Notes on Bittner (to appear): **Online Update: Quantified *De Se* and Polysynthesis** [1]

1. When composition gets tough: Direct vs. LF

(1) Ataata-ga skakkir-tar-pu-q.
father-1s.sg *play.chess-habit*-IND.IV-3s
My father plays chess.

(2) Ila-an-ni skakkir-a-mi,
part-3p$_{\perp}$.sg-LOC *play.chess*-FCT$_{\top}$-3s$_{\top}$
Once when he played chess, …

a. isumaqa-lir-pu-q: 'Immaqa ajugaa-ssa-u-nga.' *de se* quote
believe-begin-IND.IV-3s *maybe* *win-be.expected*-IND.IV-1s
…it occurred to him: 'I might win.'

b. immaqa ajugaa-ssa-suri-lir-pu-q. ≡ (2a)
maybe *win-be.expected-believe-begin*-IND.IV-3S
…it occurred to him that he might win. [*de se*]

(3) Siurna uqalu-qatigiig-a-kku,
last.year talk-with-FCT$_{\top}$-1s.3s
Last year when I talked with him, …

a. uqar-pu-q: 'Amirlanir-tigut ajugaa-sar-pu-nga.' *de se* quote
say-IND.IV-3s *most*-VIA *win-habit*-IND.IV-1s
…he said: 'I mostly win.'

b. amirlanir-tigut ajugaa-sar-nirar-pu-q. ≡ (3a)
most-VIA *win-habit-say*-IND.IV-3s
…he said that he mostly won. [*de se*]

(4) Aqagua-ni
next.day-LOC
The next day…

a. uqar-ajut-tar-pu-q: 'Ajugaa-sima-vu-nga.' *de se* quote
say-often-habit-IND.IV-3s: *win-prf*-IND.IV-1s
…he often says: 'I won.'

b. ajuagaa-sima-nirar-ajut-tar-pu-q. ≡ (4a)
win-prf-say-often-habit-IND.IV-3S
…he often says that he won. [*de se*]

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[1] *Transcription*: Standard orthography for Kalaallisut (Inuit Eskimo: Greenland) minus the allophonic variants *e*, *o*, *ff* of *i*, *u*, *v*. *Agr*: 3s$_{\top}$ = topical 3s, 3s$_{\perp}$ = background 3s; *Mood*: FCT$_{\top}$ = familiar fact about topical subject, FCT$_{\perp}$ = familiar fact about background subject, GNR = familiar generalization, IND = indicative, IRR = irrealis. *Case*: LOC = locative, MOD = modalis (modifier), VIA = vialis (path).

2. Framework for online update

'If I see, reflected in a window, the image of a man whose pants appear to be on fire, my behavior is sensitive to whether I think, 'His pants are on fire', or 'My pants are on fire', though the object of thought may be the same.' (Kaplan 1990)

TABLE 1. Variables, demonstratives, and logical constants of *Logic of Centering*

Type	Abbr.	Name of objects	⊤Var	⊥Var	⊤Dem	⊥Dem	Con
t		truth values					
ω		worlds	**w**	*w*			
τ		times	**t**	*t*			
π		places	**l**	*l*			
α		animates (or agentive forces)	**a**	*a*			
β		inanimates	**b**	*b*			
σ		states	**s**	*s*			
ε		events	**e**	*e*			
εε		ε-chains (processes)	**ee**	*ee*			
ωε	ə	ε-concepts	$\boldsymbol{\mathcal{E}}$	$\mathcal{E}$			
əə		ε-concept chains	$\boldsymbol{\mathcal{EE}}$	$\mathcal{EE}$			
ενεεν σ	$\underline{\varepsilon}$	eventualities	$\underline{\mathbf{e}}$	$\underline{e}$			
ω*t*	Ω	ω-domains (propositions)	**p**	*p*			
εΩ		ε-dependent propositions	$\mathbf{p}_{\varepsilon}$	p_{ε}			
ωτ*t*	θ	τ-domain concepts	$\boldsymbol{\mathcal{D}}$	$\mathcal{D}$			
ωτν	η^{ν}	ν-habits (ν ∈ {ε, σ, εε})	$\mathbf{h}^{\nu}$	h^{ν}			
ω$\underline{\varepsilon}$ν	κ^{ν}	ν-kinds (ν ∈ {α, β, τ, π})	$\mathbf{k}^{\nu}$	k^{ν}			
⋮	⋮	⋮					
s		stacks (of dref objects)					
ω×s×s	*s*	information-and-attention states		*i*, *j*			
*s*a		a-demonstratives (a, dref type)			$\mathbf{da}_n$	$d\mathsf{a}_n$	
ωσε		state onset					BG
ωεσ		result state					RS
ωεα		agent					AG
ω$\underline{\varepsilon}$α		dative					DA
ω$\underline{\varepsilon}$β		theme object					OB
ω$\underline{\varepsilon}$τ		time					ϑ
ω$\underline{\varepsilon}$π		place					Π
ωασ*t*		stative α-properties					*sleep*, …
ωαε*t*		eventive α-properties					*wake.up*, …
ωα(εε)*t*		process α-properties					*play.chess*, …
ωΩασ*t*		stative report relations					*believe*, …
ωΩαε*t*		eventive report relations					*say*, …
ωΩα(εε)*t*		process report relations					*think*, …
⋮	⋮	⋮					

A1. Core abbreviations for LC.

i. Sequence builder & two projection functions:

$c \cdot \langle c', \ldots\rangle$	:=	$\langle c, c', \ldots\rangle$	(add c)
${}^{n}\langle c_1, \ldots c_n, \ldots\rangle$	:=	c_n	(nth coordinate)
${}^{a}\langle c_1, \ldots c_n\rangle$	:=	$\langle c_1, \ldots, c_n\rangle$ minus all non-a coordinates	(a-coordinates)

ii. Recentering & update:

w_i	:=	${}^{1}i$	(*i-reality*)
$\top_i$	:=	${}^{2}i$	(*top stack* of i)
$\bot_i$	:=	${}^{3}i$	(*bottom stack* of i)
$\mathbf{v} \cdot i$	:=	$\langle w_i, (\mathbf{v} \cdot \top_i), \bot_i\rangle$	($\mathbf{v} \in {}^{\top}\mathrm{Var}$)
$v \cdot i$	:=	$\langle w_i, ¡_i, (v \cdot \bot_i)\rangle$	($v \in {}^{\bot}\mathrm{Var}$)
$[\mathrm{v}_1 \ldots \mathrm{v}_n \mid C]$	:=	$\lambda i \lambda j\, \exists \mathrm{v}_1 \ldots \mathrm{v}_n (j = (\mathrm{v}_1 \cdot \ldots (\mathrm{v}_n \cdot i)) \wedge Ci)$	($\mathrm{v} \in {}^{\top}\mathrm{Var} \cup {}^{\bot}\mathrm{Var}$)

iii. Prominence-guided demonstratives:

$(\mathbf{d}\mathrm{a}_n)_i$	:=	${}^{n+1}({}^{a}\top_i)$	((n+1)st a-object on $\top_i$)
$(d\mathrm{a}_n)_i$	:=	${}^{n+1}({}^{a}\bot_i)$	((n+1)st a-object on $\bot_i$)
$\mathbf{d}\mathrm{a}_i$	:=	$(\mathbf{d}\mathrm{a}_0)_i$	(1st a-object on $\top_i$)
$d\mathrm{a}_i$	:=	$(d\mathrm{a}_0)_i$	(1st a-object on $\bot_i$)

(5) Stalnaker's 'COMMONPLACE EFFECT' of assertion on context

"Now how does an assertion change the context? There are two ways, the second of which, I will suggest, should be an essential component of the analysis of assertion. I will mention the first just to set it aside from the second: The fact that a speaker is speaking... is usually accessible to everyone present. Such observed facts can be expected to change the presumed common background knowledge of the speaker and his audience...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 is for granted that his audience can figure out who is being said to be bald. (Stalnaker 1978:323)

(6) Stalnaker's 'COMMONPLACE EFFECT' as START-UP UPDATE

- input state info & attention: $i_0 = \langle w_0, \langle\,\rangle . \langle\,\rangle\rangle$ (not attending to anything rel.)
- default ω-*topic*: $[\mathbf{w} \mid \mathbf{w} = r]$; $\langle w_0, \langle w_0\rangle, \langle\,\rangle\rangle$

  default ε-*topic*: $[\mathbf{e} \mid \mathbf{e}: \mathrm{AG}\ \mathit{speak.up}_{\mathbf{d}\omega}]$; $\langle w_0, \langle e_0, w_0\rangle, \langle\,\rangle\rangle$
  - $\mathit{speak.up}_{w0}(e_0, \mathrm{AG}_{w0}\ e_0)$

  default τ-*topic*: $[\mathbf{t} \mid \mathbf{t} =_{\mathbf{d}\omega} \vartheta \mathbf{d}\varepsilon]$; $i_0{}^{*} = \langle w_0, \langle t_0, e_0, w_0\rangle, \langle\,\rangle\rangle$
  - $t_0 = \vartheta_{w0}\ e_0$ (in w_0, t_0 is the time of e_0)

(6′) reality ${}^{\top}w_0$:
- • ${}^{\top}e_0$: e_0-speaker begins to speak
- | ${}^{\top}t_0 = \vartheta_{wo}\ e_0$: e_0-time

(7) Stalnaker's 'ESSENTIAL EFFECT' as ONLINE UPDATE

• output of START-UP UPDATE: $i_0^* = \langle w_0, \langle t_0, e_0, w_0\rangle, \langle\,\rangle\rangle$
  • $speak.up_{w0}(e_0, \text{AG}_{w0}\, e_0)$
  • $t_0 = \vartheta_{w0}\, e_0$

• ONLINE UPDATE for *I am bald*

I	$[\mathbf{a}\vert\ \mathbf{a} =_{\mathbf{d}\omega} \text{AG}\ \mathbf{d}\varepsilon]$;	
	$i_{0.1} = \langle w_0, \langle a_1, t_0, e_0, w_0\rangle, \langle\,\rangle\rangle$	
	• $a_1 = \text{AG}_{w0}\, e_0$	(in w_0, a_1 is the e_0-speaker)
am = ***prs***	$^{p}[\vert\ \vartheta\mathbf{d}\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$	$^{\top}\tau\varepsilon$-***presuppositional test***
	test: $\vartheta_{w0}\, e_0 \subseteq t_0$	(in w_0, e_0-now is included in t_0)
be-	$[s\ k^{\alpha}\vert\ \mathbf{d}\alpha =_{\mathbf{d}\omega} k^{\alpha}\{s\}]$	
	$i_{0.2} = \langle w_0, \langle a_1, t_0, e_0, w_0\rangle, \langle\, s_1, k^{\alpha}{}_1\rangle\rangle$	
	• $a_1 = k^{\alpha}{}_1 w_0 s_1$	(in w_0, a_1 instantiates $k^{\alpha}{}_1$ in s_1)
-tns	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma]$;	$^{\top}\omega\tau$-***location test***
	test: $t_0 \subseteq \vartheta_{w0}\, s_1$	(in w_0, s_1 holds at t_0)
bald.	$[\vert\ bald\ d\kappa^{\alpha}]$	
	test: • $\forall w \in \text{Dom}\ k^{\alpha}{}_1 \forall s \in \text{Dom}\ k^{\alpha}{}_1 w$: $be.bald_w(s, k^{\alpha}{}_1 ws)$	

(7′) reality $^{\top}w_0$:	•		$^{\top}e_0$: e_0-speaker begins to speak	$(speak.up_{w0}(e_0, \text{AG}_{w0}\, e_0)$
	|		$^{\top}t_0 = \vartheta_{wo}\, e_0$: e_0-time	
	==		s_1: $^{\top}e_0$-speaker $^{\top}a_1$ is $k^{\alpha}{}_1$-bald	$(a_1 = k^{\alpha}{}_1 w_0 s_1)$

A2. Speech start-up conditions:

• $\mathbf{w} = r$	:= $\lambda i.\ \mathbf{w} = w_i$		(**w** is the *i*-reality)
• $speak.up_{\mathbf{d}\omega}\{\mathbf{e}, \text{AG}\ \mathbf{e}\}$	:= $\lambda i.\ speak.up_{\mathbf{d}\omega i}(\mathbf{e}, \text{AG}_{\mathbf{d}\omega i}\, \mathbf{e})$		(**e** is an *i*-real speech event)
$\mathbf{t} =_{\mathbf{d}\omega} \vartheta\mathbf{d}\varepsilon$	:= $\lambda i.\ \mathbf{t} = \vartheta_{\mathbf{d}\omega i}\, \mathbf{d}\varepsilon_i$		(**t** is the *i*-real **e**-now)

A3. Number and person conditions

• *sg* $\mathbf{d}\alpha$	:= $\lambda i.\ \forall a: a \subseteq \mathbf{d}\alpha_i \rightarrow a = \mathbf{d}\alpha_i$	(**d**α is an atom, no proper parts)
pl $\mathbf{d}\alpha$	:= $\lambda i.\ \neg\ sg\ \mathbf{d}\alpha$	(**d**α is not an atom)
• 1s $\mathbf{d}\alpha$	:= $\lambda i.\ sg\ \mathbf{d}\alpha_i \wedge \text{AG}_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i = \mathbf{d}\alpha_i$	(**d**α is an atom & **d**ε-speaker)
2s $\mathbf{d}\alpha$	:= $\lambda i.\ sg\ \mathbf{d}\alpha_i \wedge \text{DA}_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i = \mathbf{d}\alpha_i$	(**d**α is an atom & **d**ε-addressee)
3s $\mathbf{d}\alpha$	:= $\lambda i.\ sg\ \mathbf{d}\alpha_i \wedge \neg 1\text{s}\ \mathbf{d}\alpha_i \wedge \neg 2\text{s}\ \mathbf{d}\alpha_i$	

A4. Kinds and instances

• $bald\ d\kappa^{\alpha}$	:= $\lambda i.\ \forall w \in d\kappa^{\alpha}{}_i \forall s \in \text{Dom}\ d\kappa^{\alpha}{}_i w$: $be.bald_w(s, d\kappa^{\alpha}{}_i ws)$	
• $\mathbf{d}\alpha =_{\mathbf{d}\omega} k^{\alpha}\{s\}$	:= $\lambda i.\ \mathbf{d}\alpha_i = k^{\alpha}\mathbf{d}\omega_i s$	
$\mathbf{d}\alpha =_{\mathbf{d}\Omega} k^{\alpha}\{s\}$	:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $\mathbf{d}\alpha_i = k^{\alpha} ws$	

3. Kalaallisut episodics online

(*) START-UP UPDATE:

reality $^{\top}w_0$:	•	$^{\top}e_0$: e_0-speaker begins to speak
	|	$^{\top}t_0 = \vartheta_{wo}\, e_0$: e_0-time

(14) a. Anaana-ga sinip-pu-q. *state*
mother-1s.sg *sleep*-IND.IV-3s
My mother is asleep.

b. Anaana-ga itir-pu-q. *event*
mother-1s.sg *wake.up*-IND.IV-3s
My mother has woken up. (She's awake.)

c. Skakkir-pu-gut. *process*
play.chess-IND.IV-1p
We are playing chess.

