INDIVIDUALS AND POSSIBILITIES (3):
Notes on issues raised by Stone & Hardt (1997)

Maria Bittner
Rutgers & IMS

- **Two levels of prominence**: For every type, need two tiers of discourse referents, *central* vs. *peripheral*.
- **Two levels of abstractness**: The concepts stored as discourse referents can be either *static* or *dynamic*

2. DYNAMIC PROMINENCE HIERARCHY OF REFERENTS IN DISCOURSE

(1) [a] Yesterday, Juuna^{u1*} went hunting^{e1} by boat^{u5} together with Kaali^{u2} and [his$_{\{*,\ u2\}}$ son]^{u3}.
[b] It$_{e1}$ was great fun. [c] He$_{*}$ steered the boat$_{u5}$ all alone. [d] Suddenly the waves got high.
[e] But Kaali$_{u2}$ had confidence in him$_{*}$, so he$_{\{*,\ u2,\ ?u3\}}$ stayed calm.
[e′] But he$_{*}$ had confidence in Kaali$_{u2}$, so he$_{\{*,\ u2,\ ?u3\}}$ stayed calm.
[e″] But [his$_{*}$ friend]$_{u3}$ had confidence in Kaali$_{u2}$, so he$_{\{*,\ u2,\ u3\}}$ stayed calm.

(*) In *Eskimo*, dref's are introduced as **central** or *peripheral*, and then promoted or demoted, by case and AGR:

- Intransitive array: NOM_n (OBL) V-MOOD-AGR_n
  [by default] [*peripheral*]
- Transitive array: ERG_m NOM_n (OBL) V-MOOD-AGR_m-AGR_n
  [by default] [**central**] [*peripheral*]
- Two forms of AGR: **i**-form for **central** dref (= current center or just promoted)
  a/*u*-form for *peripheral* dref (= current periphery or just demoted)

(1′) [a] Ippassaq Juuna-p Kaali^{u2} irnir-*a*=lu
yesterday Juuna-ERG^{u1*} [Kaali^{u2} [son-3SG$_{u2}$]^{u3}]=and^{u4}
[*r*: u_1, u_0| u_1 = *juuna*, u_0 = u_1]; [*r*: u_2 = *kaali*]; [*r*: u_3| *son-of*$_r${u_3, u_2}]; [*r*: u_4| u_4 = u_2 + u_3];

(2) umiatsia-mik (1) angala-qatig-a-i
[$_{\text{VP}}$ boat^{u5}-INS$_{e1}$ go.hunting^{e1}-together.with-FCT$_r$-3SG$_*$.3PL$_{u4}$]
(1)[*r*: e_1| *go-hunting-together*$_r${e_1, u_0, u_4}]; (2)[*r*: u_5| *boat*$_r${u_5}, *means*$_r${u_5, e_1}]

[b] _ nuanni-qa-u-q.
pro$_{e1}$ be.fun-very.much-FCT$_r$-3SG$_{e1}$

[c] _ umiatsiaq (2) namminiq (1) aqqutiralap-pa-a
pro-ERG$_*$ boat$_{u5}$ [$_{\text{VP}}$ alone$_{*,\ e2}$ steer^{e2}-FCT-3SG$_*$.3SG$_{u5}$]
[| *boat*$_r${u_5}]; (1) [*r*: e_2| *steer*$_r${e_2, u_0, u_5}]; (2)[| *alone*$_r${u_0, e_2}]

[d] Tassanngaannaq malillir-pu-q.
suddenly waves.get.high-FCT-3SG

[e] Kaali-p=li _ tatigi-mm-*a*-**ni**, _ iqqissisima-vu-q.
Kaali-ERG$_{u2}$=but pro$_*$ trust-CAUS$^{p1,\ p0*}$-3SG$_{u2}$.3SG$_*$ pro$_*$ stay.calm-FCT$_*$-3SG$_*$
[| u_2 = *kaali*]; [*r*: p_1, p_0| *because*$_r$(p_1, p_0), *trust*$_{p1}${u_2, u_0}]; [| *stay-calm*$_{p0}${u_0}]

