\langle e_0\rangle, \langle\rangle\rangle$ e_0-speaker speaks up

(6) You said to me:

2S say.PST to 1S

$[e|\ \vartheta e < \vartheta \top\varepsilon, speak.to\langle e, \downarrow\top\varepsilon, \uparrow\top\varepsilon\rangle, \ldots]$; (ignoring modal reference)

c_1

$\langle\langle e_0\rangle, \langle e_1\rangle\rangle$

"	I am hungry.	"
	1S be.PRS hungry.	
$^{\top}[e\|\ e = \bot\varepsilon]$;	$[s\|\ \vartheta\top\varepsilon \subseteq \vartheta s, hungry\langle s, \uparrow\top\varepsilon\rangle]$;	$^{\top}[e\|\ e = \top'\varepsilon]$
c_2	c_3	c_4
$\langle\langle e_1, e_0\rangle, \langle e_1\rangle\rangle$	$\langle\langle e_1, e_0\rangle, \langle s_2, e_1\rangle\rangle$	$\langle\langle e_0, e_1, e_0\rangle, \langle s_2, e_1\rangle\rangle$

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Observation 1 explained: Anaphora

Observation 1

In dependent clauses, $3_{\top}$ or $3_{\bot}$ subjects select $\top$- or $\bot$-moods, respectively, …

Explanation

- ❑ dependent mood introduces a topic state for comment by matrix clause
- ❑ topic state is related by $\top$-mood to $\top$-subject (1'a), or $\bot$-mood, to $\bot$-subject (1'b)

e.g.

(1') a. Aka$^{\top}$ won, so$^{\top}$ (topic state: consequent state of Aka) …

Aka$^{\top}$	win-FCT$_{\top}$-3S$_{\top}$	…
$^{\top}[x \mid x = aka]$;	$[e \mid win\langle e, \top\delta\rangle, e < \top\varepsilon]$;	$^{\top}[s \mid s = {}^{\triangleright}\bot\varepsilon]$; …
$\langle\langle$ ☺, e$_0\rangle, \langle\rangle\rangle$	$\langle\langle$ ☺, e$_0\rangle, \langle$e$_1\rangle\rangle$	$\langle\langle$s$_1$, ☺, e$_0\rangle, \langle$e$_1\rangle\rangle$

b. Aka$^{\bot}$ won, so$^{\top}$ (topic state: subsequent state of non-Aka) …

Aka$^{\bot}$	win-FCT$_{\bot}$-3S$_{\bot}$	…
$[x \mid x = aka]$;	$[e \mid win\langle e, \bot\delta\rangle, e < \top\varepsilon]$;	$^{\top}[s \mid s =_g {}^{\triangleright}\bot\varepsilon, \uparrow s \neq \bot\delta]$; …
$\langle\langle$e$_0\rangle, \langle$ ☺ $\rangle\rangle$	$\langle\langle$e$_0\rangle, \langle$e$_1$, ☺ $\rangle\rangle$	$\langle\langle$s$_1$, e$_0\rangle, \langle$e$_1$, ☺ $\rangle\rangle$

Observation 1 explained: Indexicality

Observation 1

… whereas *indexical subjects* (1st, 2nd person) always select $\top$-moods.

Explanation. centering parallel: indexical subject ($f\top\varepsilon$) ~ $3_\top$ subject ($\top\delta$)

e.g.

(2') a. I won, so$^\top$ (topic state: consequent state of $\uparrow\top\varepsilon$) (I was happy)

win-**FCT**$_\top$-1s

$[e|\ win\langle e, \uparrow\top\varepsilon\rangle, e < \top\varepsilon]$; $^\top[s|\ s = {}^\triangleright\bot\varepsilon]$; …

$\langle\langle e_0\rangle, \langle e_1\rangle\rangle$ $\langle\langle s_1, e_0\rangle, \langle e_1\rangle\rangle$

b. I won, so$^\top$ (topic state: subsequent state) (Ole$^\top$ was happy)

win-**FCT**$_\top$-1s

$[e|\ win\langle e, \uparrow\top\varepsilon\rangle, e < \top\varepsilon]$; $^\top[s|\ s =_g {}^\triangleright\bot\varepsilon]$; …

$\langle\langle e_0\rangle, \langle e_1\rangle\rangle$ $\langle\langle s_1, e_0\rangle, \langle e_1\rangle\rangle$

c.* win-**FCT**$_\bot$-1s … (* because there is no indexical $\bot$-subject)

Observation 2 explained: Anaphora

Observation 2

In dependent transitives, *anaphoric arguments* compete for ⊤-status, whereas …

Explanation.

