Introduction to temporality in Mohawk

1. A DASH OF MOHAWK GRAMMAR

1.0 *Linguistic type*

'Free order', head-marking, rich inflection, noun incorporation (*gram. polysynthetic*)

1.1 *Verb template* (*FL* modulo *MB*; standard Mohawk orthography for ʌ > en, u > on, l > r)

Form(s)	*FL* (p. 95)/*M&W*	*MB*	*e.g.*
• **Slot 1** (opt): CATEGORY-NEUTRAL prefix:			
n-	*of*/partitive (PAR)	*of*	§1.1
sh-	*when*/coincident (COIN)	*wth* ('with')	
th-	contrastive (CON)	*w/o* ('without')	*B&T* '97
• **Slot 2** (finite verb): MOOD inflection = (CL_M*) + MOOD + (CL_M)			
t-	duplicative (DPL)	plural event (EE)	(1), §1.1
s-	iterative (ITR)	part of pl event (^{n}EE)	§1.2
ye-	translocative (TRANS)	end of chain (X<u>X</u>)	§1.1
te-	cislocative (CIS)	beginning of chain (<u>X</u>X)	§1.5
wa'-, we-, on...	aorist modal (AOR)	indicative mood (IND)	§1.1
en-, enh	future modal (FUT)	hypothetical mood (HYP)	(1), §1.6
a(h)-, ae, aon...	indefinite modal (IND)	optative mood (OPT)	(2), §1.6
te'-	negative *prefix* (NEG)	irrealis mood (IRR)	(2)
• **Slot 3**: Pronominal AGR with *subject* and/or *object*:			
ho-	3sM O	$3sm_U$	§1.1
ka-	3sFN	3sf	§1.1
ske-	2s:1s	2s.1s	§1.6
⋮	⋮	⋮	⋮
• **Slot 4**: Verbal base = ({*se*-, *se**-}) + (n-n/v) + v-ROOT + v\v*			
at-	*own, self*/refl. (RFL)	*se* (as in *de se* attitudes)	(2), §1.1
atat-	*self*/reciprocal (RCIP)	*se.se* (emphatic or pl *se*)	
-en	*be, -ed*/perfective (PRF)	*be*	§1.1
-'	*begin*/inchoative (INC)	*begin*	
-hákye	*go.along*/prog. (PRG)	*prg* ('progressive')	§1.1
-k	*continue*/continuative (CNT)	*itr* ('iterative')	(2)
-ha	*go.and*	*go.to*	§1.6
-hser	*going.to*/purposive (PURP)	*intend*	(2)
⋮	⋮	⋮	⋮
• **Slot 5**: ASPECT inflection = {$^{\omega}$}+ASPECT + ($^{\omega}$, {-[, -]})			
-(n)e', -'…	punctual aspect (PNC)	eventive aspect (EVT)	§1.1
-(h)s, -ha', …	serial aspect (SRL)	durative aspect (DUR)	§1.1
-on, -en, -',…	perfective aspect (PRF)	stative aspect (STA)	§1.3, §1.4
-hne'	former past (PST)	perfective aspect (^{n}PRF)	*B&T* '98
-kwe'	remote past (PST)	*used to*-aspect (^{h}PRF)	*B&T* '98

(1) *B&T* (4): *Describing an old fire truck, with no place to hook up the hose*:

Onenk	tsi	ki	tehniyahse	ohnaken	en-t-hy-atyen-‘	
necessary	$D_{\perp}$	N	*two.people*	*behind*	HYP-EE-33m-*sit*-EVT	*MB*
					FUT-DPL-3dM-*sit*-PNC	*M&W/B&T*

It was necessary for two people to sit behind…

tanon	en-hni-yena-’	ne	ohonrota.	
and	HYP-33m.3s-*hold*-EVT	$D_{\top}$	*hose*	*MB*
	FUT-3dM.3s-*hold*-PNC			*M&W*

and hold the hose.

(2) *M&W* (58): *Fox enlists Cat for his fight with Bear, but when they arrive, Bear offers peace. Fox says ‘Ok by me’, but Cat speaks up:*

kwahi:ken	ki’	n=í’i	tsi	wa’-ke-hnáten	
very	N	$D_{\top}$=*me*	$D_{\perp}$	IND-1s-*be.sorry*.EVT	*MB*
				AOR-1s-*be.sorry*-PNC	*M&W*

I am very sorry…

tsi	iyah	te-tew-ate-riyo-hser-e’	
$D_{\perp}$	*not*	IRR-122-*se-thrash-intend*-STA	*MB*
		neg-1pI-RFL-*fight*-PURP-PRF	*M&W*

…that we’re not going to fight.

(59) *Then Cat said further:*

ken’	n=i’	n-aon-k-yér-en	
emp	$D_{\top}$=*me*	*of*-OPT-1s-*do*-STA	*MB*
		PAR-IND.1s O-*do*-PRF	*M&W*

As for me, this is what <u>I</u> would’ve done [I](wanted to do)…

ne	toka	a-yunkw-ate-ríyo-k-e’.	
$D_{\top}$	*if*	OPT-122-*se-thrash-itr*-EVT	*MB*
		IND-1pI-RFL-*fight-state*-PNC	*M&W*

…<u>if</u> we had fought [I](opted to fight).

1.2 MOOD *interacts with* ASPECT (according to *B&T*)

	-<u>EVT</u>	-<u>DUR</u>	-<u>STA</u>	
• ∅	* (?)	✓ (1)	✓(3)	*M&W* (53)?
• <u>IND-</u>	✓ (1)	*	* (?)	*M&W* (51)?
• <u>HYP-</u>	✓ (6)	✓	✓	
• <u>OPT-</u>	✓ (6)	✓	✓ (59)	
• <u>IRR-</u>	*	*	✓ (58)	

REMARKS:
- Only *events/processes* (EVT) can be reported as *facts* (IND)
  (***like*** Yukatek, ***unlike*** Kalaallisut)
- *Non-events* (DUR/STA) do not inflect like 'proper verbs' (MOOD optional)
  (***like*** Yukatek (MOOD impossible), ***unlike*** Kalaallisut (MOOD obligatory))
- *Negation* requires *non-factual mood* (IRR or CF-SBJ)
  (***like*** Kalaallisut (IRR or NON), ***unlike*** English)
- *Irrealis* talk requires reference to a *state* (of unrealized expectation?)
  (***unlike*** Kalaallisut)
- *Future* talk does NOT require reference to a *state* (of future-oriented attitude)
  (***like*** English, ***unlike*** Kalaallisut & Yukatek)

HYPOTHESIS:

IND in Mohawk	~	reality presupposition	(like IND in Kal, Yukatek, etc)
IRR in Mohawk	~	*state* of unrealized expectation	(like *prospective statives* in Kal, Yuk.)
HYP in Mohawk	~	realistic hypothesis ([I]prospect)	(like WILL/WOULD – TNS presup. in Eng)
SBJ in Mohawk	~	[I](more remote) possibility	(like SBJ in Polish, etc)

2. BEGINNING OF SAMPLE TEXT

Ohkwari tánon' jítson
"The Bear and the Fox"

In Mithun, M. & Woodbury, H. eds. 1980 *Northern Iroquoian Texts*, 77–95, U. Chicago Press.
REVISED TRANSCRIPTION: ʌ > en, u > on, j > ts, l > r, as in standard Mohawk orthography.
REVISED TRANSLATION: Floyd Lounsbury (*FL*) 1953 modulo M. Bittner (*MB*) 3/31/2005.

§1. *Fox finds food and shares it with Bear*

§1.1 ki tsitsho te-ho-t-stikahwh-en-hákie-' *if*
N *fox* EE-3sm-*se-travel-be-prg*-STA
A fox was travelling along, when…

thontaiawénhstsi yah-à-ra-w-e' *ib, mf*
suddenly XX-IND-3sm-*arrive*-EVT
…suddenly he came upon…

tsi-nón ni-ka-ya'kyónni ko-hsaten-s yó-tá'-s *ff*
$D_{\perp}$-*place* *of*-3sf-*lie.down*.EVT 3s.3s-*straddle*-DUR $3sf_{U}$-*sleep*-DUR
…a sleeping mare.

§1.2 wa-ha-non'-kéra-' ki ko-hsá:ten-s mf_1, ff_1
IND-3sm-*milk-drink*-EVT N 3s.3s-*straddle*-DUR
He sucked milk from the mare…

tsi=ni-yó-re-' y-a-hó-hta'-ne' $if_2\ mf_2$
$D_{\perp}$=*of*-3s-*distance*-CL XX-IND-$3sm_{U}$-*eat.one's.fill*-EVT
…until he was full…

tánon' stónha y-onsa-h-at-énna't-e' *if*$_3$, *ib*$_3$, *mf*$_3$
and *little.bit* XX-^{n}EE.IND-3sm-*se-take.snack*-EVT
…and then took a little bit away for a snack.

§1.3 kwah ken ni-yo-ré-'a n-ye-s-haw-én-on *if*
just *bit* *of*-3s-*distance*-DIM *of*-XX-^{n}EE-3sm-*go*-STA
He had just gone a short distance,…

tho o-hkwári wa-t-hy-áte-ra'-ne' *ib*, *mf*
there sg-*bear* IND-EE-33m-*se-come.upon*-EVT
…when he met a bear.

§1.4 wa-hèn-ron-' n=o-hkwári: *mf*, *ff*
IND-3sm-*say*-EVT D$_T$=sg-*bear*
The bear said:

"nah-òten ne' thíken sa-hnoskw-á-hnont-e'?" *if*, *ib*, *mf*
"*thing-kind* D$_T$ *that* 2s$_U$-*cheek.cavity*-n/v-*have.full.cheeks*-STA
"What is that stuff bulging in your cheeks?"

§1.5 wa-hèn-ron-' ne tsitsho *mf*, *ff*
IND-3sm-*say*-EVT D$_T$ *fox*
The fox said:

"ko-hsáten-s ise-nekwá k-yó-ta'-s *if*
"3s.3s-*straddle*-DUR *there-direction* XX-3sf$_U$-*sleep*-DUR
"There is a mare, over there, sleeping,…

y-a'-ke-non'-kéra-' *mf*
XX-IND-1s-*milk-drink*-EVT
…I sucked milk from her."

§1.6 "owá" wa-hèn-ron-' ki o-hkwári. *if*, *mf*, *ff*
Gosh! IND-3sm-*say*-EVT N sg-*bear*
"Gosh!" said the bear.

"ká-ti' en-ske-natón-ha-hs-e' *if*, *mf*
"wh-*how* HYP-2s.1s-*show-go.to-dat*-EVT
"How about showing me…

ka'-nón ni-yó-ta'-s *ff*
wh-*place* *of*-3sf$_U$-*sleep*-DUR
…where she's sleeping,…

aón-to *mf*
OPT.3s-*be.possible*.STA
…[then] it would be possible…

n-í:'i a-ie-non'-kéra-' óni *if mf ff*
D$_T$=*me* OPT-1s-*milk-drink*-EVT *also*
…for me to suck too."

Formalization (1):
Indicative Mohawk discourse online

1. KEY PLAYERS IN TEMPORAL ANAPHORA (in the order of appearance):

Form	*MB* gloss (stands for)	1st ex	Presuppositional test (^{P}); update; implicature (^{I})	
V-slot 1 (opt): CATEGORY-NEUTRAL prefix:				
n-	*of*	§1.1	$[e\mid d\kappa^{\pi}\{e\} =_{d\Omega} d\pi]$	
		§1.3	$[k^{\pi}\mid d\varepsilon\varepsilon\colon k^{\pi}\{\varepsilon\} =_{d\Omega} \Pi\{\varepsilon\}]$	
		§1.2	$[k^{\tau}\mid d\varepsilon\varepsilon\colon k^{\tau}\{\varepsilon\} =_{d\Omega} \vartheta\{\varepsilon\}]$	
sh-	*wth* ('with')	§4.3		
th-	*w/o* ('without')	§2.6		
V-slot 2 (finite V): MOOD inflection = (CL_M*) + MOOD + (CL_M)				
t(e)-	EE (pl. event: process,	§1.1	$[ee\mid prc_{d\Omega}\ ee]$	
	or reciprocal)	§1.3	$[ee\mid rcp_{d\Omega}\ ee]$	
(t)s-	^{n}EE (part of pl. event)	§1.2^{3}	$[\mathscr{E}\mathscr{E}\mid d\mathfrak{d} = {}^{1}\mathscr{E}\mathscr{E}]$	
y(e)-	XX (end of chain)	§1.1	$[\mid d\varepsilon = {}^{f}d\varepsilon\varepsilon]$	
t(e)-	XX (beg. of chain)	§1.5	$[s\mid s \subseteq_{d\Omega} {}^{1}d\pi\pi]$	
wa'-	IND (indicative)	§1.1	$[\mid \vartheta_{d\Omega}\ d\varepsilon < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$	(realized *event*)
		§1.2^{1}	$[\mid \vartheta_{d\Omega}\ {}^{1}d\varepsilon\varepsilon < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$	(realized *1st* of *event*-chain)
		§1.2^{3}	$[\mid \vartheta_{d\Omega}\ {}^{1}d\mathfrak{d}\mathfrak{d} < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$;	(realized *1st* of *planned ev*'s)
		(1)	$[\mid \vartheta_{d\Omega}\ {}^{1}d\eta^{\varepsilon} < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$	(realized *1st* of *habitual ev*'s)
en-	HYP (hypothetical)	§1.6		
a-	SBJ (subjunctive)	§1.6		
te-	IRR (irrealis)	§2.6		
V-slot 3: Pronominal AGR with S, O				
⋮				
V-slot 4: V.BASE = ({*se, se.se*}) + (n + n/v +) v (+ v\v)				
at-	*se-*	§1.1	$[\mid \text{AG}\ d\varepsilon\varepsilon =_{d\Omega} \text{DA}\ \{\text{RS}\ d\varepsilon\varepsilon\}]$	
-stikahwah-	*-go.along-*	§1.1	$[k^{\pi}\mid d\varepsilon\varepsilon\colon \text{AG}\ go.along_{d\Omega}\ k^{\pi}]$	
-en, -on	*-be*	§1.1	$[s\mid \text{DA}\ s =_{d\Omega} \text{AG}\ d\varepsilon\varepsilon]$	
-hakie	*-prg*	§1.1	$[\mid d\sigma =_{d\Omega} \text{RS}\ {}^{1}d\varepsilon\varepsilon]$	
⋮	⋮	⋮	⋮	

V-slot 5: ASPECT infl = ASPECT + (CL_A)			asp-adjustment;	$^{\top}\tau\omega$-location;	pre-*fb* $^{\top}\tau$-update
-(e)', -ne	EVT (eventive)	§1.1	$([e\mid e =_{d\Omega} \text{BG}\ d\sigma];)$	$[\mid d\varepsilon \subseteq_{d\Omega} \mathbf{d}\tau]$;	$[\mathbf{t}\mid \mathbf{t} =_{d\Omega} \vartheta\text{RS}\ d\varepsilon]$
		§1.2^{1}	$([\mid d\varepsilon\varepsilon \in_{d\Omega} d\eta^{\varepsilon\varepsilon}];)$	$[\mid {}^{1}d\varepsilon\varepsilon \subseteq_{d\Omega} \mathbf{d}\tau]$;	$[\mathbf{t}\mid \mathbf{t} =_{d\Omega} \vartheta\text{RS}\ {}^{1}d\varepsilon\varepsilon]$
-(h)s, -ha	DUR (durative)	§1.1		$[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\eta^{\varepsilon}]$;	$[\mathfrak{D}\mid \mathfrak{D} = \vartheta\text{RS}\ d\eta^{\varepsilon}]$
		§1.1	$([s\mid s =_{d\Omega} \text{RS}\ d\varepsilon];)$	$[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\sigma]$;	
-(en), -on	STA (stative)	§1.1	$([s\mid s =_{d\Omega} \text{RS}\ d\varepsilon];)$	$[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\sigma]$;	
-s-kwe'	^{h}PRF ('used to')	BT98	$[s\mid \text{BG}\ s =_{d\omega} \text{BG RS}\ {}^{f}d\eta^{\varepsilon}]$;	$[\mid \mathbf{d}\tau \subseteq_{d\omega} d\sigma]$;	
-en-hne'	^{n}PRF (*n*th result state)	BT98	$[s\mid s =_{d\omega} \text{RS}\ {}^{n}d\varepsilon\varepsilon]$;	$[\mid \mathbf{d}\tau \subseteq_{d\omega} d\sigma]$;	

2. KEY PLAYERS IN NOMINAL ANAPHORA (in default order)

N-determiners

ne(*n*)	$N_{\top}$	§1.2	$[\mid \mathbf{d}\alpha =_{\mathbf{d}\Omega} d\kappa^{\alpha}\{d\varepsilon\varepsilon\}]$
tsi	$N_{\bot}$	§1.1	$[l \mid l =_{\mathbf{d}\Omega} d\kappa^{\pi}\{d\varepsilon\}]$
ki'	N	§1.1	$[\mathbf{a}\ k^{\alpha} \mid \mathbf{a} = k^{\alpha}\{\mathbf{d}\varepsilon\}]$
tho	K	§1.3	$[\mathbf{k}^{\alpha}\ a \mid a =_{\mathbf{d}\Omega} \mathbf{k}^{\alpha}\{d\varepsilon\}]$

V-slot 3: Pronominal V.AGR with S, O

	$3sm_U$	§1.1	$^{P}[\mid 3sm\ \mathbf{d}\alpha]$; $[\mid \text{DA}\ d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha]$
	2s.1s	§1.6	$^{P}[\mid 2s\ \mathbf{d}\alpha,\ 1s\ d\alpha]$; $[\mid \text{AG}\ d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha,\ \text{DA}\ d\varepsilon =_{\mathbf{d}\Omega} d\alpha]$

3. IROQUOIAN INDICATIVE: REALIZED (FIRST) EVENT

- Realized (simple) *event*
  e.g. §1.1 ('arrive')
- Realized *1st* of *event*-chain
  e.g., §1.2[1] ('suck milk')
- Realized *1st* of *planned events*
  e.g., §1.2[3] ('take a little bit for a snack')
- Realized *1st* of *habitual events* (i.e. evt. need not be 'specific', *contra* Baker & Travis '97, '98)

(1) Habit still current ***now***:

Hello Karen. What do you want me to do for you? You want me to tell you a story.
Oneidas don't tell stories in the spring time.