Kaali-p=li _ tatigi-ga-**mi**-*uk*, _ iqqissisima-vu-q.
Kaali-ERG$_{u2*}$=but pro$_{u1}$ trust-CAUS$^{p1,\ p0*}$-3SG$_*$.3SG$_{u1}$ pro$_*$ stay.calm-FCT$_*$-3SG$_*$
[*r*: u_0| u_2 = *kaali*, u_0 = u_1]; [*r*: p_1, p_0| *because*$_r$(p_1, p_0), *trust*$_{p1}${u_0, u_1}]; [| *stay-calm*$_{p0}${u_0}]

[e′] _ Kaali=li tatigi-mm-*a*-**ni**, _ iqqissisima-vu-q.
pro$_{u1}$ Kaali$_{u2*}$=but trust-CAUS$^{p1,\ p0*}$-3SG$_{u1}$.3SG$_*$ pro$_*$ stay.calm-FCT$_*$-3SG$_*$
[*r*: u_0| u_2 = *kaali*, u_0 = u_1]; [*r*: p_1, p_0| *because*$_r$(p_1, p_0), *trust*$_{p1}${u_1, u_0}]; [| *stay-calm*$_{p0}${u_0}]

_ Kaali=li tatigi-ga-**mi**-*uk*, _ iqqissisima-vu-q.
pro$_*$ Kaali$_{u2}$=but trust-CAUS$^{p1,\ p0*}$-3SG$_*$.3SG$_{u2}$ pro$_*$ stay.calm-FCT$_*$-3SG$_*$
[| u_2 = *kaali*]; [*r*: p_1, p_0| *because*$_r$(p_1, p_0), *trust*$_{p1}${u_0, u_2}]; [| *stay-calm*$_{p0}${u_0}]

[e″] ikinngum-**mi**=li Kaali tatigi-mm-*a*-*gu*, _ iqqissisima-vu-q.
[friend-3SG$_*$.ERG]$_{u3}$=but Kaali$_{u2}$ trust-CAUS$^{p1,\ p0*}$-3SG$_{u3}$.3SG$_{u2}$ pro$_*$ stay.calm-FCT$_*$-3SG$_*$
[| *friend*$_r${u_3, u_0}]; [| u_2 = *kaali*]; [*r*: p_1, p_0| *because*$_r$(p_1, p_0), *trust*$_{p1}${u_3, u_2}]; [| *stay-calm*$_{p0}${u_0}]

2. 'SLOPPY IDENTITY' = ANAPHORA TO DYNAMIC REFERENT + CENTER SHIFT

(2) $C1^{*}\ldots\ [_{XP}\ldots[_{\mathbf{YP}^{*}}\ldots]\ldots]^{\delta}\ \ldots\ C2^{*}\ldots[_{XP'}\ldots]_{\delta}$

(3) *John** spent [**his**$_{*}$ paycheck]$^{\xi 1}$. *Bill** saved [it]$_{\xi 1}$. $[_{NP}\ [_{NP^{*}}\ ]]$

(4) *John** would use slides [if **he**$_{*}$ gave a talk]$^{\omega 1}$. *Bill** [would]$_{\omega 1}$ just use the chalkboard. $[_{MOD}\ [_{NP^{*}}\ ]]$

(5) *if a dog bites you**, I might [_ shoot it]$_{*}^{\omega 1}$. But *if a child bites you** I wo[n't]$_{\omega 1}$. $[_{MOD}\ [_{MOD^{*}}\ ]]$

(6) *Suppose John left**. Then I'd bet \$5 on [the prediction that Sue **would**$_{*}$ have a breakdown]$^{\xi 1}$.
But *if John stayed*, then I'd bet \$100 on [this]$_{\xi 1}$. $[_{NP}\ [_{MOD^{*}}\ ]]$

[Note: The formalization in Stone & Hardt 1997 seems unnecessarily complex. What follows is an attempt to simplify their formalism while preserving the intuitive idea of their explanation, and their empirical results.]

(3′) John^{u1*} $[_{VP}$ spent [his$_{*}$ paycheck]$^{\xi 1}$].