(14′) reality $^{\top}w_0$:

	•	$^{\top}e_0$: $^{\top}e_0$-speaker begins to speak
	|	$^{\top}t_0 = \vartheta_{wo}\, e_0$: e_0-time
a.	==	s_1: $^{\top}e_0$-speaker's ma $^{\top}a_1$ is asleep
b.	•(==)	e_1, (RS$_{w0}$ e_1): $^{\top}e_0$-speaker's ma wakes up, (is awake)
c.	•••	ee_1: $^{\top}e_0$-speaker & co. play chess

(15) Ullu-mi ataata-ga isir-m-at…
day-LOC *father*-1s.sg *enter*-FCT$_{\perp}$-3s$_{\perp}$
Today when my father came by,…

a. …sinip-pu-nga. *state*
…*sleep*-IND.IV-1s
…I was asleep.

b. …itir-pu-nga. *event*
…*wake.up*-IND.IV-1s
…I woke up.

c. …skakkir-pu-gut. *process*
…*play.chess*-IND.IV-1p
…we played chess.

(15′) reality: $^{\top}w_0$

	•	$^{\top}e_0$: $^{\top}e_0$-speaker begins to speak
	|	$t_0 = \vartheta_{w0}\, e_0$: $^{\top}e_0$-time
	|||||||||||||||||||||	$t_{1.1} \subseteq k^{\tau}{}_1 w_0 e_0$: subinterval of $k^{\tau}{}_0$-day.of $^{\top}e_0$
	•	e_1: $^{\top}e_0$-spkr $^{\top}a_1$'s father a_2 enters ($^{\top}e_0$-here)
	||||	$^{\top}t_{1.2} = \vartheta_{w0}$ RS$_{w0}$ e_1: time of the result state of e_1-entry
a.	=======	s_2: $^{\top}e_0$-speaker $^{\top}a_1$ is asleep
b.	•	e_2: $^{\top}e_0$-speaker $^{\top}a_1$ wakes up
c.	•••	ee_2: $^{\top}(a_1 + ?)$ (*default*: $a_1 + a_2$) play chess

(14a″) My$_{\top}$ mother$_{\bot}$…[2]

mother- -1s.sg (*if*-subject) *if* (inital field)

$[a_\alpha|\ a_\alpha(\alpha)\ \textit{mother.of}\ \alpha]$; $^{P}[a|\ a = \text{AG}_{\mathbf{d}\omega}\ \mathbf{d}\varepsilon,\ sg\ d\alpha\alpha(\mathbf{a})]$; $[\mathbf{a}|\ \mathbf{a} = d\alpha\alpha(d\alpha)]$;

…***is*** asleep. [3]

sleep- *fb* (fin. bound)

$[s|\ s{:}\ \text{DA}\ \textit{sleep}_{\mathbf{d}\omega}]$;

-IND.IV ($\mathbf{d}\omega$-state of $\top$) ($\mathbf{d}\tau$-state) -3s (agr w. $\top$)

$^{P}[|\ \text{BG}\ d\sigma <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \text{DA}\ d\sigma =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma]$; $^{P}[|\ 3s\ \mathbf{d}\alpha]$

(14b″) My$_{\top}$ mother$_{\bot}$…

mother- -1s.sg (*if*-subject) *if*

$[a_\alpha|\ a_\alpha(\alpha)\ \textit{mother.of}\ \alpha]$; $^{P}[a|\ a = \text{AG}_{\mathbf{d}\omega}\ \mathbf{d}\varepsilon,\ sg\ d\alpha\alpha(\mathbf{a})]$; $[\mathbf{a}|\ \mathbf{a} = d\alpha\alpha(d\alpha)]$;

…***has*** woken up. [4]

wake.up- *fb*

$[e|\ e{:}\ \text{DA}\ \textit{wake.up}_{\mathbf{d}\omega}]$;

-IND.IV ($\mathbf{d}\omega$-state chg of $\top$) ($\mathbf{d}\tau$-result) -3s (agr w. $\top$)

$^{P}[|\ d\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \text{DA}\ d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ d\varepsilon]$; $^{P}[|\ 3s\ \mathbf{d}\alpha]$

(14c″) We$_{\top}$ ***are*** playing chess. [5]

play.chess- *fb*

$[ee|\ ee{:}\ \text{AG}\ \textit{play.chess}_{\mathbf{d}\omega}]$;

-IND.IV ($\mathbf{d}\omega$-activity by $\top$) ($\mathbf{d}\tau$-1st result) -1p (agr w. $\top$)

$^{P}[|\ ^{1}d\varepsilon\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \text{AG}\ d\varepsilon\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ ^{1}d\varepsilon\varepsilon]$; $^{P}[|\ 1p\ \mathbf{d}\alpha]$

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[2] • Function a_α sends any animate a in its domain to a's mother

$a_\alpha(\alpha)\ \textit{mother.of}\ \alpha$:= $\lambda i.\ \forall a' \in \text{Dom}\ a_\alpha{:}\ \textit{mother.of}_{wi}(a_\alpha(a'), a')$

[3] • In $\mathbf{d}\omega$, s is a state whose experiencer is asleep

$s{:}\ \text{DA}\ \textit{sleep}_{\mathbf{d}\omega}$:= $\lambda i.\ \textit{sleep}_{\mathbf{d}\omega i}(s, \text{DA}_{\mathbf{d}\omega i}\ s)$

• In $\mathbf{d}\omega$, beg. $d\sigma$ is realized before $\mathbf{d}\varepsilon$; $d\sigma$-experiencer is $\mathbf{d}\alpha$; $d\sigma$ holds at $\mathbf{d}\tau$

$\text{BG}\ d\sigma <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$:= $\lambda i.\ \vartheta_{\mathbf{d}\omega i}\ \text{BG}_{\mathbf{d}\omega i}\ d\sigma_i < \vartheta_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i$

$\text{DA}\ d\sigma =_{\mathbf{d}\omega} \mathbf{d}\alpha$:= $\lambda i.\ \text{DA}_{\mathbf{d}\omega i}\ d\sigma_i = \mathbf{d}\alpha_i$

$\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma$:= $\lambda i.\ \mathbf{d}\tau_i \subseteq \vartheta_{\mathbf{d}\omega i}\ d\sigma_i$

[4] • In $\mathbf{d}\omega$, e is the beginning of a state whose experiencer is awake

$e{:}\ \text{DA}\ \textit{wake.up}_{\mathbf{d}\omega}$:= $\lambda i.\ \exists s(e = \text{BG}_{\mathbf{d}\omega i}\ s \wedge \textit{awake}_{\mathbf{d}\omega i}(s, \text{DA}_{\mathbf{d}\omega i}\ s))$

• In $\mathbf{d}\omega$, $d\varepsilon$ is realized before $\mathbf{d}\varepsilon$; $d\varepsilon$-experiencer is $\mathbf{d}\alpha$; $d\varepsilon$-result state holds at $\mathbf{d}\tau$

$d\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$:= $\lambda i.\ \vartheta_{\mathbf{d}\omega i}\ d\varepsilon_i < \vartheta_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i$

$\text{DA}\ d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha$:= $\lambda i.\ \text{DA}_{\mathbf{d}\omega i}\ d\varepsilon_i = \mathbf{d}\alpha_i$

$\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ d\varepsilon$:= $\lambda i.\ \mathbf{d}\tau_i \subseteq \vartheta_{\mathbf{d}\omega i}\ \text{RS}_{\mathbf{d}\omega i}\ d\varepsilon_i$

[5] • In $\mathbf{d}\omega$, ee is a process (chain of events, each successive stage during the result state of the preceding stage, see A5 on next page) such that at each stage the agent plays chess

$ee{:}\ \text{AG}\ \textit{play.chess}_{\mathbf{d}\omega}$:= $\lambda i.\ \textit{process}_{\mathbf{d}\omega i}\ ee \wedge \forall e \in ee{:}\ \textit{play.chess}_{\mathbf{d}\omega i}(e, \text{AG}_{\mathbf{d}\omega i}\ e)$

• In $\mathbf{d}\omega$, $^{1}d\varepsilon\varepsilon$ (1st stage of $d\varepsilon\varepsilon$) is realized before $\mathbf{d}\varepsilon$; $d\varepsilon\varepsilon$-agent is $\mathbf{d}\alpha$; $^{1}d\varepsilon\varepsilon$-result state holds at $\mathbf{d}\tau$

$^{1}d\varepsilon\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$:= $\lambda i.\ \vartheta_{\mathbf{d}\omega i}\ \text{BG}_{\mathbf{d}\omega i}\ d\sigma_i < \vartheta_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i$

$\text{AG}\ d\varepsilon\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha$:= $\lambda i.\ \forall e \in d\varepsilon\varepsilon_i{:}\ \text{AG}_{\mathbf{d}\omega i}\ e = \mathbf{d}\alpha_i$

$\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ ^{1}d\varepsilon\varepsilon$:= $\lambda i.\ \mathbf{d}\tau_i \subseteq \vartheta_{\mathbf{d}\omega i}\ \text{RS}_{\mathbf{d}\omega i}\ ^{1}d\varepsilon\varepsilon_i$

(15″) Today…[6]
day -LOC *if*
$[k^{\tau}|\ k^{\tau}\ day.of\ \underline{\varepsilon}]$; $[\mathbf{t}|\ \mathbf{t} \subseteq_{\mathbf{d}\omega} d\kappa^{\tau}\{\mathbf{d}\varepsilon\}]$;

…when my$_{\top}$ father$_{\perp}$ came by…[7]
father- -1s.sg (⊥-subject) *ib*
$[a_{\alpha}|\ a_{\alpha}(\alpha)\ father.of\ \alpha]$; $^{P}[\mathbf{a}|\ \mathbf{a} = \mathrm{AG}_{\mathbf{d}\omega}\ \mathbf{d}\varepsilon,\ sg\ d\alpha\alpha(\mathbf{a})]$; $[a|\ a = d\alpha\alpha(\mathbf{d}\alpha)]$;

enter-
$[l|\ d\varepsilon\colon \mathrm{AG}\ enter_{\mathbf{d}\omega}\ l]$; $^{I}[|\ \mathbf{d}\varepsilon \subseteq_{\mathbf{d}\omega} d\pi]$;

-FCT$_{\perp}$ (**d**τ-act by ⊥) (**d**τ-event) (new $^{\top}\tau$: res tm)-3s$_{\perp}$ (agr w. ⊥)
$^{P}[|\ \mathrm{AG}\ d\varepsilon =_{\mathbf{d}\omega} d\alpha]$; $[|\ d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$; $[\mathbf{t}|\ \mathbf{t} =_{\mathbf{d}\omega} \vartheta\mathrm{RS}\ d\varepsilon]$; $^{P}[|\ 3s\ d\alpha,\ d\alpha \varnothing \mathbf{d}\alpha]$;

a. …I$_{\top}$ was asleep
sleep- *fb*$_a$
$[s|\ s\colon \mathrm{DA}\ sleep_{\mathbf{d}\omega}]$;

-IND.IV (**d**ω-state of ⊤) (**d**τ-state) -1s (agr w. ⊤)
$^{P}[|\ \mathrm{BG}\ d\sigma <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \mathrm{DA}\ d\sigma =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma]$; $^{P}[|\ 1s\ \mathbf{d}\alpha]$

b. …I$_{\top}$ woke up.
wake.up- *fb*$_b$
$[e|\ e\colon \mathrm{DA}\ wake.up_{\mathbf{d}\omega}]$;

-IND.IV (**d**ω-state chg for ⊤) (**d**τ-event) -1s (agr w. ⊤)
$^{P}[|\ d\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \mathrm{DA}\ d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[|\ d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$; $^{P}[|\ 1s\ \mathbf{d}\alpha]$

c. …we$_{\top}$ played chess.
play.chess- *fb*$_c$
$[ee|\ ee\colon \mathrm{AG}\ play.chess_{\mathbf{d}\omega}]$;

-IND.IV (**d**ω-activity by ⊤) (**d**τ-stage 1) -1p (agr w. ⊤)
$^{P}[\mathbf{a}|\ ^{1}d\varepsilon\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \mathrm{AG}\ d\varepsilon\varepsilon =_{\mathbf{d}\omega} \mathbf{a}]$; $[|\ ^{1}d\varepsilon\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$; $^{P}[|\ 1p\ \mathbf{d}\alpha]$

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[6] • Any k^{τ}-time is the day of the instantiating eventuality
$k^{\tau}\ day.of\ \underline{\varepsilon}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ k^{\tau} \forall \underline{e} \in \mathrm{Dom}\ k^{\tau}w \exists t$:
$t = k^{\tau}w\underline{e} \wedge day_w\ t \wedge \vartheta_w\ \underline{e} \subseteq t$

• In **d**ω, **t** is a subinterval of $d\kappa^{\tau}$-time of **d**ε
$\mathbf{t} \subseteq_{\mathbf{d}\omega} d\kappa^{\tau}\{\mathbf{d}\varepsilon\}$:= $\lambda i.\ \mathbf{t} \subseteq d\kappa^{\tau}{}_i \mathbf{d}\omega_i \mathbf{d}\varepsilon_i$

[7] • In **d**ω, *e* is an action whose agent enters *l*
$e\colon \mathrm{AG}\ enter_{\mathbf{d}\omega}\ l$:= $\lambda i.\ enter_{\mathbf{d}\omega i}(e, \mathrm{AG}_{\mathbf{d}\omega i}\ e, l)$

• In **d**ω, *d*ε is realized before **d**ε; *d*ε-agent is **d**α; *d*ε occurs within **d**τ (period); **t** is the time of *d*ε-result state
$d\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$:= $\lambda i.\ \vartheta_{\mathbf{d}\omega i}\ d\varepsilon_i < \vartheta_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i$
$\mathrm{AG}\ d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha$:= $\lambda i.\ \mathrm{AG}_{\mathbf{d}\omega i}\ d\varepsilon_i = \mathbf{d}\alpha_i$
$d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau$:= $\lambda i.\ \vartheta_{\mathbf{d}\omega i}\ d\varepsilon_i \subseteq \mathbf{d}\tau_i$
$\mathbf{t} =_{\mathbf{d}\omega} \vartheta\mathrm{RS}\ d\varepsilon$:= $\lambda i.\ \mathbf{t} = \vartheta_{\mathbf{d}\omega i}\ \mathrm{RS}_{\mathbf{d}\omega i}\ d\varepsilon_i$

A5.

- Process stages

$e \in ee$	:=	$e \in (\text{Dom } ee \cup \text{Ran } ee)$	(is a stage of)
${}^{1}ee$	:=	$\iota e.\ e \in (\text{Dom } ee - \text{Ran } ee)$	(1st stage)
${}^{n+1}ee$	:=	$ee({}^{n}ee)$	($(n+1)$st stage)
${}^{f}ee$	:=	$\iota e.\ e \in (\text{Ran } ee - \text{Dom } ee)$	(final stage)

- Process continuity (each successive stage during the result state of its predecessor)

$process_w\ ee$	:=	$\forall e \in \text{Dom } ee: \vartheta_w\ ee(e) \subseteq \vartheta_w\ \text{RS}_w\ e$

A6.