Kwah	kens	ne'	ok	t-on.s.a-ka-nyey-a-hkw-e'	*KM*
just	**HAB**	$D_{\top}$	*emp*	EE-^{n}EE-**IND**-3s-*snow*-n/v-*go.away*-EVT	*MB*
P	P	P	P	DU-ITER.**AOR**-NS-*snow*-JOIN-*pick.up*-PUNC	*KM*
As soon as the snow goes away,…					*KM*
o-khna'	ne'	wa'-hron-at-kenhra't-e'			*KM*
emp-then	$D_{\top}$	IND-333m-*se-stop*-EVT			*MB*
…they stop.					*KM*

(Oneida: Karin Michelson 1981, p. 36)

(2) Habit still current ***then***:

tsi' ke-ks-a'	k-ehyahr-e'		*KM*
$\mathbf{D_{\bot}}$ **1s-*child*-CL**	1s-*remember*-STA		*MB*
When I was a child, I remember…			*KM*
kens tsi's	n-a'-k-at-shanoni-'		*KM*
HAB *so*	*of*-**IND**-1s-*se-be.happy*-EVT		*MB*
…I used to be so glad			*KM*
n=are'	s-a-yo-hsr-at-e'		*KM*
$D_{\top}$=again	XX-**IND**-3s-*winter*-n/v-*be.there*-EVT		*MB*
…when winter came. [I would (HYP) hear the elders tell stories again.]			*KM*

(Oneida: Karin Michelson 1981, p. 36)

4. *-hne'*/*-kwe'*: PERFECTIVE ASPECT vs. PAST TENSE/ANAPHOR

- ***Three analyses***:

	STA-*hne'*	DUR-*kwe'*
Lounsbury 1953:	'remote past'	'former past'
Baker & Travis 1998	*back then* (STA allomorph)	*back then* (DUR allomorph)
Bittner 2005	^{n}PRF (*n*th result state)	AFT (after-state: 'used to')

- ***Argument* 1**:
  -hne'/*-kwe'* (i) occur in the *slot for aspect inflection* and (ii) *require stative/durative aspect*. This is mysterious if *-hne'*/*-kwe'* are past tenses/anaphors (in an otherwise tenseless system), but natural they are part of this aspectual system:

Form(s)	*MB* gloss	1st ex	asp-adjustment	$^{\top}\tau\omega$-location	pre-*fb* $^{\top}\tau$-update
-(e)', *-ne*	EVT (eventive)	§1.1	$([e\mid e =_{d\Omega} \text{BG } d\sigma];)$	$[\mid d\varepsilon \subseteq_{d\Omega} \mathbf{d}\tau];$	$[\mathbf{t}\mid \mathbf{t} =_{d\Omega} \vartheta\text{RS } d\varepsilon]$
		§1.2[1]	$([\mid d\varepsilon\varepsilon \in_{d\Omega} d\eta^{\varepsilon\varepsilon}];)$	$[\mid {}^{1}d\varepsilon\varepsilon \subseteq_{d\Omega} \mathbf{d}\tau];$	$[\mathbf{t}\mid \mathbf{t} =_{d\Omega} \vartheta\text{RS } {}^{1}d\varepsilon\varepsilon]$
-(h)s, -ha	DUR (durative)	§1.1		$[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\eta^{\varepsilon}];$	$[\mathfrak{D}\mid \mathfrak{D} = \vartheta\text{RS } d\eta^{\varepsilon}]$
		§1.1	$([s\mid s =_{d\Omega} \text{RS } d\varepsilon];)$	$[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\sigma];$	
-(en), *-on*	STA (stative)	§1.1	$([s\mid s =_{d\Omega} \text{RS } d\varepsilon];)$	$[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\sigma];$	
-s-kwe'	^{h}PRF ('used to')	BT98	$[s\mid \text{BG } s =_{d\omega} \text{BG RS } {}^{f}d\eta^{\varepsilon}];$	$[\mid \mathbf{d}\tau \subseteq_{d\omega} d\sigma];$	
-en-hne'	^{n}PRF (*n*th result state)	BT98	$[s\mid s =_{d\omega} \text{RS } {}^{n}d\varepsilon\varepsilon];$	$[\mid \mathbf{d}\tau \subseteq_{d\omega} d\sigma];$	

- ***Argument* 2**:
  According to Baker & Travis 1998, *-hne'*/*-kwe'* is interpreted like *back then* and *requires an antecedent* (temporal adverbial or prior *-hne'*/*-kwe'*). This requirement would be unexpected for perfective aspect and, in fact, is NOT borne out by *evidence from texts*.

(3) Ka-rhá:-kon t-hati-'terón:t-ah-kwe' iá:-k-en' ki:-ken kahwá:tsire'.
sg-*forest*-LOC EE-333m-*live*-**DUR**-^{h}**PRF** 3s-*say*-PRF *this* *family*
In a forest, 'tis said, there used to live this family. (Mohawk, KO, p. 102)

(4) *It is said that...*
tsi ki:ken kén' nit-ho-ionha onkwe-hón:we
$N_{\perp}$ *this* *bit* *of*-3sm-*age* *native-person*
…there was this Indian youth who…

ra-on'eskwani-hah-kwe' iot-ahsont-atíhen shé:kon a-ho-iak-en-hatié-se-k-e'
$3sm_{U}$-*enjoy*-**DUR**-^{h}**PRF** sg-*night-middle* *still* OPT-3sm-*go.out-be-prg-itr*-EVT
…used to enjoy going out till after midnight. (Mohawk, KO, p. 238)

- ***Argument* 3**:
  Counterfactual -hne': clearly non-past, but plausibly perfective (in (5), tree no longer exists).

(5) Tóka aon-sa-k-at-káhto-' aon-sa-k-yentere'-ne' ne ó-kwir-e.
if OPT-^{n}EE-1s-*se-look*-EVT OPT-^{n}EE-1s-*know*-**STA**.^{n}**PRF** $N_{\top}$ sg-*tree*-CL
If I saw it again, I would remember (*lit*. would'**ve** know**n**) the tree. (Mohawk, B&T 97:250)

APPENDIX: INDICATIVE MOOD

§1.1–1.5 *Fox finds food and shares it with Bear*

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

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

1.1 A fox… *if*: *if*
ki tsitsho
N *fox*
[**a** k^{α}| **a** = k^{α}{**d**ε}]; [| *fox* $d\kappa^{\alpha}$]; ^{I}[**p**| **p** = Dom $d\kappa^{\alpha}$];

…on the move… *if*: *mf*
te-
EE-
[*ee*| *prc*$_{\mathbf{d}\Omega}$ *ee*]; (^{A}[**t**| **t** =$_{\mathbf{d}\Omega}$ RS ^{1}dεε];)

ho-
3sm$_{U}$-
^{P}[| *3sm*$_{\mathbf{d}\Omega}$ **d**α]; [| DA {RS dεε} =$_{\mathbf{d}\Omega}$ **d**α];

t- -stikahwah
se- *-go.along*
[| AG dεε =$_{\mathbf{d}\Omega}$ DA {RS dεε}]; [k^{π}| dεε: AG *go.along*$_{\mathbf{d}\Omega}$ k^{π}];

-en -hákie
-be *-prg*
[s| DA s =$_{\mathbf{d}\Omega}$ AG dεε]; [| $d\sigma$ =$_{\mathbf{d}\Omega}$ RS ^{1}dεε]

-‘
-STA
[| **d**τ ⊆$_{\mathbf{d}\Omega}$ $d\sigma$];

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

$w_0 \in {}^{\top}p_0$ (p_0-story world)
••… ee_1: $k^{\alpha}{}_1$-fox a_1 goes along $k^{\pi}{}_1$-path
‖ $^{\top}t_1 = \vartheta_{w0}$ RS$_{w0}$ $^{1}ee_1$: result time of ee_1-dep.
= s_1 = RS$_{w0}$ $^{1}ee_1$: result state of ee_1-departure

1.1 …suddenly *ib*
thontaiawénhstsi
suddenly
[e| $e \in d\varepsilon\varepsilon$]; [**t**| $\mathbf{t} =_{\mathbf{d}\Omega} \vartheta d\varepsilon$];

…came upon *mf*
yah- à-
XX- IND-
[| $d\varepsilon =_{\mathbf{d}\Omega} {}^{f}d\varepsilon\varepsilon$]; [| $\vartheta_{\mathbf{d}\Omega}\, d\varepsilon < \vartheta_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon$];

ra-
3sm-
^{P}[| $3sm_{\mathbf{d}\Omega}\, \mathbf{d}\alpha$]; [| AG $d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha$];

we-
-*arrive*
^{P}[| $d\varepsilon\varepsilon$: AG $go.along_{\mathbf{d}\Omega}\, d\kappa^{\pi}$]; [| $d\varepsilon = {}^{f}d\varepsilon\varepsilon$];

-’
-EVT
[| $d\varepsilon \subseteq_{\mathbf{d}\Omega} \mathbf{d}\tau$]; [**t**| $\mathbf{t} =_{\mathbf{d}\Omega} \vartheta$RS $d\varepsilon$];

…a place
tsi- nón *ff*
$D_{\perp}$- *place/time*
[l| $l =_{\mathbf{d}\Omega} d\kappa^{\pi}\{d\varepsilon\}$]; [| $\Pi\{\varepsilon\} \subseteq d\kappa^{\pi}\{\varepsilon\}$]

…where a mare was lying down…
ni- ka-
of- 3sf-
[e| $d\kappa^{\pi}\{e\} =_{\mathbf{d}\Omega} d\pi$]; ^{P}[**k**$^{\alpha}$| $3sf_{\mathbf{d}\Omega}\, \mathbf{k}^{\alpha}\{d\varepsilon\}$]; [| AG $d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\kappa^{\alpha}\{d\varepsilon\}$];

ya’kyónni- -∅
lie.down -STA
[| $d\varepsilon$: AG $lie.down_{\mathbf{d}\Omega}$]; [$s$| $s =_{\mathbf{d}\Omega}$ RS $d\varepsilon$]; [| $\mathbf{d}\tau \subseteq_{\mathbf{d}\Omega} d\sigma$];

ko-
3s.3s-
^{P}[| $3s$ AG $d\eta^{\varepsilon}$, $3s$ $\mathbf{d}\kappa^{\alpha}\{d\eta^{\varepsilon}\}$]; [| DA$\{d\eta^{\varepsilon}\} = \mathbf{d}\kappa^{\alpha}\{d\eta^{\varepsilon}\}$];

hsaten- -s
ride.astride -DUR
[| $d\eta^{\varepsilon}$: AG *ride.astride* DA]; [| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}$];

…asleep.
yó- -tá’- -s
$3sf_{U}$- -*sleep*- -DUR
^{P}[| $3sf_{\mathbf{d}\Omega}\, \mathbf{d}\kappa^{\alpha}\{d\sigma\}$]; [| DA $d\sigma =_{\mathbf{d}\Omega} \mathbf{d}\kappa^{\alpha}\{d\sigma\}$]; [| $d\sigma$: DA $sleep_{\mathbf{d}\Omega}$]; [| $\mathbf{d}\tau \subseteq_{\mathbf{d}\Omega} d\sigma$];

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)

ee_1: $k^{\alpha}{}_1$-fox a_1 goes along $k^{\pi}{}_1$-path
$t_1 = \vartheta_{w0}\ \mathrm{RS}_{w0}{}^{1}ee_1$: result time of ee_1-dep.
$s_1 = \mathrm{RS}_{w0}{}^{1}ee_1$: result state of ee_1-departure
$e_1 = {}^{f}ee_1$: ee_1-end; fox a_1 arrives at l_1
$t'_1 = \vartheta_{w0}\ e_1$: e_1-time
${}^{\top}t''_1 = \vartheta_{w0}\ \mathrm{RS}_{w0}\ e_1$: e_1-arrival result time
e'_1: $k^{\alpha}{}_1$-mare lies down in l_1
$s'_1 = \mathrm{RS}_{w0}\ e'_1$: $k^{\alpha}{}_1$-mare is still lying in l_1
$k^{\alpha}{}_1$-mare is asleep

1.2[1] He sucked milk from… mf_1

wa-
IND-
[*ee*|]; [| $\vartheta_{\mathbf{d}\Omega}\ {}^{1}d\varepsilon\varepsilon < \vartheta_{\mathbf{d}\Omega}\ \mathbf{d}\varepsilon$];

ha-
3sm-
^{P}[| *3sm* $\mathbf{d}\alpha$]; [| AG $d\varepsilon\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha$];

non'- -ké:ra-
milk.of- *-drink.from-*
[k^{β}| k^{β} *milk.of* $\mathbf{d}\kappa^{\alpha}$]; [$h^{\varepsilon\varepsilon}$| $h^{\varepsilon\varepsilon}$: AG *drink* $d\kappa^{\beta}$ *from* $\mathbf{d}\kappa^{\alpha}$];

-'
-EVT
[| $d\varepsilon\varepsilon \in_{\mathbf{d}\Omega} d\eta^{\varepsilon\varepsilon}$]; [| ${}^{1}d\varepsilon\varepsilon \subseteq_{\mathbf{d}\Omega} \mathbf{d}\tau$]; [$\mathbf{t}$| $\mathbf{t} =_{\mathbf{d}\Omega} \vartheta\mathrm{RS}\ {}^{1}d\varepsilon\varepsilon$]

…the mare fb_1

ki
N
[*a*| $a =_{\mathbf{d}\Omega} \mathbf{d}\kappa^{\alpha}\{d\varepsilon\varepsilon\}$];

ko-
3s.3s-
^{P}[| *3s* AG $d\eta^{\varepsilon}$, *3s* $\mathbf{d}\kappa^{\alpha}\{d\eta^{\varepsilon}\}$]; [| DA$\{d\eta^{\varepsilon}\} = \mathbf{d}\kappa^{\alpha}\{d\eta^{\varepsilon}\}$];

hsaten- -s
ride.astride -DUR
[| $d\eta^{\varepsilon}$: AG *ride.astride* DA]; [| $\mathbf{d}\tau \subseteq_{\mathbf{d}\omega} d\eta^{\varepsilon}$];

1.2[2] …until *if*$_2$

tsi=
$D_{\perp}$=
[e| $e = {}^{f}d\varepsilon\varepsilon$];

ni- yó-
of- $3s_{U}$-
[k^{τ}| $d\varepsilon\varepsilon$: $k^{\tau}\{\varepsilon\} =_{d\Omega} \vartheta\{\varepsilon\}$]; ^{P}[| *3s* $\mathbf{d}\tau$]; [| $d\kappa^{\tau}\{^{2}d\varepsilon\varepsilon\} =_{d\Omega} \mathbf{d}\tau$];

re- -‘
distance- -CL
[| $^{2}d\varepsilon\varepsilon <_{d\Omega} d\varepsilon$]; [**t**| $\mathbf{t} =_{d\Omega} d\kappa^{\tau}\{d\varepsilon\}$]

…he had his fill *mf*$_2$

y- a-
XX- IND-
[| $d\varepsilon = {}^{f}d\varepsilon\varepsilon$]; [| $\vartheta_{d\Omega}\, d\varepsilon < \vartheta_{d\omega}\, \mathbf{d}\varepsilon$];

hó-
$3sm_{U}$-
^{P}[| *3sm* $\mathbf{d}\alpha$]; [| DA {RS $d\varepsilon$} $=_{d\Omega}$ $\mathbf{d}\alpha$];

-hta’-
-eat.one’s.fill-
^{P}[| ($d\varepsilon\varepsilon$: AG *feed*$_{d\Omega}$), $d\varepsilon = {}^{f}d\varepsilon\varepsilon$]; [| RS $d\varepsilon$: DA *feel.full*$_{d\Omega}$];

-ne’
-EVT
[| $d\varepsilon \subseteq_{d\Omega} \mathbf{d}\tau$]; [**t**| $\mathbf{t} =_{d\Omega} \vartheta$RS $d\varepsilon$];