- ❑ Kalaallisut transitives require *disjoint arguments,* e.g. **[$\bot\delta \neq \top\delta$]** in (3'b)
- ❑ this requirement is absurd if the arguments co-refer, e.g. **[$\top\delta \neq \top\delta$]** in *(3'c)

(3') b. Aka$^{\bot}$ beat Bo$^{\top}$, so$^{\top}$ …

Bo$^{\top}$	Aka-ERG$^{\bot}$	win-tv-FCT$_{\bot}$-3S$_{\bot}$-3S$_{\top}$
$^{\top}[x \mid x = bo]$;	$[x \mid x = aka]$;	$[\bot\delta \neq \top\delta]$; $[e \mid beat\langle e, \top\delta, \bot\delta\rangle, e < \top\varepsilon]$; $^{\top}[s \mid \ldots]$
	$\langle\langle b, e_0\rangle, \langle a\rangle\rangle$	$\langle\langle b, e_0\rangle, \langle e_1, a\rangle\rangle$

c. *win-tv-FCT$_{\top}$-3S$_{\top}$-3S$_{\top}$

$[\top\delta \neq \top\delta]$; $[e \mid beat\langle e, \top\delta, \top\delta\rangle, e < \top\varepsilon]$; $^{\top}[s \mid \ldots]$

Observation 2 explained: Indexicality

Observation 2

… whereas *indexical arguments* do not compete for ⊤-status.

Explanation.

- ❑ disjointness not absurd for *indexical* and *3*$_{\top}$ arguments, e.g. [↑⊤$\varepsilon \neq$ ⊤δ] in (4'a)
- ❑ disjointness not absurd for *different indexical* arguments, e.g. [↑⊤$\varepsilon \neq$ ↓⊤ε] in (4'b)

(4') a. I beat Bo$^{\top}$, so$^{\top}$ …

Bo$^{\top}$	win-tv-FCT$_{\top}$-**1S**-**3S**$_{\top}$	…
$^{\top}[x \mid x = bo]$;	**[↑⊤$\varepsilon \neq$ ⊤δ]**; $[e \mid beat\langle e, \uparrow\top\varepsilon, \top\delta\rangle, e < \top\varepsilon]$; $^{\top}[s \mid \ldots]$	
⟨⟨b, e_0⟩, ⟨⟩⟩	⟨⟨b, e_0⟩, ⟨e_1⟩⟩	

b. I beat you, so$^{\top}$ …

win-tv-FCT$_{\top}$-**1S.2S**

[↑⊤$\varepsilon \neq$ ↓⊤ε]; $[e \mid beat\langle e, \uparrow\top\varepsilon, \downarrow\top\varepsilon\rangle, e < \top\varepsilon]$; $^{\top}[s \mid \ldots]$

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Commonplace effect for attitude states

- Recall *commonplace effect* of **speech acts** (Stalnaker 1978, p. 323):

  "… when I speak, I presuppose that others know I am speaking […]. This fact, too, can be exploited in the conversation, as when Daniels says **I am bald**, taking it for granted that his audience can figure out who is being said to be bald."

- Extend this idea to **attitude states** (Bittner 2007; cf. Lewis 1979)

  When I (consciously) believe or want something, I am aware of being in this attitudinal state. This fact, too, can be used to characterize the propositional object of my attitude. For example, if I want to win, I am in a state of desire that will be satisfied if and when the experiencer of this mental state wins. I can be aware of having this *de se* desire, even if I suffer from amnesia and don't know who I am. All I need to be aware of is the attitudinal state itself.

Slavey attitudes: Overview

Rice (1986) on Slavey (Northern Athapaskan)

- In complements of certain attitude verbs, certain *person inflections* may take the perspective of the *subject* (attitude holder) instead of the *speaker*.
- Indexical adverbs (e.g. ‘today’, ‘tomorrow’) never shift
- The attitude verb determines which persons, if any, may shift, e.g.