- Episodic predicates of states, events, processes

s: DA $sleep_{\mathbf{d}\omega}$	:=	$\lambda i.\ sleep_{\mathbf{d}\omega i}(s, \text{DA}_{\mathbf{d}\omega i}\ s)$
e: DA $wake.up_{\mathbf{d}\omega}$	:=	$\lambda i.\ \exists s(awake_{\mathbf{d}\omega i}(s, \text{DA}_{\mathbf{d}\omega i}\ s) \wedge e = \text{BG}_{\mathbf{d}\omega i}\ s)$
e: AG $enter_{\mathbf{d}\omega}\ l$	:=	$\lambda i.\ enter_{\mathbf{d}\omega i}(e, \text{AG}_{\mathbf{d}\omega i}\ e, l)$
ee: AG $play.chess_{\mathbf{d}\omega}$	:=	$\lambda i.\ process_{\mathbf{d}\omega i}\ ee \wedge \forall e \in ee: play.chess_{\mathbf{d}\omega i}(e, \text{AG}_{\mathbf{d}\omega i}\ e)$

- Location tests

$\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma$	:=	$\lambda i.\ \mathbf{d}\tau_i \subseteq \vartheta_{\mathbf{d}\omega i}\ d\sigma_i$	(holds at ${}^{\top}$time in i-reality)
$d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau$	:=	$\lambda i.\ \vartheta_{\mathbf{d}\omega i}\ d\varepsilon_i \subseteq \mathbf{d}\tau_i$	(within ${}^{\top}$time in i-reality)
${}^{1}d\varepsilon\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau$	:=	$\lambda i.\ \vartheta_{\mathbf{d}\omega i}\ {}^{1}d\varepsilon\varepsilon_i \subseteq \mathbf{d}\tau_i$	(1st stage in ${}^{\top}$time in i-realty)

- New topic times

$\mathbf{t} =_{\mathbf{d}\omega} \vartheta\ d\sigma$	:=	$\lambda i.\ \mathbf{t} = \vartheta_{\mathbf{d}\omega i}\ d\sigma_i$	(during the state)
$\mathbf{t} =_{\mathbf{d}\omega} \vartheta\text{RS}\ d\varepsilon$	:=	$\lambda i.\ \mathbf{t} = \vartheta_{\mathbf{d}\omega i}\ \text{RS}_{\mathbf{d}\omega i}\ d\varepsilon_i$	(during the result state)
$\mathbf{t} =_{\mathbf{d}\omega} \vartheta\text{RS}\ {}^{1}d\varepsilon\varepsilon$	:=	$\lambda i.\ \mathbf{t} = \vartheta_{\mathbf{d}\omega i}\ \text{RS}_{\mathbf{d}\omega i}\ {}^{1}d\varepsilon\varepsilon_i$	(during the result state of 1st stage)

TABLE 3. Episodic verbs in Kalaallisut

• Indicative intransitive (IND.IV)

Base ($^{\top}\omega\varepsilon$-*reality*, $^{\top}\alpha$-*ctr*) *presup*		$^{\top}\omega\tau$-*Location test*	
		$\mathbf{d}\tau$ instant	$\mathbf{d}\tau$ period
$[s\vert\ldots]$;	${}^{P}[\vert\ \text{BG}\ d\sigma <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \text{DA}\ d\sigma =_{\mathbf{d}\omega} \mathbf{d}\alpha]$;	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma]$	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma]$;
$[e\vert\ldots]$;	${}^{P}[\vert\ d\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \text{AG}\ d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha]$;	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ d\varepsilon]$	$[\vert\ d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$;
$[ee\vert\ldots]$;	${}^{P}[\vert\ {}^{1}d\varepsilon\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon,\ \text{AG}\ d\varepsilon\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha]$;	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ {}^{1}d\varepsilon\varepsilon]$	$[\vert\ {}^{1}d\varepsilon\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$;

• Background-factive intransitive ($\text{FCT}_{\top}$)

Base $^{\perp}\alpha$-*ctr presup.*		$^{\top}\omega\tau$-*Location test*		$^{\top}\tau$-*Update*
		$\mathbf{d}\tau$ instant	$\mathbf{d}\tau$ period	(*if* or *ib* only)
$[s\vert\ldots]$;	${}^{P}[\vert\ \text{DA}\ d\sigma =_{\mathbf{d}\omega} d\alpha]$;	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma]$	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\sigma]$;	
$[e\vert\ldots]$;	${}^{P}[\vert\ \text{AG}\ d\varepsilon =_{\mathbf{d}\omega} d\alpha]$;	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ d\varepsilon]$	$[\vert\ d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$;	$[\mathbf{t}\vert\ \mathbf{t} =_{\mathbf{d}\omega} \vartheta\text{RS}\ d\varepsilon]$
$[ee\vert\ldots]$;	${}^{P}[\vert\ \text{AG}\ d\varepsilon\varepsilon =_{\mathbf{d}\omega} d\alpha]$	$[\vert\ \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} \text{RS}\ {}^{1}d\varepsilon\varepsilon]$	$[\vert\ {}^{1}d\varepsilon\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$;	$[\mathbf{t}\vert\ \mathbf{t} =_{\mathbf{d}\omega} \vartheta\text{RS}\ {}^{1}d\varepsilon\varepsilon]$

FROM SAMPLE TEXT:

II.§2. *His$_{\perp}$ father$_{\top}$ continued to train him$_{\perp}$ like this. In the end when he$_{\top}$* (son) *got bigger, he$_{\top}$ began to dive and stay underwater for a very long time.*

III.§1.

(1) Once…

Ila-an-ni	*if* (initial field)
part-3p$_{\perp}$.sg-LOC	

…when his$_{\perp}$ father$_{\top}$ was out [hunting] in his kayak,…

anguta-a qajar-tur-lu-ni	*ib* (initial boundary)
father-3s$_{\perp}$.sg *kayak-use*-ELA$_{\top}$-3s$_{\top}$	

…he$_{\top}$ caught a harbour seal.

qasigissa-mik pi-sa-qar-pu-q.	*mf*, *fb*
harbour.seal-sg.MOD *get-tv\rn-have*-IND.IV-3s	

(2) When he$_{\top}$ came back,…

Tikik-ka-mi	*if*
come-FCT$_{\top}$-3s$_{\top}$	

…he$_{\top}$ said to his$_{\top}$ wife: *mf*, *fb*

nuli-i uqar-vig-a-a.	
wife-3s.sg *say-to*-IND.TV-3s.3s	

INFORMAL PREVIEW

II.§2. *His$_{\perp}$ father$_{\top}$ continued to train him$_{\perp}$ like this. In the end when he$_{\top}$ (son) got bigger, he$_{\top}$ began to dive and stay underwater for very long time.*

$w_1 \in {}^{\top}p_1$ (myth):

	⋮
IIII	${}^{\top}t_0$: son ${}^{\top}a_1$ is one $kk^{\alpha}{}_0$-dg bigger (thn toddler)
II II II…	$\mathcal{D}_0 w_1$: result times of $hh^{\sigma}{}_0$-v.long dives by ${}^{\top}a_1$

III.§1.

(1) Once…

Ila-an-ni	*if* (initial field)
part-3p$_{\perp}$.sg-LOC	

$w_1 \in {}^{\top}p_1$ (myth):

	⋮
II II II…	$\mathcal{D}_0 w_1$: result times of $hh^{\sigma}{}_0$-v.long dives by ${}^{\top}a_1$
if III	${}^{\top}t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of a_1's training

…when his$_{\perp}$ father$_{\top}$ was out [hunting] in his kayak,…

anguta-a	qajar-tur-lu-ni	*ib* (initial boundary)
father-3s$_{\perp}$.sg	*kayak-use*-ELA$_{\top}$-3s$_{\top}$	

$w_1 \in {}^{\top}p_1$ (myth):

	⋮
III	$t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of ${}^{\top}a_1$'s training
ib ••	ee_1: ${}^{\perp}a_1$'s father ${}^{\top}a_0$ makes customary use of kayak (goes out, hunts, comes back)
II	${}^{\top}t_{1.2} = \mathrm{RS}_{w1}\ {}^{1}ee_1$: res tm of 1st stage of ee_1-hunt

…he$_{\top}$ caught a harbour seal.

qasigissa-mik	pi-sa-qar-pu-q.	*mf*, *fb*
harbour.seal-sg.MOD	*get-tv\rn-have*-IND.IV-3s	

$w_1 \in {}^{\top}p_1$ (myth):

	⋮
III	$t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of ${}^{\top}a_1$'s training
••	ee_1: ${}^{\perp}a_1$'s father ${}^{\top}a_0$ makes customary use of kayak (goes out, hunts, comes back)
II	${}^{\top}t_{1.2} = \mathrm{RS}_{w1}\ {}^{1}ee_1$: res tm of 1st stage of ee_1-hunt
fb •	$e_1 = {}^{1}ee_1$: 1st stage of ${}^{1}ee_1$-hunt, father ${}^{\top}a_0$ catches a $k^{\beta}{}_1$-harbour.seal b_1
=	$s_1 = \mathrm{RS}_{w1}\ e_1$: father ${}^{\top}a_0$ has $k^{\beta}{}_1$-harbour.seal b_1

(2) When he$_{\top}$ came back,…
Tikik-ka-mi *if*
come-FCT$_{\top}$-3s$_{\top}$

$w_1 \in {}^{\top}p_1$ (myth):

⋮

III $t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of ${}^{\top}a_1$'s training

•• ee_1: ${}^{\perp}a_1$'s father ${}^{\top}a_0$ makes customary use of kayak (goes out, hunts, comes back)

II $t_{1.2} = \text{RS}_{w1}\ {}^{1}ee_1$: res tm of 1st stage of ee_1-hunt

• $e_1 = {}^{1}ee_1$: 1st stage of ${}^{1}ee_1$-hunt, father ${}^{\top}a_0$ catches a $k^{\beta}{}_1$-harbour.seal b_1

= $s_1 = \text{RS}_{w1}\ e_1$: father ${}^{\top}a_0$ has $k^{\beta}{}_1$-harbour.seal b_1

if • $e_{2.1} = {}^{f}ee_1$: final stage of ee_1-hunt, father ${}^{\top}a_0$ comes back

II ${}^{\top}t_2 = \text{RS}_{w1}\ e_{2.1}$: result time of $e_{2.1}$-return

…he$_{\top}$ said to his$_{\top}$ wife: *mf*, *fb*
nuli-i uqar-vig-a-a.
wife-3s$_{\top}$.sg *say-to*-IND.TV-3s.3s

$w_1 \in {}^{\top}p_1$ (myth):

⋮

III $t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of ${}^{\top}a_1$'s training

•• ee_1: ${}^{\perp}a_1$'s father ${}^{\top}a_0$ makes customary use of kayak (goes out, hunts, comes back)

II $t_{1.2} = \text{RS}_{w1}\ {}^{1}ee_1$: res tm of 1st stage of ee_1-hunt

• $e_1 = {}^{1}ee_1$: 1st stage of ${}^{1}ee_1$-hunt, father ${}^{\top}a_0$ catches a $k^{\beta}{}_1$-harbour.seal b_1

= $s_1 = \text{RS}_{w1}\ e_1$: father ${}^{\top}a_0$ has $k^{\beta}{}_1$-harbour.seal b_1

• $e_{2.1} = {}^{f}ee_1$: final stage of ee_1-hunt, father ${}^{\top}a_0$ comes back

II ${}^{\top}t_2 = \text{RS}_{w1}\ e_{2.1}$: result time of $e_{2.1}$-return

fb • $e_{2.2}$: man ${}^{\top}a_0$ says ${}^{\perp}p_2$ to wife ${}^{\perp}a_2$

$w_2 \in {}^{\perp}p_2$ ($e_{2.2}$-speech):

ONLINE UPDATE:

II.§2. *His$_\perp$ father$_\top$ continued to train him$_\perp$ like this. In the end when he$_\top$* (son) *got bigger, he$_\top$ began to dive and stay underwater for very long time.*

$w_1 \in {}^\top p_1$ (myth):

$\vdots$

IIII — ${}^\top t_0$: son ${}^\top a_1$ is one $kk^\alpha{}_0$-dg bigger (thn toddler)

II II II… — $\mathcal{D}_0 w_1$: result times of $hh^\sigma{}_0$-v.long dives by ${}^\top a_1$

III.§1.

(1) Once…[8]

Ila- *if*

part-

$[t|\ t \subseteq_{\mathbf{d}\Omega} \cup_\tau d\theta]$;

-an -ni

-3p$_\perp$.sg -LOC (*if*)

${}^P[|\ pl_{\mathbf{d}\Omega}\, d\theta]$; ${}^P[|\ d\boldsymbol{\tau} \subseteq_{\mathbf{d}\omega} \cup_\tau d\theta]$; $[\mathbf{t}|\ \mathbf{t} = d\boldsymbol{\tau}]$

…when his$_\perp$ father$_\top$ was out [hunting] in his kayak,…[9]

anguta-a *ib*

father-

${}^P[|\ \mathbf{d}\alpha_1 =_{\mathbf{d}\Omega} fa\{\mathbf{d}\alpha\}]$;

-a

-3s$_\perp$. .sg (*ib*-subject)

${}^P[|\ 3s\ \mathbf{d}\alpha]$; $[a|\ a = \mathbf{d}\alpha]$; ${}^P[|\ 3s\ \mathbf{d}\alpha_1]$; $[\mathbf{a}|\ \mathbf{a} = \mathbf{d}\alpha_1]$;

qajar- -tur[10]

kayak- -use

$[k^\beta|\ kayak\ k^\beta]$; $[ee|\ ee$: AG $use_{\mathbf{d}\Omega}\ d\kappa^\beta]$;

-lu -ni

-ELA$_\top$ ($\mathbf{d}\boldsymbol{\tau}$-activity by $\top$) (*ib*) -3s$_\top$ (agr with $\top$)

${}^P[|$ AG $d\varepsilon\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha]$; $[|\ {}^1 d\varepsilon\varepsilon \subseteq_{\mathbf{d}\Omega} \mathbf{d}\boldsymbol{\tau}]$; $[\mathbf{t}|\ \mathbf{t} =_{\mathbf{d}\Omega}$ RS $^1 d\varepsilon\varepsilon]$; ${}^P[|\ 3s\ \mathbf{d}\alpha]$

---

[8] • In $\mathbf{d}\Omega$, t is a subinterval of the period covered by $d\theta$

$t \subseteq_{\mathbf{d}\Omega} \cup_\tau d\theta$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i\colon t \subseteq [\min_< d\theta_i w, \max_< d\theta_i w]$

[9] • Any k^β-object is a kayak

kayak k^β := $\lambda i.\ \forall w \in \mathrm{Dom}\ k^\beta \forall b \in \mathrm{Ran}\ k^\beta w\colon kayak_w\ b$

• In $\mathbf{d}\Omega$, *ee* is an activity of using a $d\kappa^\beta$-object

ee: AG $use_{\mathbf{d}\Omega}\ d\kappa^\beta$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i\colon process_w\ ee$ $\wedge\ \forall e \in ee\colon use_w(e, \mathrm{AG}_w\ e, d\kappa^\beta{}_i w e)$

[10] The suffix *-tur*, glossed 'use', really means something more like 'act in a manner expected for that kind', e.g.

qajaq	'kayak'	*qajar-tur-*	'go (hunting) in a kayak'
niqi	'meat'	*niqi-tur-*	'eat meat'
imiaq	'beer'	*imiar-tur*	'drink beer'
saamik	'left hand'	*saamis-sur*	'use left hand'
akiraq	'enemy'	*akirar-tur-*	'act agressively'

$w_1 \in {}^{\top}p_1$ (myth):