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)
⋮ ⋮
• $e_1 = {}^{f}ee_1$: ee_1-end; fox a_1 arrives at l_1
‖ $t'_1 = \vartheta_{w0}\, e_1$: e_1-time
‖ $t''_1 = \vartheta_{w0}\, \mathrm{RS}_{w0}\, e_1$: e_1-arrival result time
• e'_1: $k^{\alpha}{}_1$-mare lies down in l_1
===… $s'_1 = \mathrm{RS}_{w0}\, e'_1$: $k^{\alpha}{}_1$-mare is still lying in l_1
$k^{\alpha}{}_1$-mare is asleep
1 ••…• ee_2: fox a_1 $h^{\varepsilon\varepsilon}{}_2$-sucks $k^{\beta}{}_2$-milk from $k^{\alpha}{}_1$-mare a_2
2 • $e_2 = {}^{f}ee_2$: end of ee_2-sucking,
in e_2-result state fox a_1 feels full
‖ $t_2 = \vartheta_{w0}\, e_2$: e_2-time
‖ ${}^{\top}t'_2 = \vartheta_{w0}\, \mathrm{RS}_{w0}\, e_2$: e_2-result.time

1.2[3] …and then
tánon' *if*$_3$
and
[*ee*| ^{1}*ee* $\subseteq_{\mathbf{d}\Omega}$ RS *d*ε];

…took a little bit for a snack.
stónha *ib*$_3$
little.bit
^{P}[| *d*εε ∈ *d*η$^{\varepsilon\varepsilon}$]; [*b*| *b* =$_{\mathbf{d}\Omega}$ *d*κ$^\beta${RS ^{f}*d*εε}, *small*{*b*, (*d*κ$^\beta$| RS ^{f}*d*η$^{\varepsilon\varepsilon}$)}];

y- on.s.a- *mf*$_3$
XX̲- ^{n}EE- (s-) IND- (wa'-)
[$\mathscr{E}$| $\mathscr{E}$ =$_{\mathbf{d}\Omega}$ ^{f}*d*εε]; [$\mathscr{E}\mathscr{E}$| *d*ə = $^1\mathscr{E}\mathscr{E}$]; [| $\vartheta_{\mathbf{d}\Omega}$ ^{1}*d*əə < $\vartheta_{\mathbf{d}\omega}$ **d**ε];

ha-
3sm-
[| *3sm*$_{\mathbf{d}\Omega}$ **d**α]; [| AG *d*əə = **d**α]

(a)t- -énna't-
se- *-snack.on-*
[| AG *d*əə = DA {RS *d*əə}]; [| ^{f}*d*əə: AG *snack.on d*β]; ^{I}[| *process d*əə]

-e'
-EVT
[| ^{1}*d*əə $\subseteq_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** =$_{\mathbf{d}\Omega}$ ϑRS ^{1}*d*əə]

$w_0 \in {}^\top p_0$ (p_0-story worlds)
⋮ ⋮
====… s'_1 = RS$_{w0}$ e'_1: $k^\alpha{}_1$-mare is still lying in l_1
$k^\alpha{}_1$-mare is asleep
1 ••…•… ee_2: fox a_1 $h^{\varepsilon\varepsilon}{}_2$-sucks $k^\beta{}_2$-milk from $k^\alpha{}_1$-mare
2 • e_2 = $^f ee_2$: end of ee_2-sucking,
in e_2-result state fox a_1 feels full
|| $t_2 = \vartheta_{w0}$ e_2: e_2-time
|||| $t'_2 = \vartheta_{w0}$ RS$_{w0}$ e_2: e_2-result.time
3 •• ee'_2: fox a_1 again $h^{\varepsilon\varepsilon}{}_2$-sucks $k^\beta{}_2$-mlk fr $k^\alpha{}_1$-mare
• $^f ee'_2 = [^1\mathscr{E}\mathscr{E}_2]w_0$: end of ee'_2-sucking, resulting
in b_2-small amt (small for rs of $h^{\varepsilon\varepsilon}{}_2$-sucking)
of k^β-milk, 1st stage of $\mathscr{E}\mathscr{E}_2$-action plan
|| ${}^\top t''_2 = \vartheta_{w0}$ $[^1\mathscr{E}\mathscr{E}_2]w_0$: result tm of 1st stg of $\mathscr{E}\mathscr{E}_2$

~~~~~~

$w_2 \in$ Dom $^f\mathscr{E}\mathscr{E}_2$ ($\mathscr{E}\mathscr{E}_2$-action plan successfully completed)
•…• $\langle [^1\mathscr{E}\mathscr{E}_2]w_0, \ldots, \langle [^f\mathscr{E}\mathscr{E}_2]w_2\rangle$:
activity by fox a_1, ending with fox a_1
snacking on b_2-milk sucked out in $\mathscr{E}_2$
~~~~~~

1.3[1] He had just gone a short distance, when…

kwah ken *if*
just *some*
$^{P}[\mid \mathbf{d\tau} =_{\mathbf{d\Omega}} \vartheta\text{RS}\ ^{1}d\text{ɜɜ}]$; $[ee\mid ee =_{\mathbf{d\Omega}} \langle ^{2}d\text{ɜɜ}, ^{3}d\text{ɜɜ}\rangle]$; $[\mathbf{t}\mid \mathbf{t} =_{\mathbf{d\Omega}} \vartheta\text{RS}\ ^{1}d\varepsilon\varepsilon]$; $[e\mid e \in d\varepsilon\varepsilon]$;

ni- yó-
of- $3s_U$-
$[k^{\pi}\mid d\text{ɜɜ}: k^{\pi}\{\varepsilon\} = \Pi\{\varepsilon\}]$; $^{P}[\mid 3s\ d\pi]$; $[\mid d\kappa^{\pi}\{^{1}d\text{ɜɜ}\} =_{\mathbf{d\Omega}} d\pi]$;

re- -a‘
distance- -DIM
$[\mid ^{1}d\text{ɜɜ} <_{\mathbf{d\Omega}} d\varepsilon]$; $^{P}[\mid d\varepsilon =_{\mathbf{d\Omega}} {}^{3}d\text{ɜɜ}]$; $[\mathbf{l}\mid \mathbf{l} =_{\mathbf{d\Omega}} d\kappa^{\pi}\{d\varepsilon\}]$;

n- ye- s-
of- X<u>X</u>- ^{n}EE-
$[\mid d\kappa^{\pi}\{d\varepsilon\} =_{\mathbf{d\Omega}} \mathbf{d}\pi]$; $[\mid d\varepsilon = {}^{f}d\varepsilon\varepsilon]$; $[\mid d\varepsilon\varepsilon =_{\mathbf{d\Omega}} \langle ^{2}d\text{ɜɜ}, ^{3}d\text{ɜɜ}\rangle]$;

haw-
3sm-
$[\mid 3sm_{\mathbf{d\Omega}}\ \mathbf{d}\alpha]$; $[\mid \text{AG}\ d\varepsilon\varepsilon = \mathbf{d}\alpha]$;

e-
go-
$[\mid d\varepsilon\varepsilon: \text{AG}\ go.along_{\mathbf{d\Omega}}\ d\kappa^{\pi}]$;

-non
-STA
$[s\mid s =_{\mathbf{d\Omega}} \text{RS}\ ^{1}d\varepsilon\varepsilon]$; $[\mid \mathbf{d\tau} \subseteq_{\mathbf{d\Omega}} d\sigma]$;

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)
⋮ ⋮
• $^{f}ee'_2 = [^{1}\mathscr{E}\mathscr{E}_2]w_0$: end of ee'_2-sucking, resulting in b_2-small amt (small for rs of $h^{\varepsilon\varepsilon}{}_2$-sucking) of k^{β}-milk, 1st stage of $\mathscr{E}\mathscr{E}_2$-action plan
|| $t''_2 = \vartheta_{w0}\ [^{1}\mathscr{E}\mathscr{E}_2]w_0$: result tm of 1st stg of $\mathscr{E}\mathscr{E}_2$
•• $ee_3 = \langle[^{2}\mathscr{E}\mathscr{E}_2]w_0, [^{3}\mathscr{E}\mathscr{E}_2]w_0\rangle$: nxt 2 stgs of $\mathscr{E}\mathscr{E}_2$, fox a_1 goes (away from l_1) along path k^{π}_3 just a little bit (compared to planned $^{f}\mathscr{E}\mathscr{E}_2$)
|| $^{\top}t_3 = \vartheta_{w0}\ \text{RS}_{w0}\ ^{1}ee_3$: aft. 1st stg of ee_3-short walk
• $e_3 = {}^{f}ee_3 = [^{3}\mathscr{E}\mathscr{E}_2]w_0$: ee_3-end, jst 3rd $\mathscr{E}\mathscr{E}_2$-stage fox a_1 arrives at $^{\top}l_3 = k^{\pi}{}_3w_0e_3$
= $s_3 = \text{RS}_{w0}\ ^{1}ee_3$: result state of 1st stage of $^{1}ee_3$

~~~~~~

$w_2 \in \text{Dom}\ ^{f}\mathscr{E}\mathscr{E}_2$ ($\mathscr{E}\mathscr{E}_2$-action plan successfully completed)
•••…• $\langle[^{1}\mathscr{E}\mathscr{E}_2]w_2, \langle[^{2}\mathscr{E}\mathscr{E}_2]w_0, [^{3}\mathscr{E}\mathscr{E}_2]w_0, \ldots, \langle[^{f}\mathscr{E}\mathscr{E}_2]w_2\rangle$: activity by fox a_1, ending with fox a_1 snacking on b_2-milk sucked out in $[^{1}\mathscr{E}\mathscr{E}_2]w_2$
~~~~~~

1.3[2] …he bumped into a bear.

tho *ib*
K
$[\mathbf{k}^{\alpha}\ a|\ a =_{\mathbf{d}\Omega} \mathbf{k}^{\alpha}\{d\varepsilon\}]$;

o- -hkwári
sg- *-bear*
$[|\ one(d\alpha, \mathbf{d}\kappa^{\alpha})]$; $[|\ bear\ \mathbf{d}\kappa^{\alpha}]$;

wa- t- *mf*
IND- EE-
$[|\ \vartheta_{\mathbf{d}\Omega}\ d\varepsilon < \vartheta_{\mathbf{d}\omega}\ \mathbf{d}\varepsilon]$; $[ee|\ recip_{\mathbf{d}\Omega}\ ee]$; $[|\ d\varepsilon \in d\varepsilon\varepsilon]$;

hy-
33m-
$[|\ 33m_{\mathbf{d}\Omega}\ \{\mathbf{d}\alpha, d\alpha\}]$; $[\mathbf{A}|\ \mathbf{A} = \{\mathbf{d}\alpha, d\alpha\}]$; $[|\ \cup_{\text{AG}}\ d\varepsilon\varepsilon\ =_{\mathbf{d}\Omega} \mathbf{d}\alpha t]$;

ate- -ra'-
se- *bump.into-*
$[|\ d\varepsilon\varepsilon\text{: AG}\{\varepsilon\} =_{\mathbf{d}\Omega} \text{DA}\{d\varepsilon\varepsilon(\varepsilon)\}]$; $[|\ (d\varepsilon\varepsilon\text{: AG } come.upon_{\mathbf{d}\Omega}\ \text{DA}),\ (d\varepsilon\varepsilon\text{: } \vartheta\varepsilon =_{\mathbf{d}\Omega} \vartheta d\varepsilon\varepsilon(\varepsilon))]$

-ne'
-EVT
$[|\ d\varepsilon\varepsilon \subseteq_{\mathbf{d}\Omega} \mathbf{d}\tau]$; $[\mathbf{t}|\ \mathbf{t} =_{\mathbf{d}\Omega} \vartheta_{\text{RS}}\ d\varepsilon\varepsilon]$;

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

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)
⋮ ⋮
• ${}^{f}ee'_2$: end of ee'_2-sucking, resulting in b_2-small amt (small for rs of $h^{\varepsilon\varepsilon}{}_2$-sucking) of k^{β}-milk
|| $t''_2 = \vartheta_{w0}\ {}^{f}ee'_2$: result tm of ee'_2-sucking
•• ee_3: fox a_1 goes (away from l_1) along path $k^{\pi}{}_3$ just a little bit (compared to $\mathcal{EE}_2$-plan)
|| $t_3 = \vartheta_{w0}\ \text{RS}_{w0}\ {}^{1}ee_3$: aft. 1st stg of ee_3-short walk
• $e_3 = {}^{f}ee_3 = [{}^{3}\mathcal{EE}_2]w_0$: ee_3-end, jst 3rd $\mathcal{EE}_2$-stage fox a_1 arrives at ${}^{\top}l_3 = k^{\pi}{}_3 w_0 e_3$
= $s_3 = \text{RS}_{w0}\ {}^{1}ee_3$: result state of 1st stage of ${}^{1}ee_3$
: $ee'_3 = \{\langle e_3, ee'_3(e_3)\rangle, \langle ee'_3(e_3), e_3\rangle\}$ fox a_1 and $k^{\alpha}{}_3$-bear a_3 come upon each other
|| ${}^{\top}t'_3 = \vartheta_{w0}\ ee'_3$: ee_3'-meeting result time

1.4[1] The bear said:

wa- *mf*
IND-
[*e*|]; [| $\vartheta_{\mathbf{d}\Omega}$ *d*ε < $\vartheta_{\mathbf{d}\omega}$ **d**ε];

hèn-
3sm-
[| *3sm*$_{\mathbf{d}\Omega}$ **d**κ$^{\alpha}${*d*ε}]; [| AG *d*ε =$_{\mathbf{d}\Omega}$ **d**κ$^{\alpha}${*d*ε}];

-ron-
-*say*
[| *d*ε: AG *speak*$_{\mathbf{d}\Omega}$];

-'
-EVT
[| *d*ε ⊆$_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** =$_{\mathbf{d}\Omega}$ ϑRS *d*ε];

n= *ff*
D$_{\top}$
[| *d*α =$_{\mathbf{d}\Omega}$ **d**κ$^{\alpha}${*d*ε}];

o- -hkwári
sg- -*bear*
[| *one*(*d*α, **d**κ$^{\alpha}$)]; [| *bear* **d**κ$^{\alpha}$];

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)

⋮ ⋮

• $^{f}ee'_2$: end of ee'_2-sucking, resulting in b_2-small amt (small for rs of $h^{\varepsilon\varepsilon}{}_2$-sucking) of k^{β}-milk

‖ $t''_2 = \vartheta_{w0}\ {}^{f}ee'_2$: result tm of ee'_2-sucking

•• ee_3: fox a_1 goes (away from l_1) along path $k^{\pi}{}_3$ just a little bit (compared to $\mathscr{EE}_2$-plan)

⋮ ⋮

: $ee'_3 = \{\langle e_3, ee'_3(e_3)\rangle, \langle ee'_3(e_3), e_3\rangle\}$ fox a_1 and $k^{\alpha}{}_3$-bear a_3 come upon each other

‖ $t'_3 = \vartheta_{w0}\ ee'_3$: ee_3'-meeting result time

• e_4: $k^{\alpha}{}_3$-bear a_3 speaks

‖ ${}^{\top}t_4 = \vartheta_{w0}$ RS e_4: e_4-result time

1.4[2] “ (shift to bear’s voice)
$[\mathbf{e}|\ \mathbf{e} = d\varepsilon]$; $[\mathbf{t}|\ \mathbf{t} =_{\mathbf{d}\Omega} \vartheta \mathbf{d}\varepsilon]$;

(*oh* or begin question intonation)
WH
$[\mathscr{E}|\ (\mathbf{d}\varepsilon\text{: AG } \mathit{request}_{\mathbf{d}\Omega}\ \mathscr{E}), (\mathscr{E}\text{: AG } \mathit{specify}\text{ OB})]$; $^{\mathrm{I}}[|\ \text{AG } \mathbf{d}\ni = \text{DA } \mathbf{d}\varepsilon]$;

what…

n=	-ah	-òt.en	*if*
$\mathrm{D}_{\top}$=	*-thing*	*-kind*.CL	

$[\mathbf{k}^{\beta}|\ \mathbf{k}^{\beta} =_{d\Omega} \text{OB } \mathbf{d}\ni]$; $[|\ \mathit{inanimate}\ \mathbf{d}\kappa^{\beta}]$; $[|\ d\Omega \subseteq \text{Dom } \mathbf{d}\kappa^{\beta}]$;

…is that…

ne’	thiken	*ib*
$\mathrm{D}_{\top}$	*that*	

$[b|\ b =_{\mathbf{d}\Omega} \mathbf{d}\kappa^{\beta}\{\mathbf{d}\varepsilon\}]$; $[|\ \mathbf{d}\varepsilon\text{: AG } \mathit{point.at}_{\mathbf{d}\Omega}\ d\beta]$;

…stuff bulging in your cheeks

sa-	*mf*
$2\mathrm{s}_{\mathrm{U}}$-	

$[|\ 2s_{\mathbf{d}\Omega}\ \mathbf{d}\alpha]$; $[s|\ \text{DA } s =_{\mathbf{d}\Omega} \mathbf{d}\alpha]$;

-hnoskw-	-a-	-hnont-
cheek.cavity-	-n/v-	*-have.full.cheeks-*

$[k^{\pi}|\ k^{\pi}\ \mathit{cheek.cavity.of}\text{ DA}]$; $^{\mathrm{P}}[|\ d\kappa^{\pi}\ \mathit{cheek.cavity.of}\text{ DA}]$; $[|\ d\sigma\text{: } d\beta\ \mathit{fill}_{\mathbf{d}\Omega}\ d\kappa^{\pi}]$;