(1) $[r\colon u_1, \xi_0 \mid u_1 = john, \xi_0 \equiv u_1]$; (2) $[r\colon \xi_1 \mid \xi_1 \equiv paycheck_r\{\xi_0\}]$; (2?) $[\ \mid spend_r\{\xi_0, \xi_1\}]$

	i	j_1	j_2
r	$\lambda w \in K.K$	→	→
u_1	?	$\lambda w.john$	→
u_2	?	?	?
ξ_0	?	$\lambda hw.john$	→
ξ_1	?	?	$\lambda hw.paycheck_w(\xi_0\ hw)$

(2?) tests whether j_2 satisfies:

$\forall w'(\exists w(w' \in r^{\circ} j_2 w) \rightarrow spend_w(\xi_0 j_2 w', \xi_1 j_2 w'))$
$= \forall w'(w' \in K \rightarrow spend_{w'}(\xi_0 j_2 w', paycheck_w(\xi_0 j_2 w')))$
$= \forall w'(w' \in K \rightarrow spend_{w'}(john, paycheck_{w'}(john)))$

Bill^{u2*} $[_{VP}$ saved it$_{\xi 1}$].

(3) $[r\colon u_2, \xi_0 \mid u_2 = bill, \xi_0 \equiv u_2]$; (3?) $[\ \mid save_r\{\xi_0, \xi_1\}]$

	j_2	j_3
r	$\lambda w \in K.K$	→
u_1	$\lambda w.john$	→
u_2	?	$\lambda w.bill$
ξ_0	$\lambda hw.john$	$\lambda hw.bill$
ξ_1	$\lambda hw.paycheck_w(\xi_0\ hw)$	→

(3?) tests whether j_3 satisfies:

$\forall w'(\exists w(w' \in r^{\circ} j_3 w) \rightarrow save_{w'}(\xi_0 j_3 w', \xi_1 j_3 w'))$
$= \forall w'(w' \in K \rightarrow spend_{w'}(\xi_0 j_3 w', paycheck_w(\xi_0 j_3 w')))$
$= \forall w'(w' \in K \rightarrow spend_{w'}(bill, paycheck_{w'}(bill)))$

(4′) John^{u1*} [$_{VP}$ would$_{\omega 1}$ use slides [if he$_*$ gave a talk]$^{\omega 1}$].

(1) $[r: u_1, \xi_0 \mid u_1 = john, \xi_0 \equiv u_1]$; (2) **if**$(r, \omega_1, [\mid give\text{-}talk_{\omega 1}\{\xi_0\}])$; (2?) $[\mid use\text{-}slides_{\omega 1}\{\xi_0\}]$

	i	j_1	j_2
r	$\lambda w \in K.K$	→	→
u_1	?	$\lambda w.john$	→
u_2	?	?	?
ξ_0	?	$\lambda hw.john$	→
ω_1	?	?	$\lambda h \lambda w \in K.\min_w(\lambda w''.give\text{-}talk_w(\xi_0\, hw''))$

(2?) tests whether j_2 satisfies:

$\forall w'(\exists w(w' \in \omega_1 j_2 w) \rightarrow use\text{-}slides_w(\xi_0 j_2 w'))$
$= \forall w(w \in K \rightarrow \forall w'(w' \in \min_w(\lambda w''.give\text{-}talk_w(\xi_0 j_2 w'')) \rightarrow use\text{-}slides_w(\xi_0 j_2 w')))$
$= \forall w(w \in K \rightarrow \forall w'(w' \in \min_w(\lambda w''.give\text{-}talk_w(john)) \rightarrow use\text{-}slides_w(john)))$

Bill^{u2*} [$_{VP}$ would$_{\omega 1}$ use the chalkboard].

(3) $[r: u_2, \xi_0 \mid u_2 = bill, \xi_0 \equiv u_2]$; (3?) $[\mid use\text{-}chalkboard_{\omega 1}\{\xi_0\}]$

	j_2	j_3
r	$\lambda w \in K.K$	→
u_1	$\lambda w.john$	→
u_2	?	$\lambda w.bill$
ξ_0	$\lambda hw.john$	$\lambda hw.bill$
ξ_1	$\lambda h \lambda w \in K.\min_w(\lambda w''.give\text{-}talk_w(\xi_0\, hw''))$	→

(3?) tests whether j_3 satisfies:

$\forall w'(\exists w(w' \in \omega_1 j_3 w) \rightarrow use\text{-}slides_w(\xi_0 j_3 w'))$
$= \forall w(w \in K \rightarrow \forall w'(w' \in \min_w(\lambda w''.give\text{-}talk_w(\xi_0 j_3 w'')) \rightarrow use\text{-}chalkboard_w(\xi_0 j_3 w')))$
$= \forall w(w \in K \rightarrow \forall w'(w' \in \min_w(\lambda w''.give\text{-}talk_w(bill)) \rightarrow use\text{-}chalkboard_w(bill)))$

(5′) [If a dog^{u1*} bites you]^{p1*}

(1) **if**(r, p_1, [p_1: u_1| $dog_{p1}\{u_1\}$, $bite_{p1}\{u_1, you\}$]); (2) [r: ξ_0, ω_0| $\xi_0 \equiv u_1$, $\omega_0 = p_1$];

I might$_{\omega 0,\omega 1}$ [_ shoot it$_{\xi 0}$]$_{\omega 0}{}^{\omega 1}$

(3) **if**(ω_0, ω_1, [| $shoot_{\omega 1}\{me, \xi_0\}$]); (3?) [| **poss**$_{\}, \_}(\omega_0, \omega_1)$]

Assuming (5) is said by John to Bill:

	i	j_1	j_2	j_3
me	$\lambda w.john$	→	→	→
you	$\lambda w.bill$	→	→	→
r	$\lambda w \in K.K$	→	→	→
u_1	?	$\lambda w.u_1 j_1 w = \lambda w.\mathbf{d}_1 w$ s.t. $(dog_{p1}\{u_1\}, bite_{p1}\{u_1, you\})j_1$	→	→
u_2	?	?	?	?
p_1	?	$\lambda w \in K.\min_{j1,\, w}$ **DB**	→	→
p_2	?	?	?	?
ξ_0	?	?	$\lambda h \lambda w.\mathbf{d}_1 w$	→
ω_0	?	?	$\lambda h \lambda w \in K.\min_{j1,\, w}$ **DB**	→
ω_1	?	?	?	$\lambda h \lambda w' \in \cup_w \omega_0 hw.$ $\min_{h,\, w'} shoot\{me, \xi_0\}$

(3?) tests whether j_3 satisfies the test for **poss**$_{\}, \_}(\omega_0, \omega_1)$, whether $\omega_0 j_3$ is }, –-compatible with $\omega_1 j_3$.

But [if a child^{u2*} bites you]^{p2*}

(4) **if**(r, p_2, [p_2: u_2| $child_{p2}\{u_2\}$, $bite_{p2}\{u_2, you\}$]); (5) [r: ξ_0, ω_0| $\xi_0 \equiv u_2$, $\omega_0 = p_2$];

I won't$_{\omega 0,\, \omega 1}$

(5?) [| **not**$_{\}, \_}(\omega_0, \omega_1)$]

	j_3	j_4	j_5
me	$\lambda w.john$	→	→
you	$\lambda w.bill$	→	→
r	$\lambda w \in K.K$	→	→
u_1	$\lambda w.u_1 j_1 w = \lambda w.\mathbf{d}_1 w$ s.t. $(dog_{p1}\{u_1\}, bite_{p1}\{u_1, you\})j_1$	→	→
u_2	?	$\lambda w.u_2 j_4 w = \lambda w.\mathbf{c}_2 w$ s.t. $(child_{p2}\{u_2\}, bite_{p2}\{u_2, you\})j_3$	→
p_1	$\lambda w \in K.\min_{j1,\, w}$ **DB**	→	→
p_2	?	$\lambda w \in K.\min_{j4,\, w}$ **CB**	→
ξ_0	$\lambda h \lambda w.\mathbf{d}_1 w$	→	$\lambda h \lambda w.\mathbf{c}_2 w$
ω_0	$\lambda h \lambda w \in K.\min_{j1,\, w}$ **DB**	→	$\lambda hw \in K.\min_{j4,\, w}$ **CB**
ω_1	$\lambda h \lambda w' \in \cup_w \omega_0 hw.$ $\min_{h,\, w'} shoot\{me, \xi_0\}$	→	→

(5?) tests whether j_5 satisfies the test for **not**$_{\}, \_}(\omega_0, \omega_1)$ — i.e., whether $\omega_0 j_5$ is }, –-inconsisten with $\omega_1 j_5$.