	⋮	
if	|||	$t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of ${}^{\top}a_1$'s training
ib	••	ee_1: ${}^{\perp}a_1$'s father ${}^{\top}a_0$ makes customary use of kayak (goes out, hunts, comes back)
	|	${}^{\top}t_{1.2} = \mathrm{RS}_{w1}\ {}^{1}ee_1$: res tm of 1st stage of ee_1-hunt

(1_{mf}) …he$_{\top}$ caught a harbour seal.[11]

qasigissa- *mf*
harbour.seal-
$[k^{\beta}|\ dead.harbour.seal\ k^{\beta}]$;

-mik
-sg. .MOD
$[|\ sg\ d\kappa^{\beta}]$; $[|\ d\kappa^{\beta} \subseteq d\kappa^{\beta}]$;

pi- -sa *fb*
get- (ana. ELA) *-tv\rn*
$[e|\ \mathrm{RS}\ e\colon \mathrm{AG}\{e\}\ have_{\mathbf{d}\Omega}\ d\kappa^{\beta}]$; ${}^{\mathrm{I}}[|\ d\varepsilon = {}^{1}d\varepsilon\varepsilon]$; $[b|\ b =_{\mathbf{d}\Omega} d\kappa^{\beta}\{\mathrm{RS}\ d\varepsilon\}]$;

-qar
-have (personal)
${}^{\mathrm{P}}[|\ d\kappa^{\beta}\{\mathrm{RS}\ d\varepsilon\}\ \varnothing_{\mathbf{d}\Omega}\ \mathrm{DA}\{\mathrm{RS}\ d\varepsilon\}]$; $[s|\ s =_{\mathbf{d}\Omega} \mathrm{RS}\ d\varepsilon]$;

-pu -q.
-IND.IV (**d**Ω-state of ⊤) (**d**τ-state) -3s (agr with ⊤)
${}^{\mathrm{P}}[|\ \vartheta_{\mathbf{d}\Omega}\ \mathrm{BG}\ d\sigma < \vartheta_{\mathbf{d}\omega}\ \mathbf{d}\varepsilon,\ \mathrm{DA}\ d\sigma =_{\mathbf{d}\Omega} \mathbf{d}\alpha]$; $[|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\Omega} d\sigma]$; ${}^{\mathrm{P}}[|\ 3s\ \mathbf{d}\alpha]$

$w_1 \in {}^{\top}p_1$ (myth):

	⋮	
	|||	$t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of ${}^{\top}a_1$'s training
	••	ee_1: ${}^{\perp}a_1$'s father ${}^{\top}a_0$ makes customary use of kayak (goes out, hunts, comes back)
	|	${}^{\top}t_{1.2} = \mathrm{RS}_{w1}\ {}^{1}ee_1$: res tm of 1st stage of ee_1-hunt
fb	•	$e_1 = {}^{1}ee_1$: 1st stage of ${}^{1}ee_1$-hunt, father ${}^{\top}a_0$ catches a $k^{\beta}{}_1$-harbour.seal b_1
	=	$s_1 = \mathrm{RS}_{w1}\ e_1$: father ${}^{\top}a_0$ has $k^{\beta}{}_1$-harbour.seal b_1

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[11] • Any k^{β}-object in a state s is a harbour seal which is dead in s
dead.harbour.seal k^{β} := $\lambda i.\ \forall w \in \mathrm{Dom}\ k^{\beta} \forall s \in \mathrm{Dom}\ k^{\beta} w \exists b$:
$b = k^{\beta} w s \wedge harbour.seal_w\ b \wedge dead_w(s, b)$

- In **d**Ω, in the result state of e, the agent of e has a $d\kappa^{\beta}$-object
$\mathrm{RS}\{e\}$: $\mathrm{AG}\{e\}\ have_{\mathbf{d}\Omega}\ d\kappa^{\beta}$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i \exists s$: $s = \mathrm{RS}_w\ e \wedge have_w(s, \mathrm{AG}_w\ e, d\kappa^{\beta}{}_i w s)$
- In **d**Ω, b instantiates $d\kappa^{\beta}$ in the result state of $d\varepsilon$
$b =_{\mathbf{d}\Omega} d\kappa^{\beta}\{\mathrm{RS}\ d\varepsilon\}$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $b = d\kappa^{\beta}{}_i w(\mathrm{RS}_w\ d\varepsilon_i)$
- In **d**Ω, the $d\kappa^{\beta}$-object in the result state of $d\varepsilon$ does not overlap with the experiencer of this result state
$d\kappa^{\beta}\{\mathrm{RS}\ d\varepsilon\}\ \varnothing_{\mathbf{d}\Omega}\ \mathrm{DA}\{\mathrm{RS}\ d\varepsilon\}$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i \exists s$: $s = \mathrm{RS}_w\ d\varepsilon_i \wedge \neg\ d\kappa^{\beta}{}_i w s \circ \mathrm{DA}_w\ s$
- The **d**Ω-time of the beginning of $d\sigma$ precedes the **d**ω-time of **d**ε
$\vartheta_{\mathbf{d}\Omega}\ \mathrm{BG}\ d\sigma < \vartheta_{\mathbf{d}\omega}\ \mathbf{d}\varepsilon$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $\vartheta_w\ \mathrm{BG}_w\ d\sigma_i < \vartheta_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i$

(2) When he$_{\top}$ came back,…
Tikik- *if*
come- (familiar event)
^{P}[| *d*εε: AG *travel*]; [*e*| *e* = ^{f}*d*εε];

-ka -mi
-FCT$_{\top}$ (**d**τ-action by ⊤) (*if*) -3s$_{\top}$ (agr with ⊤)
^{P}[| AG *d*ε =$_{\mathbf{d}\Omega}$ **d**α]; [| *d*ε ⊆$_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** =$_{\mathbf{d}\Omega}$ RS *d*ε]; ^{P}[| *3s* **d**α]

…he$_{\top}$ said to his$_{\top}$ wife:
nuli- *mf*
wife-
^{P}[| *d*α$_1$ *wife.of*$_{\mathbf{d}\Omega}$ **d**α];

-i
-3s$_{\top}$.sg (*mf* object)
^{P}[| *3s* **d**α, *3s d*α$_1$, **d**α ∅ *d*α$_1$]; [*a*| *a* = *d*α$_1$]

uqar- -vig- *fb*
say- *-to*
[*e p*| *e*: AG *say*$_{\mathbf{d}\Omega}$ *p*]; [| DA *d*ε =$_{\mathbf{d}\Omega}$ *d*α];

-a
-IND.TV- (**d**Ω-action by ⊤ experienced by ⊥) (**d**τ-action)
^{P}[| ϑ$_{\mathbf{d}\Omega}$ *d*ε < ϑ$_{\mathbf{d}\omega}$ **d**ε, AG *d*ε =$_{\mathbf{d}\Omega}$ **d**α, DA *d*ε =$_{\mathbf{d}\Omega}$ *d*α]; [| *d*ε ⊆$_{\mathbf{d}\Omega}$ **d**τ];

-a (agr. with ⟨⊤, ⊥⟩)
-3s.3s
^{P}[| *3s* **d**α, *3s d*α, **d**α ∅ *d*α]

$w_1 \in {}^{\top}p_1$ (myth):

⋮
||| $t_{1.1} \subseteq \cup\mathcal{D}_0 w_1$: during $\mathcal{D}_0$-stage of ${}^{\top}a_1$'s training
•• ee_1: ${}^{\perp}a_1$'s father ${}^{\top}a_0$ makes customary use of kayak (goes out, hunts, comes back)
|| $t_{1.2}$ = RS$_{w1}$ $^{1}ee_1$: res tm of 1st stage of ee_1-hunt
• $e_1 = {}^{1}ee_1$: 1st stage of $^{1}ee_1$-hunt, father ${}^{\top}a_0$ catches a $k^{\beta}{}_1$-harbour.seal b_1
= s_1 = RS$_{w1}$ e_1: father ${}^{\top}a_0$ has $k^{\beta}{}_1$-harbour.seal b_1
• $e_{2.1} = {}^{f}ee_1$: final stage of ee_1-hunt, father ${}^{\top}a_0$ comes back
|| ${}^{\top}t_2$ = RS$_{w1}$ $e_{2.1}$: result time of $e_{2.1}$-return
fb • $e_{2.2}$: man ${}^{\top}a_0$ says ${}^{\perp}p_2$ to wife ${}^{\perp}a_2$

$w_2 \in p_2$ ($e_{2.2}$-speech):

4. Online reference to habits and prospects

EXAMPLE 1:
Beg. of *Piniartup uqaluttua* 'A hunter's story' (http://www.rci.rutgers.edu/~mbittner/kal2.html):

(1_{if}) One morning…
Ila-an-ni — *if* (initial field)
part-3p$_{\perp}$.sg-LOC

ullaa-kkut — *ib* (initial boundary)
morning-VIA

…I set out in my kayak ***as usual***…
iliqqu-t-tut qajar-tur-lu-nga aallar-pu-nga — *mf*, *fb*
[***habit***-**1s.sg-EQU** kayak-use-ELA$_{\top}$-1s] *set.out*-IND.IV-1s

…to catch something. — *ff*
angu-**niar**-lu-nga — (prospective stative)
catch.sth-***intend***-ELA$_{\top}$-1s

EXAMPLE 2:
Beg. of *Aataarsuup irnikasia* 'A.'s kid son' (http://www.rci.rutgers.edu/~mbittner/kal2.html):

(1) Once upon a time, 'tis said,…
Qanga=nnguuq — *if*
long.ago=hearsay

…there was a man named Aataarsuaq…
anguti-qar Aataarsuar-mik ati-lim-mik — *fb*, *ff*
man-have-IND.IV-3s [*Ataarsuaq*-sg.MOD *name-with*-sg.MOD]

(2) Back then people…
Taama-ni inui-t — *if*, *ib*
then/there-LOC person-pl

…used to kill their$_{\top}$ fellow men.
inu-qati-min-nik tuqut-si-**sar**-pu-t. — *mf*, *fb*
person-fellow-3p$_{\top}$.pl-MOD *kill-apass-**habit***-IND.IV-3p

(3a) Aataarsuaq also
Aataarsuaq aamma — *if*, *ib*
Aataarsuaq also

…had enemies…
akira-qar-pu-q — *fb*
enemy-have-IND.IV-3s

(3b) …but he$_{\top}$ was unable to kill them$_{\perp}$.
akiqqa-ni tuqun-niq **sapir**-pa-i. — *ff*
enemy-3s$_{\top}$.pl=*but* *kill-v\n* ***be.unable***-IND.TV-3s.3p — (prospective stative)

EXAMPLE 1: Informal preview

(1_{if}) One morning…
Ila-an-ni — *part*-3p$_\perp$.sg-LOC
ullaa-kkut — *morning*-VIA

if (initial field)
ib (initial boundary)

reality $^\top w^*$:	•	$^\top e^*$: speech event
	|	t^*: e^*-now
if ||		$^\top t_1$: k^τ_1-morning
ib…|| || || ||…		$^\top \mathcal{D}_1 w^*$ = Ran $k^\tau_1 w^*$: k^τ_1-mornings

(1_{mf}) …I set out in my kayak ***as usual***…
iliqqu-t-tut qajar-tur-lu-nga aallar-pu-nga — *mf*, *fb*
[***habit*-1s.sg-EQU** kayak-use-ELA$_\top$-1s]$_{mf}$ *set.out*-IND.IV-1s

reality $^\top w^*$:	•	$^\top e^*$: speech event
	|	t^*: e^*-now
||		$^\top t_1$: k^τ_1-morning
… || || || ||…		$^\top \mathcal{D}_1 w^*$ = Dom $h^{\varepsilon\varepsilon}_1 w^*$ = Ran $k^\tau_1 w^*$
		$h^{\varepsilon\varepsilon}_1$-departure times, k^τ_1-mornings
mf…••• ••••• •••• •••…		Ran $h^{\varepsilon\varepsilon}_1 w^*$: e^*-spkr goes hunting in k^β_1-kayak
•••••		ee_1: e^*-spkr $h^{\varepsilon\varepsilon}_1$-goes hunting in k^β_1-kayak
fb •		$e_1 = {}^1ee_1$: ee_1-departure

(1_{ff}) …to catch something.
angu-niar-lu-nga
catch.sth-intend-ELA$_\top$-1s

ff
prospective stative:
-niar (see **sec. 5)**

reality $^\top w^*$:	•	$^\top e^*$: speech event
	|	t^*: e^*-now
||		$^\top t_1$: k^τ_1-morning
… || || || ||…		$^\top \mathcal{D}_1 w^*$ = Dom $h^{\varepsilon\varepsilon}_1 w^*$ = Ran $k^\tau_1 w^*$
		$h^{\varepsilon\varepsilon}_1$-departure times, k^τ_1-mornings
… ••• ••••• •••• •••…		Ran $h^{\varepsilon\varepsilon}_1 w^*$: e^*-spkr goes hunting in k^β_1-kayak
•••••		ee_1: e^*-spkr $h^{\varepsilon\varepsilon}_1$-goes hunting in k^β_1-kayak
I •		$e_1 = {}^1ee_1$ ^{1}(= BG_{w1} s_1): ee_1-dep, ^{1}(beg. of s_1-int)
ff ==		s_1: e_1-agt = e^*-spkr intends to realize $\mathcal{E}_1$

$^{ff} w_1 \in$ Dom $\mathcal{E}_1$:	
•	$\mathcal{E}_1 w_1$: s_1-exp. catches sm k^α_1-animate(s) during the result time of $^1(e_1 =)$ onset of s_1-intent

EXAMPLE 1: Online update

(•) *Speech start-up* [12]
[**w**| **w** = *r*]; [**e**| **e**: AG *speak.up*$_{\mathbf{d}\omega}$]; [**t**| **t** =$_{\mathbf{d}\omega}$ ϑ**d**ε];

reality $^{\top}w$*: • $^{\top}e$*: speech event
| $^{\top}t$*: *e**-now

(1$_{if}$) One morning…[13]
Ila- *if*
part-
[*t* k^{τ}| *t* $\in_{\mathbf{d}\omega}$ Ran k^{τ}];

-an -ni
-3p$_{\perp}$.sg -LOC (*if*)
^{P}[| *pl*$_{\mathbf{d}\omega}$(Ran *d*κ^{τ})]; ^{P}[| *d*τ $\subseteq_{\mathbf{d}\omega}$ $\cup_{\tau}$ Ran *d*κ^{τ}]; [**t**| **t** = *d*τ]

ullaa- *ib*
morning-
[| *morning d*κ^{τ}];

-kkut (VIA for 'path', including
-VIA (*ib*) 'ωτ-distribution' of a habit)
[$\mathcal{D}$| $\mathcal{D}$ ≈ *d*κ^{τ}];

reality $^{\top}w$*: • $^{\top}e$*: speech event
| *t**: *e**-now
if || $^{\top}t_1$: $k^{\tau}{}_1$-morning
ib…|| || || ||… $^{\top}\mathcal{D}_1 w$* = Ran $k^{\tau}{}_1 w$*: $k^{\tau}{}_1$-mornings

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[12] • **w** is the real world
w = *r* := λ*i*. **w** = w_i
• In **d**ω, **e** is the beginning of a speech event
e: AG *speak.up*$_{\mathbf{d}\omega}$:= λ*i*. *speak.up*$_{\mathbf{d}\omega i}$(*e*, AG$_{\mathbf{d}\omega i}$ *e*)
• In **d**ω, **t** is the time of **d**ε
t =$_{\mathbf{d}\omega}$ ϑ**d**ε := λ*i*. **t** = $\vartheta_{\mathbf{d}\omega i}$ **d**ε_i