-e’
-STA
$[|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\Omega} d\sigma]$;

? (end of question intonation) ” (end bear’s voice)
$[|\ \mathbf{d}\ni \subseteq \vartheta\text{RS } \mathbf{d}\varepsilon]$; $[\mathbf{t}|\ \mathbf{t} =_{\mathbf{d}\Omega} \vartheta\text{RS } \mathbf{d}\varepsilon]$; $[\mathbf{e}|\ \mathbf{e} = \mathbf{d}\varepsilon_1]$

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)
⋮ ⋮

:	$ee'_3 = \{\langle e_3, ee'_3(e_3)\rangle, \langle ee'_3(e_3), e_3\rangle\}$ fox a_1 and k^{α}_3-bear a_3 come upon each other
‖	$t'_3 = \vartheta_{w0}\ ee'_3$: $ee_3{}'$-meeting result time
•	$^{(\top)}e_4$: k^{α}_3-bear a_3 speaks, requesting $\mathscr{E}_4$-answer
‖	$t_4 = \vartheta_{w0}$ RS e_4: e_4-result time
‖	$t'_4 = \vartheta_{w0}\ e_4$: e_4-request time
…=…	s_4: e_4-dat has his cheeks full of $^{\top}k^{\beta}_4$-stuff b_4
‖	$^{\top}t''_4 = \vartheta_{w0}$ RS e_4: e_4-request result time

~~~~~~

$w_4 \in \text{Dom } \mathscr{E}_4$ (e_4-requested worlds)

‖	$^{\top}t''_4 = \vartheta_{w4}$ RS e_4: e_4-request result time
•	$^{\top}\mathscr{E}_4 w_4$: e_4-requested ans, e_4-dat specifies $^{\top}k^{\beta}_4$
~~~~~~

1.5[1] The fox said:

wa- *mf*
IND-
$[e|\ ];\ [\,|\ \vartheta_{\mathbf{d}\Omega}\ d\varepsilon < \vartheta_{\mathbf{d}\omega}\ \mathbf{d}\varepsilon];$

hèn-
3sm-
$[\,|\ 3sm_{\mathbf{d}\Omega}\ \mathbf{d}\alpha];\ [\,|\ \text{AG}\ d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha];$

-ron-
-say-
$[p|\ d\varepsilon\text{: AG}\ say_{\mathbf{d}\Omega}\ p];\ ^{\mathrm{I}}[\,|\ d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\ni];$

-’
-EVT
$[\,|\ d\varepsilon \subseteq_{\mathbf{d}\Omega} \mathbf{d}\tau];\ [\mathbf{t}|\ \mathbf{t} =_{\mathbf{d}\Omega} \vartheta\text{RS}\ d\varepsilon];$

ne tsitsho *ff*
$\mathrm{D}_{\top}$ fox
$[\,|\ \mathbf{d}\alpha =_{\mathbf{d}\Omega} d\kappa^{\alpha}\{d\varepsilon\}];\ [\,|\ fox\ d\kappa^{\alpha}]$

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)
⋮ ⋮

: $ee'_3 = \{\langle e_3, ee'_3(e_3)\rangle, \langle ee'_3(e_3), e_3\rangle\}$
fox a_1 and k^{α}_3-bear a_3 come upon each other
|| $t'_3 = \vartheta_{w0}\ ee'_3$: ee_3'-meeting result time
• e_4: k^{α}_3-bear a_3 speaks, requesting $\mathscr{E}_4$-answer
|| $t_4 = \vartheta_{w0}$ RS e_4: e_4-result time
|| $t'_4 = \vartheta_{w0}\ e_4$: e_4-request time
…=… s_4: e_4-dat has his cheeks full of ${}^{\top}k^{\beta}_4$-stuff b_4
|| $t''_4 = \vartheta_{w0}$ RS e_4: e_4-request result time
• $e_5 = {}^{\top}\mathscr{E}_4 w_0$: e_4-requested answer, fox a_1
specifies ${}^{\top}k^{\beta}_4$, by claiming to be in p_5
|| ${}^{\top}t_5 = \vartheta_{w0}\ \text{RS}_{w0}\ e_5$: e_5-answer result time

~~~~~~

$w_4 \in \text{Dom}\ \mathscr{E}_4$ (e_4-requested worlds)
|| ${}^{\top}t''_4 = \vartheta_{w4}$ RS e_4: e_4-request result time
• ${}^{\top}\mathscr{E}_4 w_4$: e_4-requested ans, e_4-dat specifies ${}^{\top}k^{\beta}_4$

~~~~~~

$w_5 \in p_5$ (e_5-claim worlds)

1.5[2] " (shift to fox's voice)
[**e**| **e** = $d\varepsilon$]; [**t**| **t** =$_{\mathbf{d}\Omega}$ $\vartheta\mathbf{d}\varepsilon$]; [**p**$_{\omega}$| **p**$_{\omega}$ = $\lambda w \in \mathbf{d}\Omega.d\Omega$];

[There is] a mare…
ko- *if*: *if*
3s.3s-
^{P}[h^{ε}| *3s* AG{$d\eta^{\varepsilon}$}, *3s* DA{$d\eta^{\varepsilon}$}]; [**k**$^{\alpha}$| DA{$d\eta^{\varepsilon}$} = **k**$^{\alpha}${$d\eta^{\varepsilon}$}];

hsaten- -s
ride.astride -DUR
[| $d\eta^{\varepsilon}$: AG *ride.astride* DA]; [| **d**$\tau \subseteq_{\mathbf{d}\Omega} d\eta^{\varepsilon}$];

…over there…
ise- *if*: *ib*
there-
[*s*| **d**ε: AG *point.to*$_{\mathbf{d}\Omega}$ *s*]; [| $d\alpha_1 =_{\mathbf{d}\omega\Omega}$ **d**κ^{α}{$d\sigma$}]; [*a*| $a = d\alpha_1$];

-nekwa
-direction
[*ll*| $\Pi d\sigma \subseteq_{\mathbf{d}\omega\Omega}$ ^{1}ll, $\Pi\mathbf{d}\varepsilon \subseteq_{\mathbf{d}\Omega}$ ^{f}ll];

…sleeping, …
k- *if*: *mf*
XX-
[| $d\sigma \subseteq_{\mathbf{d}\omega\Omega}$ $^{1}d\pi\pi$];

yó-
3sf$_{U}$-
^{P}[| *3sf*$_{\mathbf{d}\omega\Omega}$ **d**κ^{α}{$d\sigma$}]; [| DA $d\sigma =_{\mathbf{d}\omega\Omega}$ **d**κ^{α}{$d\sigma$}];

-tá'- -s
-sleep- -DUR
[| $d\sigma$: DA *sleep*$_{\mathbf{d}\omega\Omega}$]; [| **d**$\tau \subseteq_{\mathbf{d}\omega\Omega} d\sigma$];

1.5[3] I have sucked milk from her. *mf*
y- a'-
XX- IND-
[*ee*| $d\sigma_1 =_{\mathbf{d}\omega\Omega}$ RS ^{f}ee]; ^{I}[*e*| $e = {}^{f}d\varepsilon\varepsilon$]; ^{P}[| $\vartheta_{\mathbf{d}\omega\Omega} d\varepsilon < \vartheta_{\mathbf{d}\Omega}$ **d**ε];

ke-
1s.3s-
^{P}[| *1s* **d**α, *3s* $d\alpha$]; [| AG $d\varepsilon =_{\mathbf{d}\omega\Omega}$ **d**α, DA $d\varepsilon =_{\mathbf{d}\omega\Omega} d\alpha$];

non'- ké:ra-
milk.of- *drink.from-*
[| **d**κ^{β} *milk.of* **d**κ^{α}]; [$h^{\varepsilon\varepsilon}$| $h^{\varepsilon\varepsilon}$: AG *drink* **d**$\kappa^{\beta}$ *from* **d**κ^{α}]; [| $d\varepsilon\varepsilon \in_{\mathbf{d}\omega\Omega} d\eta^{\varepsilon\varepsilon}$];

-'
-EVT
^{P}[| $d\varepsilon = {}^{f}d\varepsilon\varepsilon$]; [| **d**$\tau \subseteq_{\mathbf{d}\omega\Omega}$ RS $d\varepsilon$]; [**t**| **t** =$_{\mathbf{d}\omega\Omega}$ ϑRS $d\varepsilon$]

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)

⋮ ⋮

• e_4: bear a_3 asks fox a_1 for $\mathscr{E}_4$-ans ('what's $k^{\beta}{}_4$?')

⋮ ⋮

====… s_4: e_4-dat (fox a_1) has cheeks full of ${}^{\top}k^{\beta}{}_4$-stuff b_4

|| $t''_4 = \vartheta_{w0}$ RS e_4: e_4-request result time

• ${}^{\top}e_5 = {}^{\top}\mathscr{E}_4 w_0$: e_4-requested answer,
fox a_1 specifies ${}^{\top}k^{\beta}{}_4$ by claiming to be in p_5

|| $t_5 = \vartheta_{w0}$ RS_{w0} e_5: e_5-answer result time

| $t'_5 = \vartheta_{w0}$ e_5: e_5-answer now

~~~~~~

$w_5 \in p_5 = \mathrm{Ran}\ {}^{\top}p_{\omega.5}$ (e_5-claim worlds)

…==… s_5: ${}^{\top}k^{\alpha}{}_5$-mare a_2 sleeps at beg of ll_5-path (pointed at by ${}^{\top}e_5$-agt = fox a_1), leading to ${}^{\top}e_5$-here

••• ee_5: ${}^{\top}e_5$-agt (fox a_1) $h^{\varepsilon\varepsilon}{}_5$-sucks ${}^{\top}k^{\beta}{}_4$-milk from ${}^{\top}k^{\alpha}{}_5$-mare a_2

====… $s_4 = \mathrm{RS}_{w5}\ {}^{f}ee_5$: fox a_1 has cheeks full of ${}^{\top}k^{\beta}{}_4$-milk

||||||||||… ${}^{\top}t''_5 = \mathrm{RS}_{w5}\ {}^{f}ee_5$: ee_5-sucking result time

1.5^f " (end fox's voice)
[**e**| **e** = **d**ε_1];

1.6 "owá" wa-hèn-ron-' ki o-hkwári.
Gosh! IND-3sm-*say*-EVT N sg-*bear*
"Gosh!" said the bear.

"ká-ti' en-ske-natón-ha-hs-e'
"wh-*how* HYP-2s.1s-*show-go.to-for*-EVT
"How about showing me…

ka'-nón ni-yó-ta'-s
wh-*place/time* *of*-$3\mathrm{sf}_{\mathrm{U}}$-*sleep*-DUR
…where she's sleeping,…

aón-to n=í'i a-ke-non'-kéra-' óni
OPT.$3\mathrm{s}_{\mathrm{U}}$-*be.possible*.STA D_{T}=*me* OPT-1s.3s-*milk-suck*-EVT *also*
…[then] I̲ could suck milk from her too."
~~~~~~

Formalization (2):
Non-indicative Mohawk discourse online

1. KEY PLAYERS FOR REFERENCE TO EXPECTATIONS AND/OR DESIRES:

Form	*MB* gloss (stands for)	1st ex	Presuppositional test (^{P}); update; implicature (^{I})
V-slot 1 (opt): CATEGORY-NEUTRAL prefix:			
n-	*of*	§1.1	$[e\mid d\kappa^{\pi}\{e\} =_{d\Omega} d\pi]$
		§1.3	$[k^{\pi}\mid d\varepsilon\varepsilon\colon k^{\pi}\{\varepsilon\} =_{d\Omega} \Pi\{\varepsilon\}]$
sh-	*wth* ('with')	§4.3	
th-	*w/o* ('without')	§2.6	
Slot 2 (finite V): MOOD inflection = (CL_M*) + MOOD + (CL_M)			
t(e)-	EE (pl event)	§1.1	$[ee\mid prc_{d\Omega}\ ee]$
		§1.3	$[ee\mid rcp_{d\Omega}\ ee]$
(t)s-	^{n}EE (part of pl event)	§1.2[3]	$[\mathscr{E}\mathscr{E}\mid d\text{ə} = {}^{1}\mathscr{E}\mathscr{E}]$
		§1.3	$[\mid d\varepsilon\varepsilon =_{d\Omega} \langle {}^{2}d\text{ə}\text{ə}, {}^{3}d\text{ə}\text{ə}\rangle]$
y(e)-	XX (end of chain)	§1.1	$[\mid d\varepsilon = {}^{f}d\varepsilon\varepsilon]$
		§2.1	$[\mathscr{E}\mathscr{E}\ \mathscr{S}\mid {}^{f}\mathscr{E}\mathscr{E} \subseteq \mathscr{S}]$
t(e)-	XX (beg. of chain)	§1.5	$[s\mid s \subseteq_{d\Omega} {}^{1}d\pi\pi]$
wa'-	IND (indicative)	§1.1	$[\mid \vartheta_{d\Omega}\ d\varepsilon < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$ (realized *event*)
		§1.2[1]	$[\mid \vartheta_{d\Omega}\ {}^{1}d\varepsilon\varepsilon < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$ (realized *1st* of *event*-chain)
		§1.2[3]	$[\mid \vartheta_{d\Omega}\ {}^{1}d\text{ə}\text{ə} < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$; (realized *1st* of *planned ev*'s)
		MB05	$[\mid \vartheta_{d\Omega}\ {}^{1}d\eta^{\varepsilon} < \vartheta_{d\omega}\ \mathbf{d}\varepsilon]$ (realized *1st* of *habitual ev*'s)
en-	**HYP (hypothetical)**	**§1.6[2]**	$[\mathscr{T}\mid \mathscr{T} =_{d\omega\Omega} \vartheta\text{RS}\ \mathbf{d}\varepsilon]$; $^{I}[\mid \text{RS}\ \mathbf{d}\varepsilon\colon \text{DA}\ expect_{d\Omega}\ \mathbf{d}\omega\Omega]$
		§2.1[4]	$[\mid \mathbf{d}\omega\tau =_{d\omega\Omega} \vartheta\text{RS}\ d\text{ə}]$; $^{I}[\mid \text{RS}\ d\text{ə}\colon \text{DA}\ expect\ \mathbf{d}\omega\Omega]$
		BT97	$[\mathscr{D}\mid \mathscr{D} =_{d\omega\Omega} \vartheta\text{RS}\ d\eta^{\varepsilon}]$; $^{I}[\mid \text{RS}\ d\eta^{\varepsilon}\colon \text{DA}\ expect\ \mathbf{d}\omega\Omega]$
***a*(*on*)-**	**OPT (optative)**	**§2.1[3]**	$[\mid {}^{1}d\text{ə}\text{ə} \subseteq_{d\omega\Omega} \vartheta\text{RS}\ \mathbf{d}\varepsilon]$; $^{I}[\mid \text{RS}\ \mathbf{d}\varepsilon\colon \text{DA}\ want_{d\Omega}\ d\text{ə}\text{ə}]$;
		§1.6[4]	$[\mathscr{E}\mathscr{E}\mid {}^{1}\mathscr{E}\mathscr{E} \subseteq_{d\omega\Omega} \vartheta\text{RS}\ d\text{ə}]$; $^{I}[\mid \text{RS}\ d\text{ə}\colon \text{DA}\ want\ d\text{ə}\text{ə}]$;
		§1.6[3]	$[\mathbf{p}_{\omega}\ \mathscr{S}\mid \text{BG}\ \mathscr{S} \subseteq_{p\omega} \vartheta\text{RS}\ d\text{ə}]$; $^{I}[\mid \text{RS}\ d\text{ə}\colon \text{DA}\ want\ d\omega\sigma]$
te-	IRR (irrealis)	§2.6	
Slot 3: Pronominal AGR with S, O			
	2s.1s	§1.6	$^{P}[\mid 2s\ \mathbf{d}\alpha,\ 1s\ d\alpha]$; $[\mid \text{AG}\ d\varepsilon =_{d\Omega} \mathbf{d}\alpha,\ \text{DA}\ d\varepsilon =_{d\Omega} d\alpha]$
Slot 4: V.BASE = ({*se, se.se*}) + (n + n/v +) v (+ v\v)			
at-	*se-*	§1.1	$[\mid \text{AG}\ d\varepsilon\varepsilon =_{d\Omega} \text{DA}\ \{\text{RS}\ d\varepsilon\varepsilon\}]$
-stikahwah-	*-go.along-*	§1.1	$[k^{\pi}\mid d\varepsilon\varepsilon\colon \text{AG}\ go.along_{d\Omega}\ k^{\pi}]$
-en, -on	*-be*	§1.1	$[s\mid \text{DA}\ s =_{d\Omega} \text{AG}\ d\varepsilon\varepsilon]$
-hakie	*-prg*	§1.1	$[\mid d\sigma =_{d\Omega} \text{RS}\ {}^{1}d\varepsilon\varepsilon]$
-(ha)k	*-itr*	§2.1[4]	$[\mid \vartheta d\omega\sigma \subseteq d\eta^{\varepsilon\varepsilon}]$
⋮	⋮	⋮	⋮
Slot 5: ASPECT inflection = ASPECT + (CL_A)		asp-adjustment;	$^{\top}\tau\omega$-location; pre-*fb* $^{\top}\tau$-update
-(e)', -ne	EVT (eventive)	§1.1	$([e\mid e =_{d\Omega} \text{BG}\ d\sigma];)$ $[\mid d\varepsilon \subseteq_{d\Omega} \mathbf{d}\tau]$; $[\mathbf{t}\mid \mathbf{t} =_{d\Omega} \vartheta\text{RS}\ d\varepsilon]$
		§2.1[4]	$[\mid \mathbf{d}\omega\tau \subseteq_{d\omega\Omega} d\eta^{\varepsilon\varepsilon}]$; $[\mathscr{D}\mid \mathscr{D} = \vartheta\text{RS}\ {}^{1}d\eta^{\varepsilon\varepsilon}]$
-(h)s, -ha	DUR (durative)	§1.1	$([s\mid s =_{d\Omega} \text{RS}\ d\varepsilon];)$ $[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\sigma]$;
(-en), -on	STA (stative)	§1.1	$([s\mid s =_{d\Omega} \text{RS}\ d\varepsilon];)$ $[\mid \mathbf{d}\tau \subseteq_{d\Omega} d\sigma]$;
-s-kwe'	DUR.^{h}PRF ('used to')	BT98	$[s\mid \text{BG}\ s =_{d\omega} \text{BG RS}\ {}^{f}d\eta^{\varepsilon}]$; $[\mid \mathbf{d}\tau \subseteq_{d\omega} d\sigma]$;
-en-hne'	STA.^{n}PRF (*n*th res state)	BT98	$[s\mid s =_{d\omega} \text{RS}\ {}^{n}d\varepsilon\varepsilon]$; $[\mid \mathbf{d}\tau \subseteq_{d\omega} d\sigma]$;