NO-SHIFT:	**-egodįhshǫ** ‘know’	***always***: speaker’s 1, 2, 3
IV-SHIFT:	**yenįwę** ‘want’	✓: *subject’s* (i.e. attitude holder’s) *1*, *3*, but ***always*** speaker’s 2
TV-SHIFT:	**-udeli** ‘want’	✓: *subject’s* (i.e. attitude holder’s) *1*, *3*, but ***always*** speaker’s 2 matrix <u>object</u> = complement <u>arg</u>

Slavey attitudes: NO-SHIFT v. IV-SHIFT

All Slavey examples from Rice (1986)

(7) **John ʔerákieʔǐe wihsį gú kodihshǫ.** NO-SHIFT
John [parka 1S.make C] 3S.know
John knows that I made a parka. (speaker's '1S')

(8) a. **hı̨dowedzíné k'e rírawohjá yenı̨wę.** IV-SHIFT
[tomorrow on *1S*.OPT.return] 3S.want
He wants to (*subject's '1S'*) return tomorrow (speaker's 'tomorrow')

b. **bets'ę ráwǫdí yenı̨wę.**
[*3S*.to 2S.OPT.help] 3S.want
He wants you (speaker's '2S') to help *me/her* (*subject's '3S'*)

Slavey attitudes: IV-SHIFT v. TV-SHIFT

(8) b. bets'ę ráwǫdí **yenįwę**. IV-SHIFT
[*3S*.to 2S.OPT.help] 3S.want
He wants you (speaker's '2S') to help *me/her* (*subject's* '*3S*')

(9) (underlined arguments co-refer) TV-SHIFT

a. sets'ę ráwǫdi **sudeli**.
[*1S*.to *3S*.OPT.help] 3S.want.1S
He wants me (speaker's 1S = *subject's* '*3S*') to help him (*subject's* '*1S*')

b. bets'ę ráwǫdí **sudeli**.
[*3S*.to 2S.OPT.help] 3S.want.1S
He wants you (speaker's '2S') to help me (speaker's 1S = *subject's* '*3S*')

Slavey attitudes: View point updates

- **Slavey pronouns** are anchored to the *top-ranked view point dref* (either the current speech event $\top\varepsilon$, or the currently central attitude state $\top\sigma$) for which their function is defined (i.e. function $\uparrow(\cdot)$ for 1st and 3rd person, $\downarrow(\cdot)$ for 2nd person)
- **indexical-shifting attitude verbs** optionally update the top perspectival dref to their own attitude state ⇒ *complement* 1st and 3rd are anchored to $\uparrow\top\sigma$ (attitude holder's 1st or 3rd, as in (8)–(9))
- attitude states have **no addressee** ⇒ $\downarrow\top\sigma$ undefined ⇒ *complement* 2nd refers to $\downarrow\top\varepsilon$ (speaker's 2nd, i.e. addressee, as in (8b), (9b))
- **tv-shift attitudes** are *de re*, i.e. relate *attitude holder* ($\uparrow\top\sigma$) to object *res,*

  e.g. in (9a, b), matrix object 1S (speaker)

  = complement 3S (attitude holder's *res*: *'her'*)

Outline

- Anaphora & indexicality: Kalaallisut puzzle
- Anaphoric reference to top entities (UC_0)
- Indexical reference to top view points (UC_ε)
- Puzzle solved: Indexicals as 'inherent topics'
- Attitude states as top view points: Slavey data
- Conclusion

5 Conclusion

- Cross-linguistic evidence favors the **dynamic view of indexicality**. Just like anaphora, indexical reference involves not only *context dependence* (on the input dref hierarchy), but also *context change* (setting up that hierarchy). For *indexicals*, the relevant dref is normally introduced simply by the act of speaking up; for anaphors, it is introduced by the antecedent expression.
- In *Kalaallisut*, the dynamic view explains parallels drawn by **nominal centering** between indexical reference (to 1st or 2nd persons) and topic-oriented anaphora (to topical 3rd person, $3_{\top}$)
- In *Slavey*, **perspective-shifting attitude verbs** suggest that, not only speech events, but also attitude states can serve as *perspectival drefs* for indexicals.
- **Running theme**: Evidence from under-studied languages may substantially change our view of much studied phenomena (such as *nominal anaphora*, *indexicality*, …)

Tomorrow: Temporality

- **Basic ideas**
  - Cross-linguistic evidence shows that temporal reference involves grammatical centering systems that update or refer to top-level temporal drefs (e.g. topic times in tense-based *English*; topic states in aspect-based *Mandarin*; background events in both)
  - Logical representation in UC_0 extended with *temporal drefs* (events, states, times) and *aspectual algebra* (UC_τ)

- **Suggested readings**
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