[13] • In **d**ω, *t* is a k^{τ}-time; in **d**ω, *d*τ is a subinterval of the period covered by *d*κ^{τ}-times
t $\in_{\mathbf{d}\omega}$ Ran *d*κ^{τ} := λ*i*. **t** ∈ Ran *d*$\kappa^{\tau}{}_i$**d**ω_i
dτ $\subseteq_{\mathbf{d}\omega}$ $\cup_{\tau}$ Ran *d*κ^{τ} := λ*i*. *d*τ_i ⊆ [min$_<$ Ran *d*$\kappa^{\tau}{}_i$**d**ω_i, max$_<$ Ran *d*$\kappa^{\tau}{}_i$**d**ω_i]
• Any *d*κ^{τ}-time is a morning, $\mathcal{D}$-times are *d*κ^{τ}-times
morning dκ^{τ} := λ*i*. ∀*w* ∈ Dom *d*$\kappa^{\tau}{}_i$∀$\underline{e}$ ∈ Dom *d*$\kappa^{\tau}{}_i w$∃*t*:
t = *d*$\kappa^{\tau} w\underline{e}$ ∧ *t* = ϑ_w $\underline{e}$ ∧ *morning*.*at*$_w$(*t*, Π_w $\underline{e}$)
$\mathcal{D}$ ≈ *d*κ^{τ} := λ*i*. ∀*w* ∈ Dom $\mathcal{D}$: $\mathcal{D}w$ = Ran *d*$\kappa^{\tau}{}_i w$

(1_{mf}) …I set out in my kayak as usual… [14]

iliqqu-	-**t**	-**tut**	*mf*
habit-	-1s.sg	-EQU	

[$h^{\varepsilon\varepsilon}$| Dom $h^{\varepsilon\varepsilon}$ = **d**θ]; [| AG $d\eta^{\varepsilon\varepsilon}$ = $\text{AG}_{\mathbf{d}\omega}$ **d**ε]; [ee| $ee \in_{\mathbf{d}\omega}$ Ran $d\eta^{\varepsilon\varepsilon}$];

qajar-	-tur
kayak-	-*use*

[k^{β}| *kayak* k^{β}]; [| $d\eta^{\varepsilon\varepsilon}$: AG *use* $d\kappa^{\beta}$];

-lu	-nga
-$\text{ELA}_{\top}$ (**d**θ-habit of ♡)	-1s (agr with ♡)

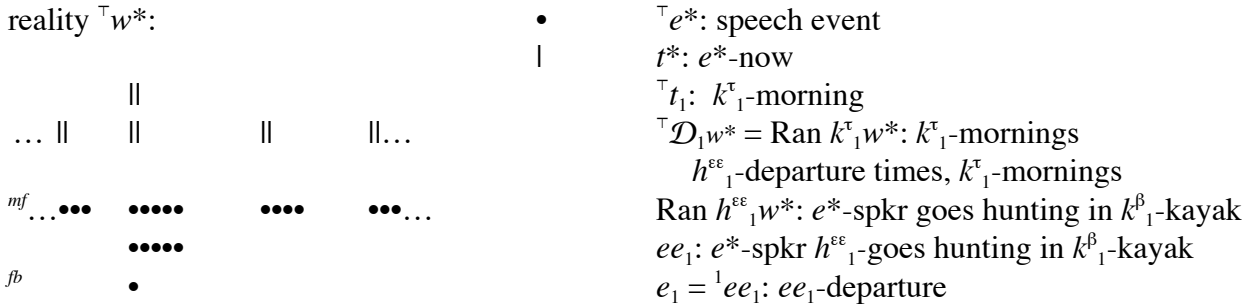
^{P}[| AG $d\eta^{\varepsilon\varepsilon}$ = AG $d\varepsilon\varepsilon$]; [| **d**θ ⊆ $d\eta^{\varepsilon\varepsilon}$]; [| AG $d\varepsilon\varepsilon$ = $_{\mathbf{d}\omega}$ AG **d**ε];

aallar-	*fb*
set.out-	

^{P}[| $d\varepsilon\varepsilon$: AG *travel*$_{\mathbf{d}\omega}$]; [e| e = $_{\mathbf{d}\omega}$ $^{1}d\varepsilon\varepsilon$];

-pu		-nga
-IND.IV (**d**ω-action of ⊤)	(**d**τ-action)	-1s (agr with ⊤)

^{P}[**a**| $d\varepsilon$ <$_{\mathbf{d}\omega}$ **d**ε, AG $d\varepsilon$ =$_{\mathbf{d}\omega}$ **a**]; [| $d\varepsilon$ ⊆$_{\mathbf{d}\omega}$ **d**τ]; [| **d**α =$_{\mathbf{d}\omega}$ AG **d**ε];



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[14] • The ωτ-distribution of $h^{\varepsilon\varepsilon}$-processes is **d**θ
Dom $h^{\varepsilon\varepsilon}$ = **d**θ := $\lambda i.\ \langle \text{Dom } h^{\varepsilon\varepsilon}w\text{: } w \in \text{Dom } h^{\varepsilon\varepsilon}\rangle = \mathbf{d}\theta_i$

- Any $d\eta^{\varepsilon\varepsilon}$-process is a chain of actions by the **d**ω-real **d**ε-speaker
AG $d\eta^{\varepsilon\varepsilon}$ = $\text{AG}_{\mathbf{d}\omega}$ **d**ε := $\lambda i.\ \forall w \in \text{Dom } h^{\varepsilon\varepsilon}\forall ee \in \text{Ran } h^{\varepsilon\varepsilon}w\forall e \in ee\text{: } \text{AG}_w\, e = \text{AG}_{\mathbf{d}\omega i}\, \mathbf{d}\varepsilon_i$
- in **d**ω, ee is a $d\eta^{\varepsilon\varepsilon}$-process
$ee \in_{\mathbf{d}\omega}$ Ran $d\eta^{\varepsilon\varepsilon}$:= $\lambda i.\ ee \in \text{Ran } d\eta^{\varepsilon\varepsilon}{}_i\mathbf{d}\omega_i$
- Any $d\eta^{\varepsilon\varepsilon}$-process is a chain of actions in which the agent uses a $d\kappa^{\beta}$-object
$d\eta^{\varepsilon\varepsilon}$: AG *use* $d\kappa^{\beta}$:= $\lambda i.\ \forall w \in \text{Dom } d\eta^{\varepsilon\varepsilon}{}_i\forall t \in \text{Dom } d\eta^{\varepsilon\varepsilon}{}_iw\exists ee$:
$ee = d\eta^{\varepsilon\varepsilon}{}_iwt \wedge \vartheta_w\, {}^{1}ee \subseteq t \wedge \forall e \in ee\text{: } use_w(e, \text{AG}_w\, e, d\kappa^{\beta}{}_iwe)$
- The agent of any $d\eta^{\varepsilon\varepsilon}$-process is the agent of $d\varepsilon\varepsilon$
AG $d\eta^{\varepsilon\varepsilon}$ = AG $d\varepsilon\varepsilon$:= $\lambda i.\ \forall w \in \text{Dom } d\eta^{\varepsilon\varepsilon}{}_i\forall ee \in \text{Ran } d\eta^{\varepsilon\varepsilon}{}_iw\forall e \in ee\forall e' \in d\varepsilon\varepsilon_i\text{: } \text{AG}_w\, e = \text{AG}_w\, e'$
- Any **d**θ-time frames a $d\eta^{\varepsilon\varepsilon}$-process (i.e., includes the 1st stage)
dθ ⊆ $d\eta^{\varepsilon\varepsilon}$:= $\lambda i.\ \forall w \in \text{Dom } \mathbf{d}\theta_i\text{: } \mathbf{d}\theta_iw \subseteq \text{Dom } d\eta^{\varepsilon\varepsilon}{}_iw$

(1_{ff}) …to catch something. [15] final field (*ff*)

angu-
catch.sth-
[$\mathcal{E}$ k^{α}| $\mathcal{E}$: AG *catch* k^{α}];

-niar-
-intend- (*ff*)
[*s*| (*s*: DA $intend_{\mathbf{d}\omega}$ *d*ə), *d*ə ⊆ ϑRS {BG *s*}]; ^{I}[| BG *d*σ =$_{\mathbf{d}\omega}$ *d*ε]

-lu -nga
-ELA$_{\top}$ (**d**ω-state of ♡) (**dτ**-state) -1s (agr with ♡)
^{P}[| DA *d*σ =$_{\mathbf{d}\omega}$ AG *d*ε]; [| **dτ** ⊆$_{\mathbf{d}\omega}$ *d*σ]; [| AG *d*ε =$_{\mathbf{d}\omega}$ AG **d**ε]

reality $^{\top}w^*$: • $^{\top}e^*$: speech event
| t^*: e^*-now
|| $^{\top}t_1$: $k^{\tau}{}_1$-morning
…|| || || ||… $^{\top}\mathcal{D}_1w^*$ = Ran $k^{\tau}{}_1w^*$: $k^{\tau}{}_1$-mornings
$h^{\varepsilon\varepsilon}{}_1$-departure times, $k^{\tau}{}_1$-mornings
…••• ••••• •••• •••… Ran $h^{\varepsilon\varepsilon}{}_1w^*$: e^*-spkr goes hunting in $k^{\beta}{}_1$-kayak
••••• ee_1: e^*-spkr $h^{\varepsilon\varepsilon}{}_1$-goes hunting in $k^{\beta}{}_1$-kayak
I • e_1 = $^{1}ee_1$ ^{I}(= BG_{w1} s_1): ee_1-dep, ^{I}(beg of s_1-int.)
ff == s_1: e_1-agt = e^*-spkr intends to realize $\mathcal{E}_1$

$^{ff}w_1 \in$ Dom $\mathcal{E}_1$:
• $\mathcal{E}_1w_1$: s_1-exp. catches sm $k^{\alpha}{}_1$-animate(s) during the result time of $^{I}(e_1 =)$ beg. of s_1-intent

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[15]
- In any realization of $\mathcal{E}$, the agent catches sm k^{α}-animate(s)
  $\mathcal{E}$: AG *catch* k^{α} := $\lambda i.\ \forall w \in \text{Dom } \mathcal{E}\exists e$: $e = \mathcal{E}w \wedge catch_w(e, AG_w\ e, k^{\alpha}we)$
- In **d**ω, *s* is a (mental) state whose experiencer intends to realize *d*ə
  s: DA $intend_{\mathbf{d}\omega}$ *d*ə := $\lambda i.\ intend_{\mathbf{d}\omega i}(s, DA_w\ s, \text{Dom } d\ni_i)$
  $\wedge\ \forall w \in \text{Dom } d\ni_i$: $AG_w\ d\ni_i w = DA_{\mathbf{d}\omega i}\ s$
- Any realization of $\mathcal{E}$ occurs during the result state of the onset of *s*
  *d*ə ⊆ ϑRS {BG *s*} := $\lambda i.\ \forall w \in \text{Dom } d\ni_i$: $\vartheta_w\ d\ni_i \subseteq \vartheta_{\boldsymbol{w}}\ RS_w\ (BG_w\ s)$
- In **d**ω, state *d*σ holds at **dτ**
  dτ ⊆$_{\mathbf{d}\omega}$ *d*σ := $\lambda i.\ \mathbf{d}\tau_i \subseteq_{\mathbf{d}\omega i} \vartheta_{\mathbf{d}\omega i}\ d\sigma_i$

EXAMPLE 2: Informal preview.

(1) Once upon a time, 'tis said,…
Qanga=nnguuq *if*
long.ago=hearsay

…there was a man named Aataarsuaq…
anguti-qar Aataarsuar-mik ati-lim-mik *fb*, *ff*
man-have-IND.IV-3s [*Ataarsuaq*-sg.MOD *name-with*-sg.MOD]

reality $^{\top}w^*$: • $^{\top}e^*$: speech event
| $t^* \subseteq \vartheta_{w^*}\, e_1$: e^*-now, e^*-spkr still remembers e_1
if • e_1: e_1-spkr talks to $^{\top}e^*$-spkr (in al.) about $^{\top}p_1$

$^{if}w_1 \in {}^{\top}p_1$:
if || $^{\top}t_1$: long before w^*-time of e_1 ($\vartheta_{w^*}\, e_1$)
fb == s_1: a_1 is a $k^{\alpha}{}_1$-man $b_{\alpha,1}$-named *Aataarsuaq*

(2) Back then people…
Taama-ni inui-t *if*, *ib*
then/there-LOC person-pl

…used to kill their$_{\top}$ fellow men.
inu-qati-min-nik tuqut-si-**sar**-pu-t. *mf*, *fb*
person-fellow-3p$_{\top}$.pl-MOD *kill-apass-**habit***-IND.IV-3p

reality $^{\top}w^*$: • $^{\top}e^*$: speech event
| $t^* \subseteq \vartheta_{w^*}\, e_1$: e^*-now, e^*-spkr still remembers e_1
• e_1: e_1-spkr talks to $^{\top}e^*$-spkr (in al.) about $^{\top}p_1$
if.. || || ||… $^{\top}\mathcal{D}_2 w^*$ = Dom $h^{\varepsilon}{}_2 w^*$:
$h^{\varepsilon}{}_2 w^*$-killing times
fb..• • •… Ran $h^{\varepsilon}{}_2 w^*$: $^{\top}k^{\alpha}{}_1 w^*$-men kill other $k^{\alpha}{}_1 w^*$-men,
their $k^{\alpha}{}_2 w^*$-victims

$w_1 \in {}^{\top}p_1$:
||
== s_1: a_1 is a $k^{\alpha}{}_1 w_1$-man $b_{\alpha,1}$-named *Aataarsuaq*

(3a) Aataarsuaq also
Aataarsuaq aamma *if*
Aataarsuaq also

…had enemies (or an enemy)…
akira-qar-pu-q *fb*
enemy-have-IND.IV-3s

reality $^{\top}w^*$: • $^{\top}e^*$: speech event
| $t^* \subseteq \vartheta_{w^*}\, e_1$: e^*-now, e^*-spkr still remembers e_1
• e_1: e_1-spkr talks to $^{\top}e^*$-spkr (in al.) about $^{\top}p_1$
…‖ ‖ ‖… $^{\top}\mathcal{D}_2 w^* = \mathrm{Dom}\ h^{\varepsilon}{}_2 w^*$: $h^{\varepsilon}{}_2 w^*$-killing times
…• • •… $\mathrm{Ran}\ h^{\varepsilon}{}_2 w^*$: $^{\top}k^{\alpha}{}_1 w^*$-men kill other $^{\top}k^{\alpha}{}_1 w^*$-men

---

$w_1 \in {}^{\top}p_1$:
‖ $^{\top}t_1$: long before w^*-time of e_1 ($\vartheta_{w^*}\, e_1$)
== s_1: a_1 is a $^{\top}k^{\alpha}{}_1 w_1$-man $b_{\alpha,1}$-named *Aataarsuaq*
ib ..• •… Ran $h^{\varepsilon}{}_2 w_1$: $^{\top}k^{\alpha}{}_1 w_1$-men kill other $^{\top}k^{\alpha}{}_1 w_1$-men
• $e_3 \in \mathrm{Ran}\ h^{\varepsilon}{}_2 w_1$: $h^{\varepsilon}{}_2 w_1$-killing by $^{\top}a_1$
fb ==== s_3 $^{\mathrm{I}}(= \mathrm{RS}_{w1}\ e_3)$:
$^{\top}a_1$ (s_3-exp) has $k^{\alpha}{}_3 w_1$-enemy (sg. or pl.)