2. IROQUOIAN VERBAL INFLECTION: TENSE, MOOD, OR VERBAL (IN)DEFINITENESS?

• Three hypotheses:

	TENSE/MOOD Lounsbury 1953	MOOD Chafe '67, '70, Foster '86, ***MB '05***	VERBAL (IN)DEFINITENESS Baker & Travis 1997, 1998
wa'-	past tense (PST)	indicative mood, ***realized (1st) evt***	~ *a certain* (evt), *binding
te'-	n.a.	neg mood (Chafe 70), ***unrealized***	n.a.
en-	future tense (FUT)	future mood, ***expectation***	~ *a* (evt), bnd by FUT , GNR..
a(*on*)-	inf/subj/pol. req.	optative mood, ***desire***	~ *any* (evt), bnd by *want*…

3. INDICATIVE MOOD (review)

wa'-	IND (indicative)	§1.1	[| $\vartheta_{\mathbf{d}\Omega}$ *d*ε < $\vartheta_{\mathbf{d}\omega}$ **d**ε]	(realized *event*)
		(1)	[| $\vartheta_{\mathbf{d}\Omega}$ ^{1}*d*εε < $\vartheta_{\mathbf{d}\omega}$ **d**ε]	(realized *1st* of *event*-chain)
		§1.2[3]	[| $\vartheta_{\mathbf{d}\Omega}$ ^{1}*d*əə < $\vartheta_{\mathbf{d}\omega}$ **d**ε];	(realized *1st* of *planned ev*'s)
		(3)	[| $\vartheta_{\mathbf{d}\Omega}$ ^{1}*d*η$^{\varepsilon}$ < $\vartheta_{\mathbf{d}\omega}$ **d**ε]	(realized *1st* of *habitual ev*'s)

• *wa'*-verbs may be ***current*** (*cf.* Lounsbury) and/or ***habitual*** (*cf.* B&T)

(1) Current *process*:

Ka' wa-hs-e-'?	Ka-nat-akon wa'-k-e-'	*B&T*
where **IND**-2s-*go*-EVT?	sg-*town*-LOC **IND**-1s-*go*-EVT	*MB*
Where are you going?	I'm going to town.	*B&T*

(Mohawk: B&T 1997:217)

(2) Current *result state*:

Wa-hts-ken-' ken thi r-onkwe…?	*B&T*
IND-2s.3sm-*see*-EVT Y/N *that* sg.m-*person*	*MB*
Do you see (*MB*: *have you noticed*) that man [with the fur coat and the straw hat]?	*B&T*

(Mohawk: B&T 1997:217

(3) Current *habit* (see also (4) and (6)):

Oneidas don't tell stories in the spring time.

Kwah kens ne' ok t-on.s.a-ka-nyey-a-hkw-e'	*KM*
just **HAB** D_T *emp* EE-^{n}EE-**IND**-3s-*snow*-n/v-*go.away*-EVT	*MB*
As soon as the snow goes away,…	*KM*
o-khna' ne' wa'-hron-at-kenhra't-e'	*KM*
emp-then D_T IND-333m-*se-stop*-EVT	*MB*
…they stop.	*KM*

(Oneida: Karin Michelson 1981, p. 36)

3. PROSPECTIVE MOODS

• Basic idea

en- expectation based on *speech situation* (**d**ε)), *hypothetical eventuality* (*d*ə), or *habit* (*d*η))
a(on)- desire based on *speech situation* (**d**ε), *hypothetical eventuality* (*d*ə), or *habit* (*d*η))

• Formalization:

en-	**HYP** (hypothetical)	**§1.6**[2]	$[\mathcal{T}\mid \mathcal{T} =_{\mathbf{d}\omega\Omega} \vartheta_{RS}\ \mathbf{d}\varepsilon]$;	$^{I}[\mid_{RS}\ \mathbf{d}\varepsilon$: DA $expect_{\mathbf{d}\Omega}\ \mathbf{d}\omega\Omega]$
		§2.1[4]	$[\mid \mathbf{d}\omega\tau =_{\mathbf{d}\omega\Omega} \vartheta_{RS}\ d\text{ə}]$;	$^{I}[\mid_{RS}\ d\text{ə}$: DA $expect\ \mathbf{d}\omega\Omega]$
		(4–6)	$[\mathcal{D}\mid \mathcal{D} =_{\mathbf{d}\omega\Omega} \vartheta_{RS}\ d\eta^{\varepsilon}]$;	$^{I}[\mid_{RS}\ d\eta^{\varepsilon}$: DA $expect\ \mathbf{d}\omega\Omega]$
a(*on*)-	**OPT** (optative)	**§2.1**[3]	$[\mid {}^{1}d\text{ə}\text{ə} \subseteq_{\mathbf{d}\omega\Omega} \vartheta_{RS}\ \mathbf{d}\varepsilon]$;	$^{I}[\mid_{RS}\ \mathbf{d}\varepsilon$: DA $want_{\mathbf{d}\Omega}\ d\text{ə}\text{ə}]$;
		§1.6[4]	$[\mathscr{E}\mathscr{E}\mid {}^{1}\mathscr{E}\mathscr{E} \subseteq_{\mathbf{d}\omega\Omega} \vartheta_{RS}\ d\text{ə}]$;	$^{I}[\mid_{RS}\ d\text{ə}$: DA $want\ d\text{ə}\text{ə}]$;
		§1.6[3]	$[\mathbf{p}_{\omega}\ \mathcal{S}\mid_{BG}\ \mathcal{S} \subseteq_{\mathbf{p}\omega} \vartheta_{RS}\ d\text{ə}]$;	$^{I}[\mid_{RS}\ d\text{ə}$: DA $want\ d\omega\sigma]$

• Examples

From sample text ('The Bear and the Fox'):

[*The bear said: 'What is that stuff bulging in your mouth?'*

The fox answered: 'There's a mare over there sleeping, I have sucked milk from her.']

1.6[1] "owá" wa-hèn-ron-' ki o-hkwári.
Gosh! IND-3sm-*say*-EVT N sg-*bear*
"Gosh!" said the bear.

1.6[2] "ká-ti' en-ske-natón-ha-hs-e' ka'-nón ni-yó-ta'-s
"wh-*how* **HYP**-2s.1s-*show-go.to-dat*-EVT wh-*place/time* *of*-3sf$_{U}$-*sleep*-DUR
"How about showing me where she's sleeping,…

1.6[3] aón-to
OPT.3s$_{U}$-*be.possible*.STA
…[then] it would be possible…

1.6[4] n=í'i a-k-non'-kéra-' óni
D$_{T}$=*me* **OPT**-1s-*milk-suck*-EVT *also*
…for me to suck [her] milk too."

[*So the two of them turned around and went back to the place where the mare was sleeping. The bear rightaway set to and sucked milk until he was full.* 2.1[1] *The fox then said:*]

2.1[2] "toka'-nónw-a yo-yáner-e'
maybe-place/time-CL 3s$_{U}$-*be.nice*-STA
"It might be nice…

2.1[3] ne y-aon-sa-yeteni-ya't-énhaw-e'
D$_{T}$ ^{f}EE-**OPT**-^{n}EE-12-*body-carry*-EVT
…to carry her off…

2.1[4] khná'a kyótkon n=é'e en-ionkeni-nahskwa-yen-t-ak-e'
then *always* D$_{T}$=*(s)he* **HYP**-12$_{U}$-*animal.of-have-cause-itr*-EVT
…then for ever it would make her our [milking mare].

(4) *[Oneidas don't tell stories in the spring time. As soon as the snow melts they stop...]*

1	tsi' ke-ks-a' k-ehyahr-e'	*KM*
	$D_{\perp}$ 1s-*child*-CL 1s-*remember*-STA	*MB*
	When I was a little girl, I remember…	*KM*
	kens tsi's n-a'-k-at-shanoni-'	*KM*
	HAB *so* *of*-**IND**-1s-*se-be.happy*-EVT	*MB*
	…I used to be so glad	*KM*
2	n=are' s-a-yo-hsr-a-t-e'	*KM*
	$D_{\top}$=again XX-**IND**-3s-*winter*-n/v-*be.there*-EVT	*MB*
	…when winter came again.	*KM*
3	Nen ki are' wi en-s-wak-athontek-e'	*KM*
	$D_{\top}$ N *again* *emp* **HYP**-^{n}EE-1s_{U}-*hear*-EVT	*MB*
	Now yet again I would hear…	*MB*
4	en-s-hrati-kar-a-ton-' hroti-kstenha-okonha	*KM*
	HYP-^{n}EE-333m-*story-n/v-say*-EVT pl.m-*old*-PL_{α}	*MB*
	…the elders tell stories.	*MB*

(Oneida: Karin Michelson 1981, p. 36–7)

(5) [*Corn was very useful* (DUR) *for the Indians: it sustained* (DUR) *them throughout the year.*]

1	Ki:ken o-ká:r-a' ne	*B&T*
	this sg-*story*-CL $D_{\top}$	*MB*
	This story is about…	*MB*
	tsi ni-ye-yér-hah-kwe' a-k-sot-ha	*B&T*
	$D_{\perp}$ *of*-3sf-*do*-**DUR**-^{h}**PRF** sg.f-1s-*grandparent*-CL	*MB*
	…what my grandmother used to do…	*B&T*
2	n=ó:nen en-ye-nenhst-ohare-'	*B&T*
	$D_{\top}$=*time/place* **HYP**-3sf-*corn-clean*-EVT	*MB*
	…when she would clean the corn…	*B&T*
3	tánon' en-ye-the'ser-ón:ni-'	*B&T*
	and **HYP**-3sf-*flour-make*-EVT	*MB*
	…and make the flour…	*B&T*
4	ohén:ton' tsi ni-yó:-re-'	*B&T*
	before/in.front $D_{\perp}$ *of*-3s_{U}-*distance*-CL	*MB*
	…until finally…	*MB*
	ka-na'taro-khón:we en-ye-na'tar-ísa-'	*B&T*
	sg-*bread-real* **HYP**-3sf-*bread-finish*-EVT	*MB*
	…she would finish making real (Mohawk) bread.	*MB*

(Mohawk: data from KO, p. 174,
B&T = Baker & Travis 1997:219)

(6) [*In the spring Grandma would get out her seed corn, put it in a container and give it to my brother, sister, and me, and…*]

1 en-yonkhi-hró:ri-' *MB*
HYP-3sf.133-*tell*-EVT *MB*
…she would tell us: *MB*

2 "Kayé:ri tóka-ni' wisk ni-ka-nénhst-ake y-en-sewa-sen-ht-e'
four *maybe*-? *five* *of-pl-corn*-NUM XX-**HYP**-222.3-*fall-cause*-EVT
"[You are expected to] drop four or five kernels…

áhsen ni-wahsìt-ake na'-te-kon-teron-' "
three *of-feet*-NUM *of*-EE-333-*stay*-STA
…three feet apart.

3 E' thó ki' n-a'-kwá-yer-e'.
$D_{\top}$ K N *of*-**IND**-133-*do*-EVT
[And] that was how we did it.

4 Wa-kwa-hahok-ta-nihon-'
IND-133-*do.row-with-process*-EVT
We did row after row…

ra-k-sot-ha tanon' a-k-sot-ha
sg.m-1s-*grandparent*-CL and sg.f-1s-*grandparent*-CL
…[while] Grandpa and Grandma…

ohná:ken' t-á:-n-e-' ta-hoti'-rhor-on-hatie-'
behind/after EE-**IND**-33-*go*-EVT EE-33.3-*cover-be-prg*-STA
…followed up behind, covering [the kernels with soil]…

tsi ni-yo-re-' en-ya-kwá-hsa-'
$D_{\perp}$ *of*-3s-*distance*-CL **HYP**-XX-133-*finish*-EVT
…until we finished [the job]. (Mohawk: data from KO, p. 175)

- Subcategorized {HYP, OPT}: Implicated attitudes {*expected*, *desired*} cancelled?

(7)

-rharatsten-	{OPT, HYP, *IND}	'promise (to)'
-á:ton'	{OPT, HYP, *IND}	'be possible (to)'
-kwéni	{OPT, *HYP, *IND}	'be able (to)'
-ehr	{OPT, *HYP, *IND}	'want (to)'
-on'wéskwani	{OPT, *HYP, *IND}	'like (to)'

APPENDIX: PROSPECTIVE MOODS (HYP, OPT)

§1.6–1.9 *Fox finds food and shares it with Bear*

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)
⋮ ⋮
• e_4: bear a_3 asks fox a_1 for $\mathscr{E}_4$-ans ('what's k^{β}_4?')
⋮ ⋮
====… s_4: e_4-dat (fox a_1) has cheeks full of ${}^{\top}k^{\beta}_4$-stuff b_4
|| $t''_4 = \vartheta_{w0}$ RS e_4: e_4-request result time
• $e_5 = {}^{\top}\mathscr{E}_4 w_0$: e_4-requested answer,
fox a_1 specifies ${}^{\top}k^{\beta}_4$ by claiming to be in p_5
|| $t_5 = \vartheta_{w0}$ RS$_{w0}$ e_5: e_5-answer result time
| $t'_5 = \vartheta_{w0}$ e_5: e_5-answer now

~~~~~~

$w_5 \in p_5 =$ Ran ${}^{\top}p_{\omega.5}$ (e_5-claim worlds)
…==… s_5: ${}^{\top}k^{\alpha}_5$-mare a_2 sleeps at beg of ll_5-path (pointed at by ${}^{\top}e_5$-agt = fox a_1), leading to ${}^{\top}e_5$-here
••• ee_5: ${}^{\top}e_5$-agt (fox a_1) $h^{\varepsilon\varepsilon}_5$-sucks ${}^{\top}k^{\beta}_4$-milk from ${}^{\top}k^{\alpha}_5$-mare a_2
====… $s_4 =$ RS$_{w5}$ ${}^{f}ee_5$: fox a_1 has cheeks full of ${}^{\top}k^{\beta}_4$-milk
||||||||||… ${}^{\top}t''_5 =$ RS$_{w5}$ ${}^{f}ee_5$: ee_5-sucking result time

1.6[1] " (shift to bear's voice)
[**e**| (**e**: AG *speak*$_{\mathbf{d}\Omega}$), AG **e** $=_{\mathbf{d}\Omega}$ DA $d\varepsilon$, DA **e** $=_{\mathbf{d}\Omega}$ AG $d\varepsilon$]; [**t**| **t** $=_{\mathbf{d}\Omega}$ ϑ**d**ε];

Gosh!
owá! *if*
gosh (admiring tone)
[| **d**ε: AG *exclaims.with.admiration for*$_{\mathbf{d}\Omega}$ DA];

" (end bear's voice)
[**e**| **e** = **d**ε_1];

…said the bear.
wa- *mf*
IND-
[*e*| *e* = **d**ε_1]; [| $\vartheta_{\mathbf{d}\Omega}$ $d\varepsilon$ < $\vartheta_{\mathbf{d}\omega}$ **d**ε];

hèn-
3sm-
^{P}[| *3sm*$_{\mathbf{d}\Omega}$ $d\alpha_1$]; [**a**| **a** = $d\alpha_1$]; [| AG $d\varepsilon$ $=_{\mathbf{d}\Omega}$ **d**α];

-ron- -'
-*say*- -EVT
^{P}[| $d\varepsilon$: AG *speak*$_{\mathbf{d}\Omega}$]; [| $d\varepsilon \subseteq_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** $=_{\mathbf{d}\Omega}$ ϑRS $d\varepsilon$];

ki' o-hkwari *ff*
N sg-*bear*
[| **d**α $=_{\mathbf{d}\Omega}$ **d**κ^{α}_1\{$d\varepsilon$\}]; [k^{α}| k^{α} = **d**κ^{α}_1]; [| *bear* $d\kappa^{\alpha}$]
~~~~~~

$w_0 \in {}^{\top}p_0$	(p_0-story worlds)
⋮	⋮
•	e_4: bear a_3 asks fox a_1 for $\mathscr{E}_4$-ans ('what's k^{β}_4?')
⋮	⋮
====…	s_4: e_4-dat (fox a_1) has cheeks full of ${}^{\top}k^{\beta}_4$-stuff b_4
‖	$t''_4 = \vartheta_{w0}$ RS e_4: e_4-request result time
•	$e_5 = {}^{\top}\mathscr{E}_4 w_0$: e_4-requested answer, fox a_1 specifies ${}^{\top}k^{\beta}_4$ by claiming to be in p_5
|	$t_5 = \vartheta_{w0}$ e_5: e_5-answer now
‖	$t'_5 = \vartheta_{w0}$ RS$_{w0}$ e_5: e_5-answer result time
•	e_6: bear a_3 exclaims with admiration for fox a_1
‖	${}^{\top}t_6 = \vartheta_{w0}$ RS$_{w0}$ e_6: e_6-exclamation result time

~~~~~~

$w_5 \in p_5 =$ Ran ${}^{\top}p_{\omega.5}$	(e_5-claim worlds)
…==…	s_5: ${}^{\top}k^{\alpha}_5$-mare a_2 sleeps at beg of ll_5-path (pointed at by ${}^{\top}e_5$-agt = fox a_1), leading to ${}^{\top}e_5$-here
•••	ee_5: ${}^{\top}e_5$-agt (fox a_1) $h^{\varepsilon\varepsilon}_5$-sucks ${}^{\top}k^{\beta}_4$-milk from ${}^{\top}k^{\alpha}_5$-mare a_2
====…	$s_4 =$ RS$_{w5}$ ${}^{f}ee_5$: fox a_1 has cheeks full of ${}^{\top}k^{\beta}_4$-milk
||||||||||…	$t''_5 =$ RS$_{w5}$ ${}^{f}ee_5$: ee_5-sucking result time

1.6[2] " (shift again to bear's voice)

[**e**| (**e**: AG $speak_{\mathbf{d}\Omega}$), AG **e** $=_{\mathbf{d}\Omega}$ AG $d\varepsilon$, DA **e** $=_{\mathbf{d}\Omega}$ DA $d\varepsilon$]; [| $\mathbf{d}\tau =_{\mathbf{d}\Omega} \vartheta\mathbf{d}\varepsilon$];

How about…[1]

ká- *if*

wh-

[$\mathscr{E}$| ($\mathbf{d}\varepsilon$: AG $request_{\mathbf{d}\Omega}$ $\mathscr{E}$), $\mathscr{E} \subseteq \vartheta$RS $\mathbf{d}\varepsilon$];

-ti'

-how

[$\mathbf{p}_{\omega}$| $\mathbf{p}_{\omega} = \lambda w \in \mathbf{d}\Omega$. Dom $d\ni$];

---

[1] • In $\mathbf{d}\Omega$, $\mathbf{d}\varepsilon$ is an action (speech act) whose agent (speaker) requests the realization of $\mathscr{E}$

($\mathbf{d}\varepsilon$: AG $request_{\mathbf{d}\Omega}$ $\mathscr{E}$) := $\lambda i.\ \forall w \in \mathbf{d}\Omega_i.\ request_w(\mathbf{d}\varepsilon_i$, AG$_w$ $\mathbf{d}\varepsilon_i$, Dom $\mathscr{E})$

• Any realization of $\mathscr{E}$ occurs during the result state of $\mathbf{d}\varepsilon$

($\mathscr{E} \subseteq \vartheta$RS $\mathbf{d}\varepsilon$) := $\lambda i.\ \forall w \in$ Dom $\mathscr{E}$: $\vartheta_w\ \mathscr{E}w \subseteq \vartheta_w$ RS$_w$ $\mathbf{d}\varepsilon_i$
~~~~~~

1.6[2] …showing me…[2]

en- *mf*

HYP-

$[\mathcal{T}|\ \mathcal{T} =_{\mathbf{d}\omega\Omega} \vartheta_{\mathrm{RS}}\ \mathbf{d}\varepsilon];\ {}^{\mathrm{I}}[|\ \mathrm{RS}\ \mathbf{d}\varepsilon\colon \mathrm{DA}\ \mathit{expect}_{\mathbf{d}\Omega}\ \mathbf{d}\omega\Omega]$

-ske

-2s.1s

$[\mathbf{a}\ a|\ \mathit{2s}_{\mathbf{d}\Omega}\ \mathbf{a},\ \mathit{1s}_{\mathbf{d}\Omega}\ a];\ [|\ \mathrm{AG}\{d\text{ə}\} = \mathbf{d}\alpha,\ \ \mathrm{DA}\{\mathrm{RS}\ d\text{ə}\} = d\alpha];$

-natón

-*show*

$[|\ d\text{ə}\colon \mathrm{AG}\ \mathit{show}\ \mathrm{DA}\ d\pi)];$

-ha -hs-

-*go.to* -*dat*-

$[\mathscr{E}\mathscr{E}|\ (\mathscr{E}\mathscr{E}\colon \mathrm{AG}\ \mathit{go.along}\ d\pi\pi),\ d\text{ə} \subseteq \vartheta_{\mathrm{RS}}\ {}^{f}d\text{əə}];\ [|\ \mathrm{DA}\{\mathrm{RS}\ d\text{ə}\} = d\alpha];$

-e'

-EVT

$[|\ d\text{ə} \subseteq_{\mathbf{d}\omega\Omega} \mathbf{d}\omega\tau];\ [\mathcal{T}|\ \mathcal{T} = \vartheta_{\mathrm{RS}}\ d\text{ə}];$

…where…

ka'- -nón *ff*

wh- -*plc/tm*

$^{\mathrm{P}}[|\ (\mathbf{d}\varepsilon\colon \mathrm{AG}\ \mathit{request}_{\mathbf{d}\Omega}\ d\text{ə}),\ d\text{ə} \subseteq \vartheta_{\mathrm{RS}}\ \mathbf{d}\varepsilon];\ [|\ d\text{ə} \subseteq d\pi];$

…she's sleeping…

ni- -yó

of- $-3\mathrm{sf}_{\mathrm{U}}$

$^{\mathrm{P}}[|\ d\sigma \subseteq_{\mathbf{d}\Omega} d\pi];\ [|\ \mathit{3sf}_{\mathbf{d}\Omega}\ \mathbf{d}\kappa^{\alpha}\{d\sigma\}];\ [|\ \mathrm{DA}\ d\sigma =_{\mathbf{d}\Omega} \mathbf{d}\kappa^{\alpha}\{d\sigma\}];$

-ta'

-*sleep*

$^{\mathrm{P}}[|\ d\sigma\colon \mathrm{DA}\ \mathit{sleep}_{\mathbf{d}\Omega}];$

-s

-DUR

$[|\ \mathbf{d}\tau \subseteq_{\mathbf{d}\Omega} d\sigma]$

---

[2] • In any $\mathbf{d}\omega\Omega$-accessible world, $\mathcal{T}$ is the time of the result state of $\mathbf{d}\varepsilon$
$\mathcal{T} =_{\mathrm{d}\omega\Omega} \vartheta_{\mathrm{RS}}\ \mathbf{d}\varepsilon := \lambda i.\ \forall w \in \mathrm{Dom}\ \mathbf{d}\omega\Omega_i \forall w' \in \mathbf{d}\omega\Omega_i w\colon \mathcal{T}w' = \vartheta_{w'}\ \mathrm{RS}_{w'}\ \mathbf{d}\varepsilon_i$

• In $\mathbf{d}\Omega$, the experiencer of the result state of $\mathbf{d}\varepsilon$ expects $\mathbf{d}\omega\Omega$
$\mathrm{RS}\ \mathbf{d}\varepsilon\colon \mathrm{DA}\ \mathit{expect}_{\mathbf{d}\Omega}\ \mathbf{d}\omega\Omega := \lambda i.\ \forall w \in \mathbf{d}\Omega_i \exists s\colon s = \mathrm{RS}_w\ \mathbf{d}\varepsilon_i \wedge \mathit{expect}_w(s, \mathrm{DA}_w\ s, \mathbf{d}\omega\Omega_i w)$

• Any realization of $d\text{ə}$ is an action whose agent shows the experiencer the place $d\pi$
$d\text{ə}\colon \mathrm{AG}\ \mathit{show}\ \mathrm{DA}\ d\pi := \lambda i.\ \forall w \in \mathrm{Dom}\ d\text{ə} \exists e\colon e = d\text{ə}_i w \wedge \mathit{show}_w(e, \mathrm{AG}_w\ e, \mathrm{DA}_w\ e, d\pi_i)$

• Any realization of $\mathscr{E}\mathscr{E}$ is a walk along $d\pi\pi$-path
$\mathscr{E}\mathscr{E}\colon \mathrm{AG}\ \mathrm{go.along}\ \mathrm{d}\pi\pi :=$
$\lambda i.\ \mathrm{process}\ \mathscr{E}\mathscr{E}$
$\wedge\ \forall \mathscr{E} \in \mathscr{E}\mathscr{E} \forall w \in \mathrm{Dom}\ \mathscr{E}\colon \mathit{walk}_w(\mathscr{E}w, \mathrm{AG}_w\ \mathscr{E}w)$
$\wedge\ \forall \mathscr{E} \in \mathrm{Dom}\ \mathscr{E}\mathscr{E} \forall w \in \mathrm{Dom}\ \mathscr{E} \forall w' \in \mathrm{Dom}\ \mathscr{E}\mathscr{E}(\mathscr{E})\ \exists l \in \mathrm{Dom}\ d\pi\pi\colon$
$l \subseteq \Pi_w\ \mathscr{E}w \wedge d\pi\pi_i(l) \subseteq \Pi_{w'}\ \mathscr{E}\mathscr{E}(\mathscr{E})w'$

• In any $\mathbf{d}\omega\Omega$-accessible world, $d\text{ə}$ is realized within $\mathbf{d}\omega\tau$-frame
$d\text{ə} \subseteq_{\mathbf{d}\omega\Omega} \mathbf{d}\omega\tau := \lambda i.\ \forall w \in \mathrm{Dom}\ \mathbf{d}\omega\Omega_i \forall w' \in \mathbf{d}\omega\Omega_i w\colon \vartheta_{w'}\ d\text{ə}_i w' \subseteq \mathbf{d}\omega\tau_i w'$

$w_0 \in {}^{\top}p_0$	(p_0-story worlds)
⋮	⋮
•	$e_5 = {}^{\top}\mathscr{E}_4 w_0$: e_4-requested answer, fox a_1 specifies ${}^{\top}k^{\beta}{}_4$ by claiming to be in p_5
|	$t_5 = \vartheta_{w0}\ e_5$: e_5-answer now
||	$t'_5 = \vartheta_{w0}\ \mathrm{RS}_{w0}\ e_5$: e_5-answer result time
•	e_6: bear a_3 exclaims with admiration for fox a_1
||	${}^{\top}t_6 = \vartheta_{w0}\ \mathrm{RS}_{w0}\ e_6$: e_6-exclamation result time
•	${}^{\top}e'_6$: bear a_3 requests & expects $\mathscr{E}_6$ dur RS e'_6
…===…	s_5: ${}^{\top}k^{\alpha}{}_5$-mare a_2 sleeps at beg l_6 of ll_5-path

~~~~~~

$w_6 \in \mathrm{Dom}\ \mathscr{E}_6 = \mathrm{Ran}\ {}^{\top}p_{\omega,6}$	(e'_6-request/expectation of bear a_3)
|||||||	$\mathscr{T}_6 w_6 = \vartheta_{w6}\ \mathrm{RS}_{w6}\ e'_6$: e'_6-request result time
••	$\langle {}^1\mathscr{E}\mathscr{E}_6 \ldots {}^f\mathscr{E}\mathscr{E}_6 \rangle$: fox a_1 & bear a_3 go along ll_5-path
•	$\mathscr{E}_6 w_6$: during ${}^f\mathscr{E}\mathscr{E}_6$-result, fox a_1 shows bear a_3 bg l_6 of ll_5-pth, plc of s_5-sleep of ${}^{\top}k^{\alpha}{}_5$-mare a_2
||	${}^{\top}\mathscr{T}'_6 w_6 = \vartheta_{w6}$ RS $\mathscr{E}_6 w_6$: $\mathscr{E}_6$-showing result time

~~~~~~

$w_5 \in p_5 = \mathrm{Ran}\ {}^{\top}p_{\omega.5}$	(e_5-claim by fox a_1)
…==…	s_5: ${}^{\top}k^{\alpha}{}_5$-mare a_2 sleeps at beg of ll_5-path (pointed at by ${}^{\top}e_5$-agt = fox a_1), leading to ${}^{\top}e_5$-here
•••	ee_5: ${}^{\top}e_5$-agt (fox a_1) $h^{\varepsilon\varepsilon}{}_5$-sucks ${}^{\top}k^{\beta}{}_4$-milk from ${}^{\top}k^{\alpha}{}_5$-mare a_2
====…	$s_4 = \mathrm{RS}_{w5}\ {}^f ee_5$: fox a_1 has cheeks full of ${}^{\top}k^{\beta}{}_4$-milk
||||||||||…	$t''_5 = \mathrm{RS}_{w5}\ {}^f ee_5$: ee_5-sucking result time

1.6[3] …then it would be possible…[3]
aon-
OPT-
[$\mathbf{p}_{\omega}$ $\mathscr{S}$| BG $\mathscr{S} \subseteq_{\mathbf{p}\omega} \vartheta$RS *d*ə]; [I[| RS *d*ə: DA *want d*ωσ];

-∅
-3s$_U$
[| *3s* **d**ωΩ]; [| Dom *d*ωσ =$_{\mathbf{d}\Omega}$ **d**ωΩ];

-to
-be.possible
[| *can*{*d*ωσ, RS *d*ə}];

-∅
-STA
[| **d**ωτ $\subseteq_{\mathbf{d}\omega\Omega}$ *d*ωσ];

1.6[4] for <u>me</u> …
n= í'i *if*
D$_{\top}$= *me*
[| **d**α =$_{\mathbf{d}\Omega}$ AG{*d*εε}]; [**a**| AG{**d**ε} =$_{\mathbf{d}\Omega}$ **a**];

…to suck [her] milk too.
a- *mf*
OPT-
[$\mathscr{E}\mathscr{E}$| [1]$\mathscr{E}\mathscr{E} \subseteq_{\mathbf{d}\omega\Omega} \vartheta$RS *d*ə]; [I[| RS *d*ə: DA *want d*əə];

-ke
-1s
[P[| *1s* **d**α]; [| AG *d*əə =$_{\mathbf{d}\omega\Omega}$ **d**α];

-non' -kéra-
-milk.of *-drink.from-*
[| **d**κ$^{\beta}$ *milk.of* **d**κ$^{\alpha}$]; [P[| *d*η$^{\varepsilon\varepsilon}$: AG *drink* **d**κ$^{\beta}$ *from* **d**κ$^{\alpha}$]; [| *d*əə $\in_{\mathbf{d}\omega\Omega}$ *d*η$^{\varepsilon\varepsilon}$]

-'
-EVT
[| [1]*d*əə $\subseteq_{\mathbf{d}\omega\Omega}$ **d**ωτ]; [$\mathscr{T}$| $\mathscr{T}$ = ϑRS [1]*d*əə];

óni *ff*
also
[P[| DA **d**ε =$_{\mathbf{d}\Omega}$ AG{*d*εε}, *d*εε $\in_{\mathbf{d}\Omega}$ *d*η$^{\varepsilon\varepsilon}$];

1.6^{f} " (end bear's voice)
[**e**| **e** = **d**ε$_1$];

---

[3] • In any $\mathbf{p}_{\omega}$-accessible world, the beginning of $\mathscr{S}$ is realized during the result state of the realization of *d*ə
BG $\mathscr{S} \subseteq_{\mathbf{p}\omega} \vartheta$RS *d*ə := $\lambda i.\ \forall w \in \text{Dom } \mathbf{p}_{\omega} \forall w' \in \mathbf{p}_{\omega} w$: $\vartheta_{w'}$ BG$_{w'}$ $\mathscr{S}w' \subseteq \vartheta_{w'}$ RS$_{w'}$ *d*ə$_i w'$
• *d*ωσ is a possible realization of the result state of *d*ə
can{*d*ωσ, RS *d*ə} := $\lambda i.$ Dom *d*ωσ$_i \subseteq$ Dom *d*ə$_i$
$\wedge\ \forall w \in$ Dom *d*ωσ$_i$: *d*ωσ$_i w$ = RS$_w$ *d*ə$_i w$