(3b) …but he$_{\top}$ was unable to kill them$_{\perp}$.
akiqqa-ni *ff*: *if*
enemy-3s$_{\top}$.pl=but.

tuqun-niq sapir-pa-i. *ff*: *fb*
kill-v\n *be.unable*-IND.TV-3s.3p

reality $^{\top}w^*$: • $^{\top}e^*$: speech event
| $t^* \subseteq \vartheta_{w^*}\, e_1$: e^*-now, e^*-spkr still remembers e_1
• e_1: e_1-spkr talks to $^{\top}e^*$-spkr (in al.) about $^{\top}p_1$
…‖ ‖ ‖… $^{\top}\mathcal{D}_2 w^* = \mathrm{Dom}\ h^{\varepsilon}{}_2 w^*$: $h^{\varepsilon}{}_2 w^*$-killing times
…• • •… $\mathrm{Ran}\ h^{\varepsilon}{}_2 w^*$: $^{\top}k^{\alpha}{}_1 w^*$-men kill other $^{\top}k^{\alpha}{}_1 w^*$-men

---

$w_1 \in {}^{\top}p_1$:
‖ $^{\top}t_1$: long before w^*-time of e_1 ($\vartheta_{w^*}\, e_1$)
== s_1: a_1 is a $^{\top}k^{\alpha}{}_1 w_1$-man $b_{\alpha,1}$-named *Aataarsuaq*
…‖ ‖… $^{\top}\mathcal{D}_2 w_1 = \mathrm{Dom}\ h^{\varepsilon}{}_2 w_1$: $h^{\varepsilon}{}_2 w_1$-killing times
…• •… Ran $h^{\varepsilon}{}_2 w_1$: $^{\top}k^{\alpha}{}_1 w_1$-men kill other $^{\top}k^{\alpha}{}_1 w_1$-men
• $e_3 \in \mathrm{Ran}\ h^{\varepsilon}{}_2 w_1$: $h^{\varepsilon}{}_2 w_1$-killing by $^{\top}a_1$
==== s_3 $^{\mathrm{I}}(= \mathrm{RS}_{w1}\ e_3)$:
$^{\top}a_1$ (s_3-exp) has $k^{\alpha}{}_3 w_1$-enemies $^{\perp}a_3$
$^{\top}a_1$ wants to, but doesn't, realize $\mathcal{E}_3$
ff:*if* |||||||||| $\mathcal{T}_3 w_1 = \vartheta_{w1}\, s_3$: w_1-time of s_3-enmity/kill.wish

---

if:*fb* $w_1 \notin \mathrm{Dom}\ \mathcal{E}_3$
$w_3 \in \mathrm{Dom}\ \mathcal{E}_3$
…‖ ‖ ‖… $^{\top}\mathcal{D}_2 w_3 = \mathrm{Dom}\ h^{\varepsilon}{}_2 w_3$: $h^{\varepsilon}{}_2 w_3$-killing times
|||||| $\mathcal{T}_3 w_3 = \vartheta_{w3}\, s_3$: w_3-time of s_3-enmity/kill.wish
• $\mathcal{E}_3 w_4 = h^{\varepsilon}{}_2 w_3(\mathcal{T}_3 w_3)$:
w_1-exp. of s_3-wish $h^{\varepsilon}{}_2$-kills $^{\perp}a_3$ during
the result time of the onset of s_3

EXAMPLE 2: Online update.

(1) Once upon a time, 'tis said,…[16]

Qanga	=nnguuq	*if*
long.ago	*=hearsay*	

[**t** *e*| $long_{\mathbf{d}\omega}$[**t**, *e*]]; [**p**| (*d*ε: AG $talk.abt_{\mathbf{d}\omega}$ **p**), (AG **d**ε $\subseteq_{\mathbf{d}\omega}$ DA *d*ε), (**d**ε $\subseteq_{\mathbf{d}\omega}$ ϑRS *d*ε)];

…there was a man… [17]

anguti-	-qar	*fb*
man-	*-have* (impersonal)	

[k^{α}| **man* k^{α}]; [*s*| *d*κ^{α}{*s*} $=_{\mathbf{d}\Omega}$ DA *s*];

-pu	-q
-IND.IV (**d**Ω-state, impers)	-3s (no agr)

^{P}[| $\vartheta_{\mathbf{d}\Omega}$ BG *d*σ < $\vartheta_{\mathbf{d}\omega}$ **d**ε]; [| **d**τ $\subseteq_{\mathbf{d}\Omega}$ *d*σ]; [**p**| **p** = **d**Ω]; [|]

…named Aataarsuaq. [18]

Aataarsuar-	-mik	*ff*
Aataarsuaq-	-sg.MOD	

[*b*| *b* = *Aataarsuaq*]; [| *sg d*β]; [b_{α}| b_{α}(?) ⊆ *d*β];

ati-	-lim	-mik
name.of-	*-with*	-sg.MOD

[| *d*αβ(α) *name* α]; [*a*| *d*αβ(*a*) = *d*β]; [| *sg d*α]; [| *d*κ^{α}{*d*σ} $\subseteq_{\mathbf{d}\Omega}$ *d*α];

reality $^{\top}w$*:
- • $^{\top}e$*: speech event
- | *t** ⊆ ϑ_{w^*} e_1: *e**-now, *e**-spkr still remembers e_1
- • e_1: e_1-spkr talks to $^{\top}e$*-spkr (in al.) about $^{\top}p_1$

$w_1 \in {}^{\top}p_1$:
- || $^{\top}t_1$: long before *w**-time of e_1 (ϑ_{w^*} e_1)
- == s_1: a_1 is a $k^{\alpha}{}_1$-man $b_{\alpha,1}$-named *Aataarsuaq*

---

[16] • In **d**ω, **t** is long before the time of *e*

$long_{\mathbf{d}\omega}$[**t**, ϑ*e*] := λ*i*. **t** < $\vartheta_{\mathbf{d}\omega i}$ *e* ∧ *long*([^{1}**t**, $^{f}\vartheta_{\mathbf{d}\omega i}$ *e*])

• In **d**ω, *d*ε is a speech event in which the speaker talks about **p**; **d**ε-agent is a *d*ε-addressee

*d*ε: AG $talk.abt_{\mathbf{d}\omega}$ **p** := λ*i*. $talk.abt_{\mathbf{d}\omega i}$(*d*$\varepsilon_i$, $AG_{\mathbf{d}\omega i}$ *d*ε_i, **p**)

AG **d**ε $\subseteq_{\mathbf{d}\omega}$ DA *d*ε := λ*i*. $AG_{\mathbf{d}\omega i}$ **d**$\varepsilon_i \subseteq DA_{\mathbf{d}\omega i}$ *d*ε_i

[17] • Any instance of k^{α} is one or more men; in **d**Ω, *d*κ^{α} in *s* is the exp. of *s*; **d**Ω-tm of *d*σ-onset is before **d**ω-tm of **d**ε

* *man* k^{α} := λ*i*. ∀*w* ∈ Dom k^{α}∀*a* ∈ Ran k^{α}*w*: **man*$_w$ *a*

dκ^{α}{*s*} $=_{\mathbf{d}\Omega}$ DA *s* := λ*i*. ∀*w* ∈ **d**Ω_i: *d*$\kappa^{\alpha}{}_i ws = DA_w$ *s*

$\vartheta_{\mathbf{d}\Omega}$ BG *d*σ < $\vartheta_{\mathbf{d}\omega}$ **d**ε := λ*i*. ∀*w* ∈ **d**Ω_i: ϑ_w BG_w *d*σ_i < $\vartheta_{\mathbf{d}\omega i}$ **d**ε_i

[18] • *d*β is atomic (no proper parts)

*sg d*β := λ*i*. ∀*b*: *b* ⊆ *d*β_i → *b* = *d*β_i

• *d*β is the value assigned by b_{α} to some argument

b_{α}(?) = *d*β := λ*i*. ∃*a* ∈ Dom b_{α}: b_{α}(*a*) = *d*β_i

• Function *d*αβ sends any animate *a* in its domain to a name of *a*

*d*αβ(α) *name* α := λ*i*. ∀*a* ∈ Dom *d*$\alpha\beta_i$: *name.of*(*d*$\alpha\beta_i$(*a*), *a*)

(2) Back then…[19]

Taama-	-ni		*if*
then/there-	-LOC		

$[t|\ t =_{\mathbf{d}\Omega} \vartheta d\sigma]$; $[\mathcal{D}|\ d\tau \subseteq_{\mathbf{d}\omega} \cup_\tau \mathcal{D}]$;

…people$_\top$…[20]

inui-	-t		*ib*
person-	-pl	(subject)	

$^{P}[|\ {*}\mathit{person}\ d\kappa^\alpha]$; $^{P}[|\ \mathit{pl}\,(d\kappa^\alpha|\mathbf{d}\theta)]$; $[\mathbf{k}^\alpha|\ \mathbf{k}^\alpha = (d\kappa^\alpha|\mathbf{d}\theta)]$;

…used to kill their$_\top$ fellow men. [21]

inu-	-qati		*mf*
person-	*-fellow*		

$[|\ {*}\mathit{person}\ \mathbf{d}\kappa^\alpha]$; $[k^\alpha|\ \mathrm{Ran}\ k^\alpha \subseteq \mathrm{Ran}\ \mathbf{d}\kappa^\alpha,\ k^\alpha \varnothing \mathbf{d}\kappa^\alpha]$;

-min	-nik	
-3p$_\top$.pl	-MOD	

$^{P}[|\ 3p\,(\mathrm{Ran}\ \mathbf{d}\kappa^\alpha),\ 3p\,(\mathrm{Ran}\ d\kappa^\alpha)]$; $[h^\varepsilon|\ d\kappa^\alpha\{h^\varepsilon\} \subseteq d\kappa^\alpha]$;

tuqut-	-si	-sar	*fb*
kill-	*-apass*	*-habit*	

$[|\ d\eta^\varepsilon\colon \mathbf{d}\kappa^\alpha\ \mathit{kill}\ d\kappa^\alpha]$; $[|\ d\eta^\varepsilon\colon \mathrm{AG}\ \varnothing\ d\kappa^\alpha]$; $[|\ \mathrm{Dom}\ d\eta^\varepsilon = \mathbf{d}\theta]$;

-pu			-t
-IND.IV ($\mathbf{d}\omega$-habit of $\top$)		($\mathbf{d}\theta$-habit)	-3p (agr with $\top$)

$^{P}[|\ ({}^1d\eta^\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon),\ (\mathrm{AG}\ d\eta^\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\kappa^\alpha)]$; $[|\ \mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^\varepsilon]$; $^{P}[|\ 3p_{\mathbf{d}\omega}\,(\mathrm{Ran}\ \mathbf{d}\kappa^\alpha)]$

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[19] • In $\mathbf{d}\omega$, $d\tau$ falls within the period covered by distribution $\mathcal{D}$
$d\tau \subseteq_{\mathbf{d}\omega} \cup_\tau \mathcal{D}$:= $\lambda i.\ d\tau \subseteq [\min_< \mathcal{D}\mathbf{d}\omega_i, \max_< \mathcal{D}\mathbf{d}\omega_i]$

[20] • $\mathbf{k}^\alpha$ are $d\kappa^\alpha$-animates instantiated in $\mathbf{d}\theta$-eventualities
$\mathbf{k}^\alpha = (d\kappa^\alpha|\mathbf{d}\theta)$:= $\lambda i.\ \mathbf{k}^\alpha = \{\langle w, e, d\kappa^\alpha{}_i we\rangle\colon w \in \mathrm{Dom}\ \mathbf{d}\theta_i \wedge \exists t \in \mathbf{d}\theta_i w(\vartheta_w\ e \subseteq t)\}$
$\cup\ \{\langle s, d\kappa^\alpha{}_i ws\rangle\colon w \in \mathrm{Dom}\ \mathbf{d}\theta_i \wedge \exists t \in \mathbf{d}\theta_i w(t \subseteq \vartheta_w\ s)\}$
• In any $\mathbf{d}\theta$-world, there is more than one $d\kappa^\alpha$-animate (group) instantiated in $\mathbf{d}\theta$-eventuality
$\mathit{pl}\,(d\kappa^\alpha|\ \mathbf{d}\theta)$:= $\lambda i.\ |\mathrm{Ran}\ (d\kappa^\alpha|\ \mathbf{d}\theta)| > 1$

[21] • In any k^α-world, k^α-animates are $\mathbf{d}\kappa^\alpha$-animates & in any k^α-ev. the k^α-animate(s) don't overlap the $\mathbf{d}\kappa^\alpha$-anim.
$\mathrm{Ran}\ k^\alpha \subseteq \mathrm{Ran}\ \mathbf{d}\kappa^\alpha$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ k^\alpha\colon \mathrm{Ran}\ k^\alpha w \subseteq \mathrm{Ran}\ \mathbf{d}\kappa^\alpha w$
$k^\alpha \varnothing \mathbf{d}\kappa^\alpha$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ k^\alpha(\forall e \in \mathrm{Dom}\ k^\alpha w\colon \neg\, k^\alpha we \circ \mathbf{d}\kappa^\alpha{}_i we$
$\wedge\ \forall s \in \mathrm{Dom}\ k^\alpha w\colon \neg\, k^\alpha ws \circ \mathbf{d}\kappa^\alpha{}_i ws)$
• In h^ε-worlds, $d\kappa^\alpha$-animates are instantiated in all h^ε-events
$d\kappa^\alpha\{h^\varepsilon\} \subseteq d\kappa^\alpha$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ h^\varepsilon\colon \langle d\kappa^\alpha{}_i we\colon e \in \mathrm{Ran}\ h^\varepsilon w\rangle \subseteq d\kappa^\alpha{}_i w$
• In any $d\eta^\varepsilon$-event $\mathbf{d}\kappa^\alpha$-animate(s) kill the $d\kappa^\alpha$-animate(s)
$d\eta^\varepsilon\colon \mathbf{d}\kappa^\alpha\ \mathit{kill}\ d\kappa^\alpha$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\eta^\varepsilon{}_i \forall t \in \mathrm{Dom}\ d\eta^\varepsilon{}_i w \exists e\colon$
$e = d\eta^\varepsilon{}_i wt \wedge \vartheta_w\ e \subseteq t \wedge \mathit{kill}_w(e, \mathbf{d}\kappa^\alpha{}_i we, d\kappa^\alpha{}_i we)$
• In any $d\eta^\varepsilon$-event the agent does not overlap with the animate(s) instantiating $d\kappa^\alpha$
$d\eta^\varepsilon\colon \mathrm{AG}\ \varnothing\ d\kappa^\alpha$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\eta^\varepsilon{}_i \forall e \in \mathrm{Ran}\ d\eta^\varepsilon{}_i\colon \neg\, \mathrm{AG}_w\ e \circ d\kappa^\alpha{}_i we$
• The $\omega\tau$-distribution of $d\eta^\varepsilon$-events is $\mathbf{d}\theta$
$\mathrm{Dom}\ d\eta^\varepsilon = \mathbf{d}\theta$:= $\lambda i.\ \langle \mathrm{Dom}\ d\eta^\varepsilon{}_i w\colon w \in \mathrm{Dom}\ d\eta^\varepsilon{}_i\rangle = \mathbf{d}\theta_i$
• In $\mathbf{d}\omega$, the first $d\eta^\varepsilon$-event lies before $\mathbf{d}\varepsilon$. ($\min_< T := \iota t \in T(\forall t' \in T\colon t \neq t' \rightarrow t < t')$)
${}^1d\eta^\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$:= $\lambda i.\ \min_<\{\vartheta_{\mathbf{d}\omega i}\ e\colon e \in \mathrm{Ran}\ d\eta^\varepsilon{}_i \mathbf{d}\omega_i\} < \vartheta_{\mathbf{d}\omega i}\ \mathbf{d}\varepsilon_i$
• In $\mathbf{d}\omega$, any $\mathbf{d}\theta$-time is a $d\eta^\varepsilon$-frame (i.e. includes a $d\eta^\varepsilon$-event)
$\mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^\varepsilon$:= $\lambda i.\ \mathbf{d}\theta_i \mathbf{d}\omega_i \subseteq \mathrm{Dom}\ d\eta^\varepsilon{}_i \mathbf{d}\omega_i$

reality $^{\top}w^*$: • $^{\top}e^*$: speech event
| $t^* \subseteq \vartheta_{w^*}\, e_1$: e^*-now, e^*-spkr still remembers e_1
• e_1: e_1-spkr talks to $^{\top}e^*$-spkr (in al.) about $^{\top}p_1$
if.. || || ||… $^{\top}\mathcal{D}_2 w^*$ = Dom $h^{\varepsilon}{}_2 w^*$:
$h^{\varepsilon}{}_2 w^*$-killing times
fb.. • • •… Ran $h^{\varepsilon}{}_2 w^*$: $^{\top}k^{\alpha}{}_1 w^*$-men kill other $k^{\alpha}{}_1 w^*$-men, their $k^{\alpha}{}_2 w^*$-victims

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$w_1 \in {}^{\top}p_1$:
|| $^{\top}t_1$: long before w^*-time of e_1 ($\vartheta_{w^*}\, e_1$)
== s_1: a_1 is a $k^{\alpha}{}_1 w_1$-man $b_{\alpha,1}$-named *Aataarsuaq*

(3a) Aataarsuaq…
Aataarsuaq$_{\top}$ *if*
Aataarsuaq. .sg (subject)
^{P}[| *Aataarsuaq name* $d\alpha$]; ^{P}[| *sg* $d\alpha$]; [**a**| **a** = $d\alpha$];

…also…[22]
aamma *ib*
also
^{P}[| AG $d\eta^{\varepsilon} =_{\mathbf{d}\omega}$ $\mathbf{d}\kappa^{\alpha}$]; [*e*| $e \in_{\mathbf{d}\Omega}$ Ran $d\eta^{\varepsilon}$, AG $e =_{\mathbf{d}\Omega}$ $\mathbf{d}\alpha$];

…had enemies… [23]
akira- -qar *fb*
enemy- -*have* (personal)
[k^{α}| (σ: k^{α} **enemy* DA)]; [*s*| $d\kappa^{\alpha}\{s\}$ $\varnothing_{\mathbf{d}\Omega}$ DA *s*]; ^{I}[| $d\sigma =_{\mathbf{d}\Omega}$ RS $d\varepsilon$];

-pu -q
-IND.IV ($\mathbf{d}\Omega$-state of $\top$) ($\mathbf{d}\tau$-state) -3s (agr with $\top$)
^{P}[| $\vartheta_{\mathbf{d}\Omega}$ BG $d\sigma < \vartheta_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon$, DA $d\sigma =_{\mathbf{d}\Omega}$ $\mathbf{d}\alpha$]; [| $\mathbf{d}\tau \subseteq_{\mathbf{d}\Omega} d\sigma$]; ^{P}[| *3s* $\mathbf{d}\alpha$]

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[22] • In $\mathbf{d}\Omega$, *e* is a $d\eta^{\varepsilon}$-event & an action by $\mathbf{d}\alpha$
$e \in_{\mathbf{d}\Omega}$ Ran $d\eta^{\varepsilon}$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $e \in$ Ran $d\eta^{\varepsilon}{}_i w$
AG $e =_{\mathbf{d}\Omega}$ $\mathbf{d}\alpha$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $\mathrm{AG}_w\, e = \mathbf{d}\alpha_i$

[23] • Any k^{α}-animate(s) instantiated in a state *s* is (are) enemies of the experiencer of *s*
σ: k^{α} **enemy* DA := $\lambda i.\ \forall w \in$ Dom $k^{\alpha} \forall s \in$ Dom $k^{\alpha} w \exists a$: $a = k^{\alpha} w s \wedge$ **enemy*.$of_w(s, a, \mathrm{DA}_w\, s)$
• In $\mathbf{d}\Omega$, *s* is a state with $d\kappa^{\alpha}$-animate(s) other than the experiencer of *s*
$d\kappa^{\alpha}\{s\}$ $\varnothing_{\mathbf{d}\omega}$ DA *s* := $\lambda i.\ \forall w \in \mathbf{d}\Omega_i \exists a, a'$: $a = d\kappa^{\alpha}{}_i w s \wedge a' = \mathrm{DA}_w\, s \wedge \neg a \circ a'$
• In $\mathbf{d}\Omega$, the experiencer of $d\sigma$ is $\mathbf{d}\alpha$
DA $s =_{\mathbf{d}\Omega}$ $\mathbf{d}\alpha$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $\mathrm{DA}_w\, d\sigma_i = \mathbf{d}\alpha_i$

reality $^{\top}w^*$: • $^{\top}e^*$: speech event
| $t^* \subseteq \vartheta_{w^*}\, e_1$: e^*-now, e^*-spkr still remembers e_1
• e_1: e_1-spkr talks to $^{\top}e^*$-spkr (in al.) about $^{\top}p_1$
…‖ ‖ ‖… $^{\top}\mathcal{D}_2 w^* = \mathrm{Dom}\ h^{\varepsilon}{}_2 w^*$: $h^{\varepsilon}{}_2 w^*$-killing times
…• • •… Ran $h^{\varepsilon}{}_2 w^*$: $^{\top}k^{\alpha}{}_1 w^*$-men kill other $^{\top}k^{\alpha}{}_1 w^*$-men

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$w_1 \in {}^{\top}p_1$:
‖ $^{\top}t_1$: long before w^*-time of e_1 ($\vartheta_{w^*}\, e_1$)
== s_1: a_1 is a $^{\top}k^{\alpha}{}_1 w_1$-man $b_{\alpha,1}$-named *Aataarsuaq*
ib..• •… Ran $h^{\varepsilon}{}_2 w_1$: $^{\top}k^{\alpha}{}_1 w_1$-men kill other $^{\top}k^{\alpha}{}_1 w_1$-men
• $e_3 \in \mathrm{Ran}\ h^{\varepsilon}{}_2 w_1$: $h^{\varepsilon}{}_2 w_1$-killing by $^{\top}a_1$
ff ==== s_3 $^{\mathrm{I}}(= \mathrm{RS}_{w1}\ e_3)$:
$^{\top}a_1$ (s_3-exp) has $k^{\alpha}{}_3 w_1$-enemy (sg. or pl.)

(3b) …but he$_{\top}$ was unable to kill them$_{\perp}$.[24]

akiqqa- *ff*: *if*
enemy-.
$^{\mathrm{P}}[|\ d\kappa^{\alpha}\{d\sigma\}\ {}^*enemy_{\mathbf{d}\Omega}\ \mathbf{d}\alpha];$

-ni
-3s$_{\top}$.pl. (object)
$^{\mathrm{P}}[|\ 3s\ \mathbf{d}\alpha,\ 3p_{\mathbf{d}\Omega}\ d\kappa^{\alpha}\{d\sigma\},\ \mathbf{d}\alpha\ \varnothing_{\mathbf{d}\Omega}\ d\kappa^{\alpha}\{d\sigma\}];\ [a|\ a =_{\mathbf{d}\Omega} d\kappa^{\alpha}\{d\sigma\}];$

=li
=but (*ff*: …)
$[\mathcal{T}|\ \mathcal{T} = \vartheta d\sigma];\ {}^{\mathrm{I}}[|\ \mathrm{Dom}\ d\omega\tau \neq \mathbf{d}\Omega];$

tuqun- -niq *ff*: *fb*
kill- -*v**n*
$^{\mathrm{P}}[|\ d\eta^{\varepsilon}\{d\omega\tau\}$: AG *kill* $d\alpha];\ [\mathcal{E}|\ \mathcal{E} = d\eta^{\varepsilon}\{d\omega\tau\}];$

sapir-
be.unable-
$^{\mathbf{P}}[\mathbf{|}\ no_{\mathbf{d}\Omega}\ d\ni];\ [|\ (d\sigma$: DA $want_{\mathbf{d}\Omega}\ d\ni),\ (d\ni \subseteq \vartheta\mathrm{RS}\{\mathrm{BG}\ d\sigma\})];$

-pa
-IND.TV (**dΩ**-state of $\langle\top, \perp\rangle$) (**dτ**-state) (agt with $\langle\top, \perp\rangle$)
$^{\mathrm{P}}[|\ \vartheta_{\mathbf{d}\Omega}$ BG $d\sigma < \vartheta_{\mathbf{d}\omega}\,\mathbf{d}\varepsilon$, DA $d\sigma =_{\mathbf{d}\Omega} \mathbf{d}\alpha,\ \mathbf{d}\alpha \varnothing\ d\alpha];\ [|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\Omega} d\sigma];\ {}^{\mathrm{P}}[|\ 3s\ \mathbf{d}\alpha,\ 3p\ d\alpha,\ \mathbf{d}\alpha \varnothing\ d\alpha]$

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[24] • Any realization of $\mathcal{T}$ is a $d\sigma$-time
$\mathcal{T} = \vartheta d\sigma$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ \mathcal{T}$: $\mathcal{T}w = \vartheta_w\, d\sigma_i$
• In $d\omega\tau$-worlds, any instance of $d\eta^{\varepsilon}$ at $d\omega\tau$ is a killing of $d\alpha$; $\mathcal{E}$ is the concept of the $d\eta^{\varepsilon}$-killing at $d\omega\tau$
$d\eta^{\varepsilon}\{d\omega\tau\}$: AG *kill* $d\alpha$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\omega\tau_i \exists t, e$: $t = d\omega\tau_i w \wedge e = d\eta^{\varepsilon}{}_i wt \wedge kill_w(e, \mathrm{AG}_w\ e, d\alpha_i)$
$\mathcal{E} = d\eta^{\varepsilon}\{d\omega\tau\}$:= $\lambda i.\ \mathcal{E} = \{\langle w, e\rangle$: $w \in \mathrm{Dom}\ d\omega\tau_i \wedge e = d\eta^{\varepsilon}{}_i w(d\omega\tau_i w)\}$
• In **dΩ**, $d\sigma$-exp. wants to realize $d\ni$; any realization of $d\ni$ occurs during res of $d\sigma$-beg; $d\ni$ is not realized in **dΩ**
$d\sigma$: DA $want_{\mathbf{d}\Omega}\ d\ni$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $want_w(d\sigma_i, \mathrm{DA}_w\ d\sigma_i, \mathrm{Dom}\ d\ni_i)$
$\wedge\ \forall w' \in \mathrm{Dom}\ d\ni_i$: $\mathrm{AG}_w\ d\ni_i w' = \mathrm{DA}_w\ d\sigma_i$
$d\ni \subseteq \vartheta\mathrm{RS}\ \{\mathrm{BG}\ d\sigma\}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\ni_i$: $\vartheta_w\, d\ni_i w \subseteq \vartheta_w\, \mathrm{RS}_w\ (\mathrm{BG}_w\ d\sigma_i)$
$no_{\mathbf{d}\Omega}\ d\ni$:= $\lambda i.\ \forall w \in \mathbf{d}\Omega_i$: $w \notin \mathrm{Dom}\ d\ni_i$

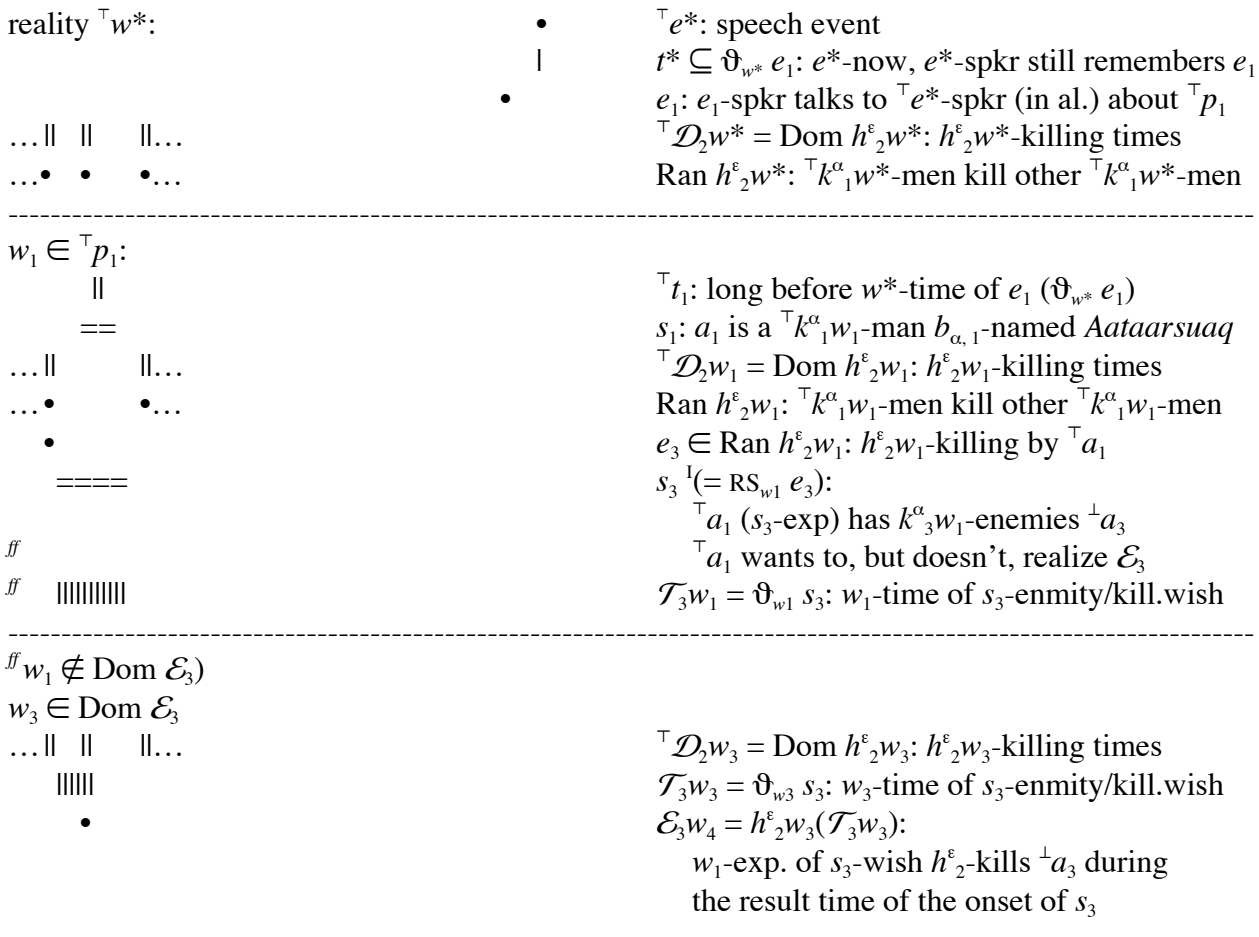

TABLE 4. Habitual verbs in Kalaallisut

• Indicative intransitive (IND.IV)