$w_0 \in {}^{\top}p_0$	(p_0-story worlds)
⋮	⋮
•	$e_5 = {}^{\top}\mathscr{E}_4 w_0$: e_4-requested answer, fox a_1 specifies ${}^{\top}k^{\beta}_4$ by claiming to be in p_5
|	$t_5 = \vartheta_{w0}\ e_5$: e_5-answer now
||	$t'_5 = \vartheta_{w0}\ \mathrm{RS}_{w0}\ e_5$: e_5-answer result time
•	e_6: bear a_3 exclaims with admiration for fox a_1
||	${}^{\top}t_6 = \vartheta_{w0}\ \mathrm{RS}_{w0}\ e_6$: e_6-exclamation result time
•	${}^{\top}e'_6$: bear a_3 requests ${}^{\mathrm{I}}$(and expects) $\mathscr{E}_6$ dur RS e'_6
…========…	s_5: ${}^{\top}k^{\alpha}_5$-mare a_2 sleeps at beg l_6 of ll_5-path
•••	ee_5: fox a_1 $h^{\varepsilon\varepsilon}_5$-sucks ${}^{\top}k^{\beta}_4$-milk frm ${}^{\top}k^{\alpha}_5$-mare a_2

~~~~~~

$\mathscr{S}_6 = \langle \mathrm{RS}_w\ \mathscr{E}_6 w: w \in \mathrm{Ran}\ {}^{\top}p'_{\omega,6}\rangle$	($\mathscr{E}_6$-result $p'_{\omega,6}$-desire of bear a_3)
$w'_6 \in \mathrm{Dom}\ \mathscr{S}_6 = \mathrm{Ran}\ {}^{\top}p'_{\omega,6}$	
||||||||	$\mathscr{T}_6 w_6 = \vartheta_{w6}\ \mathrm{RS}_{w6}\ e'_6$: e'_6-request result time
••	$\langle {}^{1}\mathscr{E}\mathscr{E}_6 \ldots {}^{f}\mathscr{E}\mathscr{E}_6\rangle$: fox a_1 & bear a_3 go along ll_5-path
•	$\mathscr{E}_6 w_6$: during ${}^{f}\mathscr{E}\mathscr{E}_6$-result, fox a_1 shows bear a_3 bg l_6 of ll_5-pth, plc of s_5-sleep of ${}^{\top}k^{\alpha}_5$-mare a_2
||||||	$\mathscr{T}'_6 w_6 = \vartheta_{w6}\ \mathrm{RS}_{w6}\ \mathscr{E}_6 w_6$: $\mathscr{E}_6$-showing result time
==	$\mathscr{S}_6 w'_6 = \mathrm{RS}\ \mathscr{E}_6 w'_6$: $\mathscr{E}_6$-showing result state
•••	$\langle {}^{1}\mathscr{E}\mathscr{E}'_6 w'_6 \ldots {}^{f}\mathscr{E}\mathscr{E}'_6 w'_6\rangle$: bear a_3 $h^{\varepsilon\varepsilon}_5$-sucks ${}^{\top}k^{\beta}_4$-milk from ${}^{\top}k^{\alpha}_5$-mare ${}^{\mathrm{P}}$'also': $\mathscr{E}\mathscr{E}_6 \sim ee_5$ (fox a_1 $h^{\varepsilon\varepsilon}_5$-sucks in ${}^{\top}p_0$)
||	${}^{\top}\mathscr{T}''_6 w_6 = \vartheta_{w6}\ \mathrm{RS}_{w6}\ {}^{1}\mathscr{E}\mathscr{E}'_6 w_6$: aft 1st $\mathscr{E}\mathscr{E}'_6$-stage

~~~~~~

$w_6 \in \mathrm{Dom}\ \mathscr{E}_6 = \mathrm{Ran}\ p_{\omega,6}$	(e'_6-request/expectation of bear a_3)
||||||||	$\mathscr{T}_6 w_6 = \vartheta_{w6}\ \mathrm{RS}_{w6}\ e'_6$: e'_6-request result time
••	$\langle {}^{1}\mathscr{E}\mathscr{E}_6 \ldots {}^{f}\mathscr{E}\mathscr{E}_6\rangle$: fox a_1 & bear a_3 go along ll_5-path
•	$\mathscr{E}_6 w_6$: during ${}^{f}\mathscr{E}\mathscr{E}_6$-result, fox a_1 shows bear a_3 bg l_6 of ll_5-pth, plc of s_5-sleep of ${}^{\top}k^{\alpha}_5$-mare a_2
||||||	$\mathscr{T}'_6 w_6 = \vartheta_{w6}\ \mathrm{RS}\ \mathscr{E}_6 w_6$: $\mathscr{E}_6$-showing result time

1.7 So… if_1
sok
so
^{P}[| dəə$_1$ ⊆ **d**ωτ_2]; [**t** *ee*| **t** =$_{\mathbf{d}\Omega}$ **d**ωτ_2, *ee* =$_{\mathbf{d}\Omega}$ dəə$_1$];

…the two of them turned around…
s- -a mf_1
^{n}EE- -IND
[$h^{\varepsilon\varepsilon}$| dεε =$_{\mathbf{d}\Omega}$ $^{2}h^{\varepsilon\varepsilon}$]; [| ϑ$_{\mathbf{d}\Omega}$ ^{1}dεε < ϑ$_{\mathbf{d}\omega}$ **d**ε];

hy-
33m-
^{P}[| *33m*$_{\mathbf{d}\Omega}$ {**d**α + dα}]; [**a**| **a** = **d**α + dα]; [| AG dεε =$_{\mathbf{d}\Omega}$ **d**α];

-áhket
-go.there
[| $d\eta^{\varepsilon\varepsilon}$: AG *go.along* dππ]; [| ^{f}dεε ⊆ ^{1}dππ];

-e’
-EVT
[| ^{1}dεε ⊆$_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** =$_{\mathbf{d}\Omega}$ ϑ$_{\mathrm{RS}}$ ^{1}dεε]

…and went back to…
tanon’ if_2
and
[*e*| *e* ⊆$_{\mathbf{d}\Omega}$ RS ^{1}dεε];

y- on.s.a- mf_2
XX- ^{n}EE- (s-) IND- (-wa)
[| dε =$_{\mathbf{d}\Omega}$ ^{f}dεε]; ^{P}[| dεε =$_{\mathbf{d}\Omega}$ $^{2}d\eta^{\varepsilon\varepsilon}$]; [| ϑ$_{\mathbf{d}\Omega}$ dε < ϑ$_{\mathbf{d}\omega}$ **d**ε];

n-
33m-
^{P}[| *3sm*$_{\mathbf{d}\Omega}$ **d**α]; [| AG dε =$_{\mathbf{d}\Omega}$ **d**α];

-ew-
-arrive-
^{P}[| dεε: AG *go.along*$_{\mathbf{d}\Omega}$ dππ]; [| dε = ^{f}dεε];

-’
-EVT
[| dε ⊆$_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** =$_{\mathbf{d}\Omega}$ ϑ$_{\mathrm{RS}}$ dε];

áre’ fb_2
again
^{P}[| dεε =$_{\mathbf{d}\Omega}$ $^{2}d\eta^{\varepsilon\varepsilon}$];

1.7$_{ff}$ …the place… ff_2

tsi- -nón

D$_\perp$- *-place/time*

$[k^\pi | \, ^1 d\pi\pi = d\kappa^\pi\{d\varepsilon\}]$; $[| \, \Pi\{\varepsilon\} \subseteq d\kappa^\pi\{\varepsilon\}]$

…where the mare was sleeping.

ne

D$_\top$

$[| \, d\alpha =_{\mathbf{d}\Omega} \mathbf{d}\kappa^\alpha\{d\sigma\}]$;

ko-

3s.3s-

$^{P}[| \, 3s$ AG $d\eta^\varepsilon$, $3s \, \mathbf{d}\kappa^\alpha\{d\eta^\varepsilon\}]$; $[| \,$ DA$\{d\eta^\varepsilon\} = \mathbf{d}\kappa^\alpha\{d\eta^\varepsilon\}]$;

hsaten- -s

ride.astride -DUR

$[| \, d\eta^\varepsilon$: AG *ride.astride* DA]; $[| \, \mathbf{d\tau} \subseteq_{\mathbf{d}\omega} d\eta^\varepsilon]$;

ni yó-

of- 3sf$_U$-

$[| \, d\pi =_{\mathbf{d}\Omega} d\kappa^\pi\{d\sigma\}]$; $^{P}[| \, 3sf_{\mathbf{d}\Omega} \, \mathbf{d}\kappa^\alpha\{d\sigma\}]$; $[| \,$ DA $d\sigma =_{\mathbf{d}\Omega} \mathbf{d}\kappa^\alpha\{d\sigma\}]$;

-tá'- -s

-sleep- -DUR

$[| \, d\sigma$: DA $sleep_{\mathbf{d}\Omega}]$; $[| \, \mathbf{d\tau} \subseteq_{\mathbf{d}\Omega} d\sigma]$;

$w_0 \in {}^\top p_0$ (p_0-story worlds)

⋮ ⋮

• e'_6: bear a_3 requests ^{I}(and expects) $\mathscr{E}_6$ dur RS e'_6

…========… s_5: $^\top k^\alpha{}_5$-mare a_2 sleeps at beg l_6 of ll_5-path

••• ee_5: fox a_1 $h^{\varepsilon\varepsilon}{}_5$-sucks $^\top k^\beta{}_4$-milk frm $^\top k^\alpha{}_5$-mare a_2

||||||| $\mathscr{T}_6 w_0 = \vartheta_{w0}$ RS$_{w0}$ e'_6: e'_6-request result time

•• $ee_7 = \langle ^1\mathscr{EE}_6 w_0, \ldots {}^f\mathscr{EE}_6 w_0\rangle$: p_0-realization of $\mathscr{EE}_6$

|| $t_7 = \vartheta_{w0}$ RS $^1ee_7$: aft. 1st stg of ee_7-walk to l_6

• $e_7 = {}^f ee_7$ (= $^2ee_7$): fox a_1 & bear a_3 arrive at l_6

|||||| $^\top t'_7 = \vartheta_{w0}$ RS$_{w0}$ e_7: aft. e_7-arrival

~~~~~~

$\mathscr{S}_6 = \langle$RS$_w$ $\mathscr{E}_6 w$: $w \in$ Ran $^\top p'_{\omega,6}\rangle$ ($\mathscr{E}_6$-result $p'_{\omega,6}$-desire of bear a_3)

$w'_6 \in$ Dom $\mathscr{S}_6$ = Ran $^\top p'_{\omega,6}$

||||||| $\mathscr{T}_6 w_6 = \vartheta_{w6}$ RS$_{w6}$ e'_6: e'_6-request result time

•• $\langle ^1\mathscr{EE}_6 \ldots {}^f\mathscr{EE}_6\rangle$: fox a_1 & bear a_3 go along ll_5-path

• $\mathscr{E}_6 w_6$: during $^f\mathscr{EE}_6$-result, fox a_1 shows bear a_3
bg l_6 of ll_5-pth, w. $^\top k^\alpha{}_5$-mare a_2 is s_5-sleeping

|||||| $\mathscr{T}'_6 w_6 = \vartheta_{w6}$ RS $\mathscr{E}_6 w_6$: $\mathscr{E}_6$-showing result time

== $\mathscr{S}_6 w'_6$ = RS $\mathscr{E}_6 w'_6$: $\mathscr{E}_6$-showing result state

••• $\langle ^1\mathscr{EE}'_6 w'_6 \ldots {}^f\mathscr{EE}'_6 w'_6\rangle$:
bear a_3 $h^{\varepsilon\varepsilon}{}_5$-sucks $^\top k^\beta{}_4$-milk from $^\top k^\alpha{}_5$-mare

|| $^\top\mathscr{T}''_6 w_6 = \vartheta_{w6}$ RS$_{w6}$ $^1\mathscr{EE}'_6 w_6$: aft 1st $\mathscr{EE}'_6$-stage
~~~~~~

1.8[1] The bear… if_1

ki o- -hkwári
N sg- *-bear*
[**a**| **a** = **d**α_1]; [| **d**α = *d*κ^{α}{*d*ε}]; [| *one*(**d**α, *d*κ^{α})]; [| *bear d*κ^{α}];

…right-away… ib_1

kwak- -óksak
just- *-immediately*
[*e*| *e* =$_{\mathbf{d}\Omega}$ BG{RS *d*ε}]; [**t**| **t** =$_{\mathbf{d}\Omega}$ ϑ*d*ε];

…set to…

t- -a mf_1
EE- -IND
^{P}[| *prc d*ə]; [| $\vartheta_{\mathbf{d}\Omega}$ ^{1}*d*ə < $\vartheta_{\mathbf{d}\omega}$ **d**ε];

h-
3sm-
^{P}[| *3sm*$_{\mathbf{d}\Omega}$ **d**α]; [| AG *d*ə =$_{\mathbf{d}\Omega}$ **d**α];

-at
-se
[| AG *d*ə =$_{\mathbf{d}\Omega}$ DA{RS *d*ə}];

-áhsaw
-start
[| *d*ε =$_{\mathbf{d}\Omega}$ ^{1}*d*ə];

-en'
-EVT
[| *d*ε $\subseteq_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** =$_{\mathbf{d}\Omega}$ ϑRS *d*ε];

1.8[2] …and sucked milk… mf_2

wa-
IND-
[*ee*| *ee* =$_{\mathbf{d}\Omega}$ *d*ə]; [| $\vartheta_{\mathbf{d}\Omega}$ ^{1}*d*$\varepsilon\varepsilon$ < $\vartheta_{\mathbf{d}\Omega}$ **d**ε];

ha-
3sm-
^{P}[| *3sm* **d**α]; [| AG *d*$\varepsilon\varepsilon$ =$_{\mathbf{d}\Omega}$ **d**α];

non'- -ké:ra-
milk.of- *-drink.from-*
[| **d**κ^{β} *milk.of* **d**κ^{α}]; [| *d*$\eta^{\varepsilon\varepsilon}{}_{1}$: AG *drink* **d**$\kappa^{\beta}$ *from* **d**κ^{α}]; [*h*$^{\varepsilon\varepsilon}$| *h*$^{\varepsilon\varepsilon}$ = *d*$\eta^{\varepsilon\varepsilon}{}_{1}$];

-'
-EVT
[| *d*$\varepsilon\varepsilon$ $\in_{\mathbf{d}\Omega}$ *d*$\eta^{\varepsilon\varepsilon}$]; [| ^{1}*d*$\varepsilon\varepsilon$ $\subseteq_{\mathbf{d}\Omega}$ **d**τ]; [**t**| **t** =$_{\mathbf{d}\Omega}$ ϑRS ^{1}*d*$\varepsilon\varepsilon$]

1.8[3] …until *if*$_2$

tsi=

$D_{\perp}$=

[*e*| *e* = ^{f}*d*εε];

ni- yó-

of- $3s_{U}$-

[k^{τ}| *d*εε: k^{τ}{ε} =$_{d\Omega}$ ϑ{ε}]; ^{P}[| *3s* **d**τ]; [| *d*κ$^{\tau}${^{1}*d*εε} =$_{d\Omega}$ **d**τ];

re- -‘

distance- -CL

[| ^{1}*d*εε <$_{d\Omega}$ *d*ε]; [**t**| **t** =$_{d\Omega}$ *d*κ$^{\tau}${*d*ε}]

…he was full *mf*$_2$

wa-

IND-

[| ϑ$_{d\Omega}$ *d*ε < ϑ$_{d\omega}$ **d**ε];

hó-

$3sm_{U}$-

^{P}[| *3sm* **d**α]; [| DA {RS *d*ε} =$_{d\Omega}$ **d**α];

-hkwi’-

-be.full-

^{P}[| (*d*εε: AG *feed*$_{d\Omega}$), *d*ε = ^{f}*d*εε]; [| RS *d*ε: DA *feel.full*$_{d\Omega}$];

-ne’

-EVT

[| *d*ε ⊆$_{d\Omega}$ **d**τ]; [**t**| **t** =$_{d\Omega}$ ϑRS *d*ε];