Base ⊤ωε-*reality*, ⊤α-*ctr presup*		⊤ωτ-*Location test*	
		dτ time	**d**θ distribution
[h^{σ}|…];	P[| $^{1}d\eta^{\sigma} <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$,	DA $d\eta^{\sigma} =_{\mathbf{d}\omega} \mathbf{d}\alpha$];	[| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\sigma}$]	[| $\mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^{\sigma}$];
[h^{ε}|…];	P[| $d\eta^{\varepsilon} <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$,	AG $d\eta^{\varepsilon} =_{\mathbf{d}\omega} \mathbf{d}\alpha$];	[| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}$]	[| $\mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}$];
[$h^{\varepsilon\varepsilon}$|…];	P[| $d\eta^{\varepsilon\varepsilon} <_{\mathbf{d}\omega} \mathbf{d}\varepsilon$,	AG $d\eta^{\varepsilon\varepsilon} =_{\mathbf{d}\omega} \mathbf{d}\alpha$];	[| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon\varepsilon}$]	[| $\mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon\varepsilon}$];

• Background-generic intransitive ($GNR_{\top}$)

Base ⊥α-*ctr presup*.		⊤ωτ-*Location test*		⊤τ-*Update*
		dτ time	**d**θ distribution	(*if* or *ib* only)
[h^{σ}|…];	P[| DA $d\eta^{\sigma} =_{\mathbf{d}\omega} d\alpha$];	[| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\sigma}$]	[| $\mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^{\sigma}$];	[$\mathcal{D}$| $\mathcal{D} = \vartheta d\eta^{\sigma}$]
[h^{ε}|…];	P[| AG $d\eta^{\varepsilon} =_{\mathbf{d}\omega} d\alpha$];	[| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}$]	[| $\mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}$];	[$\mathcal{D}$| $\mathcal{D} = \vartheta_{RS} d\eta^{\varepsilon}$]
[$h^{\varepsilon\varepsilon}$|…];	P[| AG $d\eta^{\varepsilon\varepsilon} =_{\mathbf{d}\omega} d\alpha$]	[| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon\varepsilon}$]	[| $\mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon\varepsilon}$];	[$\mathcal{D}$| $\mathcal{D} = \vartheta_{RS}\, ^{I}d\eta^{\varepsilon\varepsilon}$]

APPENDIX: INFLECTIONAL SYSTEM & PROSPECTIVES STATIVES

Form	Gloss	Topo	Sample meaning: presuppositional test (^{P}); update; implicature (^{I})	
Sample CASE inflections (animate, or temporal, cn base):				
-∅	NOM	*if*, *ib*	$[\mathbf{a}\mid \mathbf{a} =_{\mathbf{d}\omega} d\kappa^{\alpha}\{d\varepsilon\}]$	IV subject
		if, *ib*	$[a\mid a =_{\mathbf{d}\omega} d\kappa^{\alpha}\{d\varepsilon\}]$	TV object
-p	ERG	*if* , *ib*	$[\mathbf{a}\mid \mathbf{a} =_{\mathbf{d}\omega} d\kappa^{\alpha}\{d\varepsilon\}]$	TV subject
-mi	LOC	*if*	$[\mathcal{D}\mid d\kappa^{\tau}\{d\varepsilon\} \subseteq \cup_{\tau} \mathcal{D}]$	τ-location
-kut	VIA	*if*	$[\mathcal{D}\mid \mathcal{D} \approx d\kappa^{\tau}]$	τω-dist. ('path')
-mut	DAT	*mf*	$[k^{\alpha}\mid k^{\alpha}\{\varepsilon\} = \text{DA } \varepsilon]$	α-goal
-mit	ABL	*mf*	$[k^{\alpha}\mid k^{\alpha}\{\varepsilon\} = \text{AG } \varepsilon]$	α-source
-mik	MOD	*mf*	$[h^{\varepsilon}\mid d\kappa^{\alpha}\{h^{\varepsilon}\} \subseteq d\kappa^{\alpha}]$;	α-modifier
-tut	EQU	*mf*	$[a\mid a \in_{\mathbf{d}\omega} \text{Ran } d\kappa^{\alpha}]$	α-standard
Sample MATRIX MOOD-CENTERING inflections (episodic action iv-base):				
-vu	IND.IV	*fb*	$^{P}[\mid (d\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon), (\text{AG } d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha)]$; $[\mid d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$;	**d**ω-action of ⊤
		fb	$^{P}[\mid (\vartheta_{\mathbf{d}\Omega}\, d\varepsilon < \vartheta_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon), (\text{AG } d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha)]$; $[\mid d\varepsilon \subseteq_{\mathbf{d}\Omega} \mathbf{d}\tau]$;	**d**Ω-action of ⊤
-va	IND.TV	*fb*	$^{P}[\mid (d\varepsilon <_{\mathbf{d}\omega} \mathbf{d}\varepsilon), (\text{AG } d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha), (\mathbf{d}\alpha \varnothing d\alpha)]$; $[\mid d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$;	**d**ω-act. by ⊤ on ⊥
-la	IRR	*fb*	$^{P}[\mid (\vartheta\, d\mathfrak{d} < \vartheta_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon), (\text{AG } d\mathfrak{d} = \mathbf{d}\alpha)]$; $[\mid d\mathfrak{d} \subseteq \mathbf{d}\tau]$; $[\mathbf{p}\mid \mathbf{p} = \text{Dom } d\mathfrak{d}]$	⊤-action concept
-vi/va	QUE	*fb*	$^{P}[\mid (\vartheta\, d\mathfrak{d} < \vartheta_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon), (\text{AG } d\mathfrak{d} = \mathbf{d}\alpha)]$; $[\mathcal{E}\mid (\mathbf{d}\varepsilon\text{: AG } request_{\mathbf{d}\omega}\, \mathcal{E}), (\mathcal{E}\text{: DA}_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon\ tlk.abt\ d\mathfrak{d})]$; $[\mid d\mathfrak{d} \subseteq \vartheta_{\text{RS}}\, \mathbf{d}\varepsilon]$; $[\mathcal{T}\mid \mathcal{T} = (\vartheta_{\text{RS}}\, \mathbf{d}\varepsilon\mid \text{Dom } d\mathfrak{d})]$	request to $^{\top}$ε-dat for tlk.abt ⊤-actn.cnc
-li/la	OPT	*fb*	$^{P}[\mid (\text{RS } \mathbf{d}\varepsilon\text{: AG } hope.for_{\mathbf{d}\omega} \text{ Dom } d\mathfrak{d}), (\text{AG } d\mathfrak{d} = \mathbf{d}\alpha)]$; $[\mid d\mathfrak{d} \subseteq \vartheta_{\text{RS}}\, \mathbf{d}\varepsilon]$; $[\mathcal{T}\mid \mathcal{T} = (\vartheta_{\text{RS}}\, \mathbf{d}\varepsilon\mid \text{Dom } d\mathfrak{d})]$	hope for ⊤-actn.cnc
-gi/∅	IMP	*fb*	$^{P}[\mid (\mathbf{d}\varepsilon\text{: AG } request_{\mathbf{d}\omega}\, d\mathfrak{d}), (\text{AG } d\mathfrak{d} = \text{DA}_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon)]$; $[\mid d\mathfrak{d} \subseteq \vartheta_{\text{RS}}\, \mathbf{d}\varepsilon]$; $[\mathcal{T}\mid \mathcal{T} = (\vartheta_{\text{RS}}\, \mathbf{d}\varepsilon\mid \text{Dom } d\mathfrak{d})]$	request to $^{\top}$ε-dat
-niar-	POL	*fb*	$^{P}[\mid \mathbf{d}\varepsilon\text{: AG } politely.ask_{\mathbf{d}\omega}\, \text{DA}]$;	polite req to $^{\top}$ε-dat
Sample DEPENDENT MOOD-CENTERING inflections (action iv-base, ♡ = ctr of empathy):				
-ga	$\text{FCT}_{\top}$	*if*, *ib*	$^{P}[\mid \text{AG } d\varepsilon =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[\mid d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$; $[\mathbf{t}\mid \mathbf{t} =_{\mathbf{d}\omega} \vartheta_{\text{RS}}\, d\varepsilon]$	**d**τ-action of ⊤
		if, *ib*	$^{P}[\mid \text{AG } d\eta^{\varepsilon} =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[\mid \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}]$; $[\mathcal{D}\mid \mathcal{D} \equiv \vartheta_{\text{RS}}\, d\eta^{\varepsilon}]$	**d**τ-habit of ⊤
		ff	$^{P}[\mid \text{AG } d\eta^{\varepsilon} =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[\mid \mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}]$;	no new topic
-mm	$\text{FCT}_{\perp}$	*if*, *ib*	$^{P}[\mid \text{AG } d\varepsilon =_{\mathbf{d}\omega} d\alpha]$; $[\mid d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$; $[\mathbf{t}\mid \mathbf{t} =_{\mathbf{d}\omega} \vartheta_{\text{RS}}\, d\varepsilon]$	**d**τ-action of ⊥
		if, *ib*	$[\mid d\varepsilon \subseteq_{\mathbf{d}\omega} \mathbf{d}\tau]$; $[\mathbf{t}\mid \mathbf{t} =_{\mathbf{d}\omega} \vartheta_{\text{RS}}\, d\varepsilon]$	impers. state chg
-gu	$\text{HYP}_{\top}$	*if*, *ib*	$^{P}[\mid \text{AG } d\mathfrak{d} = \mathbf{d}\alpha]$; $[\mid \mathbf{d}\omega\tau \subseteq d\mathfrak{d}]$; $[\mathcal{T}\mid \mathcal{T} \equiv \vartheta_{\text{RS}}\, d\mathfrak{d}]$	**d**ωτ-act.cpt of ⊤
-gaanga	$\text{GNR}_{\top}$	*if*, *ib*	$^{P}[\mid \text{AG } d\eta^{\varepsilon} =_{\mathbf{d}\omega} \mathbf{d}\alpha]$; $[\mid \mathbf{d}\theta \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}]$; $[\mathcal{D}\mid \mathcal{D} \equiv \vartheta_{\text{RS}}\, d\eta^{\varepsilon}]$	**d**θ-habit of ⊤
-lu	$\text{ELA}_{\top}$	*if*, *ib*	$^{P}[\mid \text{AG } d\eta^{\varepsilon} = \mathbf{d}\alpha]$; $[\mid \mathbf{d}\theta \subseteq d\eta^{\varepsilon}]$; $[\mathcal{D}\mid \mathcal{D} \equiv \vartheta_{\text{RS}}\, d\eta^{\varepsilon}]$	**d**θ-habit of ⊤
		ff	$^{P}[\mid \text{AG } d\eta^{\varepsilon} = \text{AG } d\varepsilon]$; $[\mid \mathbf{d}\theta \subseteq d\eta^{\varepsilon}]$;	**d**θ-habit of ♡
-su	$\text{ELA}_{\perp}$.IV	*ff*	$^{P}[\mid \text{AG } d\eta^{\varepsilon} \varnothing \text{ AG } d\varepsilon]$; $[\mid \mathbf{d}\theta \subseteq d\eta^{\varepsilon}]$;	**d**θ-habit of ~~♡~~
-na	$\text{NON}_{\top}$	*fb*	$^{P}[\mid \text{AG } d\eta^{\varepsilon} = \text{AG } d\varepsilon]$;$[\mid no(d\eta^{\varepsilon}, \mathbf{d}\theta)]$; $[\mathbf{p}\mid \mathbf{p} = \text{Dom } d\eta^{\varepsilon}]$	**d**θ-~~habit~~ of ♡

Sample PROSPECTIVE STATIVE roots & derivational suffixes (action iv-base or animate cn-base; the hoped for/dreaded/etc action $d\text{ə}$ is a prospect relative to the *beginning* of the mental state):

-jumaar$_{\text{v\v}}$	'be hoped for'	$[s\mid (s\text{: DA } \textit{hope.for}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } s\}]$
	'be dreaded'	$[s\mid (s\text{: DA } \textit{dread}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } s\}]$
	'be promised'	$[s\ e\mid (e\text{: AG } \textit{promise}_{\mathbf{d}\omega}\ d\text{ə}),$	$d\text{ə} \subseteq \vartheta\text{RS } e];$
		$^{\text{I}}[\mid d\sigma =_{\mathbf{d}\omega} \text{RS } d\varepsilon]$	
-niar$_{\text{v\v}}$	'be about to'	$[s\mid (s\text{: DA } \textit{expect}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } s\}];$
		$^{\text{I}}[\mid (d\kappa^{\beta}\{d\text{ə}\} =_{\mathbf{d}\Omega} \text{OB } d\text{ə})];$	
	'be intended'	$[s\mid (s\text{: DA } \textit{intend}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } s\}]$
	'intend to'	$[s\mid (s\text{: DA } \textit{intend}_{\mathbf{d}\omega}\ d\text{ə}),$	$d\text{ə} \subseteq \vartheta\text{RS } \{\text{BG } s\}];$
	'try to'	$[s\mid (s\text{: DA } \textit{intend}_{\mathbf{d}\omega}\ d\text{ə}),$	$d\text{ə} \subseteq \vartheta\text{RS } \{\text{BG } s\}];$
		$^{\text{I}}[\mathcal{EE}\mid (\text{AG } \mathcal{EE} = \text{DA } d\sigma),$	$(d\text{ə} = {}^{f}\mathcal{EE})]$ (process use)
-nia$_{\text{v\n}}$	'intending'	$^{\text{P}}[\mid (d\sigma\text{: DA } \textit{intend}_{\mathbf{d}\omega}\ d\text{ə}),$	$d\text{ə} \subseteq \vartheta\text{RS } \{\text{BG } d\sigma\}];$
		$[k^{\alpha}\mid k^{\alpha} \equiv \text{AG } d\text{ə}];$	
-ssa$_{\text{v\v}}$	'be expected'	$[s\mid (s\text{: DA } \textit{expect}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } s\}]$
	'be desired'	$[s\mid (s\text{: DA } \textit{want}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } s\}]$
-ssa$_{\text{n\n}}$	'expected'	$^{\text{P}}[\mid (d\sigma\text{: DA } \textit{expect}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } d\sigma\}];$
		$[\mid d\kappa^{\alpha}\{d\text{ə}\} \subseteq_{d\Omega} d\kappa^{\alpha}]$	
	'desired'	$^{\text{P}}[\mid (d\sigma\text{: DA } \textit{want}_{\mathbf{d}\omega}\ d\Omega),$	$d\text{ə} \subseteq_{d\Omega} \vartheta\text{RS } \{\text{BG } d\sigma\}];$
		$[\mid d\kappa^{\alpha}\{d\text{ə}\} \subseteq_{d\Omega} d\kappa^{\alpha}]$	
sapir$_{\text{v}}$-	'be unable to'	$^{\text{P}}[\mid \textit{no}_{\mathbf{d}\omega}\ d\text{ə}];$	
		$[s\mid (s\text{: DA } \textit{want}_{\mathbf{d}\omega}\ d\text{ə}),$	$d\text{ə} \subseteq \vartheta\text{RS } \{\text{BG } s\}]$
⋮	⋮	⋮	

etc (25+ more)