$w_0 \in {}^{\top}p_0$	(p_0-story worlds)
⋮	⋮
•	e'_6: bear a_3 requests $^{\mathrm{I}}$(and expects) $\mathscr{E}_6$ dur RS e'_6
…============…	s_5: $^{\top}k^{\alpha}_5$-mare a_2 sleeps at beg l_6 of ll_5-path
•••	ee_5: fox a_1 $h^{\varepsilon\varepsilon}_5$-sucks $^{\top}k^{\beta}_4$-milk frm $^{\top}k^{\alpha}_5$-mare a_2
||||||||	$\mathscr{T}_6 w_0 = \vartheta_{w0}\, \mathrm{RS}_{w0}\, e'_6$: e'_6-request result time
••	$ee_7 = \langle {}^1\mathscr{E}\mathscr{E}_6 w_0, \ldots {}^f\mathscr{E}\mathscr{E}_6 w_0\rangle$: p_0-realization of $\mathscr{E}\mathscr{E}_6$ fox a_1 & bear a_3 go along ll_6-path (to beg. l_6, where $^{\top}k^{\alpha}_5$-mare a_2 is s_5-sleeping)
||	$t_7 = \vartheta_{w0}$ RS $^1ee_7$: aft. 1st stg of ee_7-walk to l_6
•	$e_7 = {}^f ee_7$ ($= {}^2ee_7$): fox a_1 & bear a_3 arrive at l_6
||||||	$t'_7 = \vartheta_{w0}\, \mathrm{RS}_{w0}\, e_7$: aft. e_7-arrival
||	$t_8 = \vartheta_{w0}\, e_8$: right after e_7-arrival
•	$e_8 = \mathrm{BG}_{w0}\{\mathrm{RS}_{w0}\, e_7\} = {}^1\mathscr{E}\mathscr{E}'_6 w_0$: beg of e_7-res state, bear a_3 starts $\mathscr{E}\mathscr{E}_6$-sucking
||	$t'_8 = \vartheta_{w0}\, \mathrm{RS}_{w0}\, e_8$: aft. 1st stg of $\mathscr{E}\mathscr{E}'_6$-sucking
•••	$ee_8 = \langle {}^1\mathscr{E}\mathscr{E}'_6 w'_0 .. {}^f\mathscr{E}\mathscr{E}'_6 w'_0\rangle$: p_0-realization of $\mathscr{E}\mathscr{E}'_6$ bear a_3 $h^{\varepsilon\varepsilon}_5$-sucks $^{\top}k^{\beta}_4$-milk from $^{\top}k^{\alpha}_5$-mare
•	$e'_8 = {}^f ee_8$: end of ee_8-sucking, in e'_8-result state bear a_3 feels full
||	$t''_8 = \vartheta_{w0}\, e'_8$: e'_8-now
|||	$^{\top}t'''_8 = \vartheta_{w0}\, e'_8$: aft. e'_8-end of ee_8-sucking

~~~~~~

$\mathscr{S}_6 = \langle \mathrm{RS}_w\, \mathscr{E}_6 w: w \in \mathrm{Ran}\ {}^{\top}p'_{\omega,6}\rangle$	($\mathscr{E}_6$-result $p'_{\omega,6}$-desire of bear a_3)
$w'_6 \in \mathrm{Dom}\ \mathscr{S}_6 = \mathrm{Ran}\ {}^{\top}p'_{\omega,6}$	
||||||||	$\mathscr{T}_6 w_6 = \vartheta_{w6}\, \mathrm{RS}_{w6}\, e'_6$: e'_6-request result time
••	$\langle {}^1\mathscr{E}\mathscr{E}_6 \ldots {}^f\mathscr{E}\mathscr{E}_6\rangle$: fox a_1 & bear a_3 go along ll_5-path
•	$\mathscr{E}_6 w_6$: during $^f\mathscr{E}\mathscr{E}_6$-result, fox a_1 shows bear a_3 bg l_6 of ll_5-pth, w. $^{\top}k^{\alpha}_5$-mare a_2 is s_5-sleeping
||||||	$^{\top}\mathscr{T}'_6 w_6 = \vartheta_{w6}$ RS $\mathscr{E}_6 w_6$: $\mathscr{E}_6$-showing result time
==	$\mathscr{S}_6 w'_6 =$ RS $\mathscr{E}_6 w'_6$: $\mathscr{E}_6$-showing result state
•••	$\langle {}^1\mathscr{E}\mathscr{E}'_6 w'_6 \ldots {}^f\mathscr{E}\mathscr{E}'_6 w'_6\rangle$: bear a_3 $h^{\varepsilon\varepsilon}_5$-sucks $^{\top}k^{\beta}_4$-milk from $^{\top}k^{\alpha}_5$-mare $^{\mathrm{P}}$'also': $\mathscr{E}\mathscr{E}_6 \sim ee_5$ (fox a_1 $h^{\varepsilon\varepsilon}_5$-sucks in $^{\top}p_0$)
||	$^{\top}\mathscr{T}''_6 w_6 = \vartheta_{w6}\, \mathrm{RS}_{w6}\, {}^1\mathscr{E}\mathscr{E}'_6 w_6$: aft 1st $\mathscr{E}\mathscr{E}'_6$-stage
~~~~~~

§2. *Fox makes a proposal*

2.1[1] The fox [then] said:

wa- *mf*
IND
[*e*|]; [| $\vartheta_{\mathbf{d}\Omega}\, d\varepsilon < \vartheta_{\mathbf{d}\omega}\, \mathbf{d}\varepsilon$];

hen-
3sm-
^{P}[| *3sm*$_{\mathbf{d}\Omega}$ ($\mathbf{d}\alpha_1 - \mathbf{d}\alpha$)]; [**a**| **a** = ($\mathbf{d}\alpha_1 - \mathbf{d}\alpha$)]; [| AG $d\varepsilon =_{\mathbf{d}\Omega} \mathbf{d}\alpha$];

-ron-
-say
[| $d\varepsilon$: AG *speak*$_{\mathbf{d}\Omega}$];

-’
-EVT
[| $d\varepsilon \subseteq_{\mathbf{d}\Omega} \mathbf{d}\tau$]; [**t**| **t** $=_{\mathbf{d}\Omega} \vartheta$RS $d\varepsilon$];

ne -tsitsho *ff*
$D_{\top}$ *-fox*
[k^{α}| $\mathbf{d}\alpha =_{\mathbf{d}\Omega} k^{\alpha}\{d\varepsilon\}$]; [| *fox* $d\kappa^{\alpha}$];

2.1[2] “(shift to fox’s voice)
[**e**| **e** = $d\varepsilon$]; [**t**| **t** $=_{\mathbf{d}\Omega} \vartheta\mathbf{d}\varepsilon$];

It might…[4]
toka’- -nonw -a *if*
maybe- *-plc/tm* -CL
[$\mathbf{p}_{\omega}$ $\mathscr{E}$| $\mathscr{E} \subseteq_{\mathbf{p}\omega} \vartheta$RS $\mathbf{d}\varepsilon$]; [$\mathscr{S}$| $\mathscr{S}$ = RS $d\text{ə}$]; [$\mathscr{T}$| $\mathscr{T} = \vartheta d\omega\sigma$];

…be nice… *ib*
yo-
$3s_{U}$-
^{P}[| *3s* $\mathbf{d}\omega\Omega$]; [| Dom $d\omega\sigma =_{\mathbf{d}\Omega} \mathbf{d}\omega\Omega$];

-yáner-
-be.nice-
[| $d\omega\sigma$ *nice.for* DA];

-e’
-STA
[| $\mathbf{d}\omega\tau \subseteq_{\mathbf{d}\omega\Omega} d\omega\sigma$];

[4] • Any state realizing $d\omega\sigma$ is nice for the experiencer
$d\omega\sigma$ *nice.for* DA := $\lambda i.\ \forall w \in \text{Dom}\ d\omega\sigma_i \exists s$: $s = d\omega\sigma_i w \wedge nice.for_w(s, \text{DA}_w\ s)$

2.1[3] …to carry her off (bodily)…[5]

ne *mf*

$D_{\top}$

$[\mathcal{T}|\ \mathcal{T} =_{\mathbf{d}\omega\Omega} \vartheta \text{RS}\ \mathbf{d}\varepsilon]$;

y- aon- sa-

XX- OPT- ^{n}EE-

$[\mathcal{E}\mathcal{E}\ \mathcal{L}|\ ^{f}\mathcal{E}\mathcal{E} \subseteq \mathcal{L}]$; $[|\ ^{1}d\ni\ni \subseteq_{\mathbf{d}\omega\Omega} \vartheta\text{RS}\ \mathbf{d}\varepsilon]$; $^{I}[|\ \text{RS}\ \mathbf{d}\varepsilon\text{: DA}\ want_{\mathbf{d}\Omega}\ d\ni\ni]$; $[|\ d\ni = {}^{f}d\ni\ni]$;

yeteni-

12.3sf-

$^{P}[\mathbf{a}|\ 12_{\mathbf{d}\Omega}\ \mathbf{a},\ 3sf_{\mathbf{d}\Omega}\ d\alpha]$; $[|\ \text{AG}\ d\ni\ni = \mathbf{d}\alpha,\ \text{DA}\ d\ni\ni = d\alpha]$;

ya't- -enhaw-

body- *-carry-*

$[k^{\beta}|\ k^{\beta}\ body.of\ d\alpha]$; $[|\ d\ni\ni\text{: AG}\ carry\ d\kappa^{\beta}]$;

-'

-EVT

$[|\ ^{1}d\ni\ni \subseteq_{\mathbf{d}\omega\Omega} \mathbf{d}\omega\tau]$; $[\mathcal{T}|\ \mathcal{T} = \vartheta\text{RS}\ ^{1}d\ni\ni]$;

$w_0 \in {}^{\top}p_0$ (p_0-story worlds)

⋮ ⋮

••• $ee_8 = \langle^{1}\mathcal{E}\mathcal{E}'_6 w'_0 .. {}^{f}\mathcal{E}\mathcal{E}'_6 w'_0\rangle$: p_0-realization of $\mathcal{E}\mathcal{E}'_6$
bear a_3 $h^{\varepsilon\varepsilon}{}_5$-sucks $^{\top}k^{\beta}{}_4$-milk from $^{\top}k^{\alpha}{}_5$-mare

• $e'_8 = {}^{f}ee_8$: end of ee_8-sucking,
in e'_8-result state bear a_3 feels full

|| $t''_8 = \vartheta_{w0}\ e'_8$: e'_8-now

||| $t'''_8 = \vartheta_{w0}\ e'_8$: aft. e'_8-end of ee_8-sucking

• $^{\top}e_1$: fox a_1 speaks about $\mathcal{E}_1$ (to bear a_3)

|||||| $t_1 = \vartheta_{w0}\ \text{RS}_{w0}\ e_1$: e_1-result time

| $^{\top}t'_1 = \vartheta_{w0}\ e_1$: e_1-now

~~~~~~

$w_1 \in \text{Dom}\ \mathcal{E}_1 = {}^{\top}p_{\omega,1}w_0$ (e_1-suggested desirable possibility)

||||||||| $\vartheta_{w1}\ \text{RS}_{w1}\ e_1$: time of $^{\top}e_1$-desired result

• $\mathcal{E}_1 w_1 = {}^{f}\mathcal{E}\mathcal{E}_1 w_1$: end of $\mathcal{E}\mathcal{E}_1$-carrying,

====== $\mathcal{S}_1 w_1 = \text{RS}_{w1}\ \mathcal{E}_1 w_1$: result state of $\mathcal{E}\mathcal{E}_1$-carrying,
nice for dat = fox a_1 +bear a_3

||||||||||||||| $^{\top}\mathcal{T}_1 w_1 = \vartheta_{w1}\ \mathcal{S}_1 w_1$: time of $\mathcal{S}_1$ (desired res state)

||||||||| $\mathcal{T}'_1 w_1 = \vartheta_{w1}\ \text{RS}_{w1}\ e_1$: time of $^{\top}e_1$-desired result

•• $\langle^{1}\mathcal{E}\mathcal{E}_1 w_1 \ldots {}^{f}\mathcal{E}\mathcal{E}_1 w_1\rangle$: fox a_1 + bear a_3 carry
$k^{\beta}{}_1$-body of mare a_2 off to $\mathcal{L}_1 w_1$

|| $^{\top}\mathcal{T}''_1 w_1 = \vartheta_{w1}\ \text{RS}_{w1}\ ^{1}\mathcal{E}\mathcal{E}_1 w_1$: during $\mathcal{E}\mathcal{E}_1$-carrying

---

[5] • Any realization of the final stage of $\mathcal{E}\mathcal{E}$ occurs within $\mathcal{L}$
$^{f}\mathcal{E}\mathcal{E} \subseteq \mathcal{L}$:= $\lambda i.\ \forall w \in \text{Dom}\ ^{f}\mathcal{E}\mathcal{E}\exists e, l\text{: } e = [^{f}\mathcal{E}\mathcal{E}]w \wedge l = \mathcal{L}w \wedge \Pi_w\ e \subseteq l$

• $d\ni\ni$ is a process-chain of stage concepts such that in any realization of any stage the agent carries $d\kappa^{\beta}$
$d\ni\ni$: AG *carry* $d\kappa^{\beta}$:= $\lambda i.\ process\ d\ni\ni_i \wedge \forall\mathcal{E} \in d\ni\ni_i \forall w \in \text{Dom}\ \mathcal{E}\text{: } carry_w(\mathcal{E}w, \text{AG}_w\ \mathcal{E}w, d\kappa^{\beta}{}_i w(\mathcal{E}w))$
~~~~~~

2.1[4] …then for ever it would make her our milking mare.[6]

khná:'a
then *if*
$[\mathcal{T}\mid \mathcal{T} =_{\mathbf{d}\omega\Omega} \vartheta_{\mathrm{RS}}\, d\mathrm{ə}]$;

kyótkon
always
$[h^{\varepsilon\varepsilon}\mid h^{\varepsilon\varepsilon} =_{\mathbf{d}\omega\Omega} (d\eta^{\varepsilon\varepsilon}\mid \mathbf{d}\omega\tau)]$; $[\mathfrak{D}\mid \mathfrak{D} \subseteq_{\mathbf{d}\omega\Omega} d\eta^{\varepsilon\varepsilon}]$; $^{\mathrm{I}}[\mid d\eta^{\varepsilon\varepsilon} \subseteq_{\mathbf{d}\omega\Omega} \mathbf{d}\theta]$

n= é:'e *ib*
$\mathrm{D}_{\top}$= *(s)he*
$[\mid d\alpha =_{\mathbf{d}\Omega} \mathbf{d}\kappa^{\alpha}\{d\varepsilon\varepsilon\}]$; $^{\mathrm{P}}[\mid 3s_{\mathbf{d}\omega\Omega}\, d\alpha]$; $[\mid d\alpha =_{\mathbf{d}\omega\Omega} \mathbf{d}\kappa^{\alpha}\{d\eta^{\varepsilon\varepsilon}\}]$

en- *mf*
HYP-
$[\mid \mathbf{d}\omega\tau =_{\mathbf{d}\omega\Omega} \vartheta_{\mathrm{RS}}\, d\mathrm{ə}]$; $^{\mathrm{I}}[\mid \mathrm{RS}\ d\mathrm{ə}\colon \mathrm{DA}\ \textit{expect}\ \mathbf{d}\omega\Omega]$;

yonkeni-
12_{U}-
$^{\mathrm{P}}[\mid 12_{\mathbf{d}\Omega}\, \mathbf{d}\alpha]$; $[\mid \mathrm{DA}\ d\omega\sigma =_{\mathbf{d}\omega\Omega} \mathbf{d}\alpha]$;

nahskwa- -yen-
animal.of- *-be(.at)-*
$[\mid d\omega\sigma\colon \mathbf{d}\kappa^{\alpha}\ \textit{animal.of}\ \mathrm{DA}]$; $[\mid \mathrm{DA}\ d\omega\sigma \neq \mathbf{d}\kappa^{\alpha}\{d\omega\sigma\}]$;

-(h)t -(h)ak
-cause *-itr*
$[\mid d\omega\sigma = \mathrm{RS}\ d\mathrm{ə}]$; $[\mid \vartheta d\omega\sigma \subseteq d\eta^{\varepsilon\varepsilon}]$;

-e'
-EVT
$[\mid \mathbf{d}\omega\tau \subseteq_{\mathbf{d}\omega\Omega} d\eta^{\varepsilon\varepsilon}]$; $[\mathfrak{D}\mid \mathfrak{D} = \vartheta_{\mathrm{RS}}\ ^{1}d\eta^{\varepsilon\varepsilon}]$;

" (end fox's voice)
$[\mathbf{t}\mid \mathbf{t} =_{\mathbf{d}\Omega} \vartheta_{\mathrm{RS}}\, \mathbf{d}\varepsilon]$; $[\mathbf{e}\mid \mathbf{e} = \mathbf{d}\varepsilon_1]$;

---

[6]
- In any $\mathbf{d}\omega\Omega$-accessible world, $h^{\varepsilon\varepsilon}$ is the restriction of $d\eta^{\varepsilon\varepsilon}$-habit to $d\eta^{\varepsilon\varepsilon}$-processes occurring during $\mathbf{d}\omega\tau$
  $h^{\varepsilon\varepsilon} =_{\mathbf{d}\omega\Omega} (d\eta^{\varepsilon\varepsilon}\mid \mathbf{d}\omega\tau)$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ \mathbf{d}\omega\Omega_i \forall w' \in \mathbf{d}\omega\Omega_i w$: $h^{\varepsilon\varepsilon}w' = \langle d\eta^{\varepsilon\varepsilon}{}_i w' t\colon t \in \mathrm{Dom}\ d\eta^{\varepsilon\varepsilon}w' \,\&\, t \subseteq \mathbf{d}\omega\tau_i w' \rangle$
- In any $\mathbf{d}\omega\Omega$-accessible world, any $\mathfrak{D}$-time is a $d\eta^{\varepsilon\varepsilon}$-frame, $^{\mathrm{I}}$(and any $d\eta^{\varepsilon\varepsilon}$-frame is a $\mathfrak{D}$-time)
  $\mathfrak{D} \subseteq_{\mathbf{d}\omega\Omega} d\eta^{\varepsilon\varepsilon}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ \mathbf{d}\omega\Omega_i \forall w' \in \mathbf{d}\omega\Omega_i w$: $\mathfrak{D}w' \subseteq \mathrm{Dom}\ d\eta^{\varepsilon\varepsilon}{}_i w'$
  $d\eta^{\varepsilon\varepsilon} \subseteq_{\mathbf{d}\omega\Omega} \mathfrak{D}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ \mathbf{d}\omega\Omega_i \forall w' \in \mathbf{d}\omega\Omega_i w$: $\mathrm{Dom}\ d\eta^{\varepsilon\varepsilon}{}_i w' \subseteq \mathfrak{D}w'$
- In any $\mathbf{d}\omega\Omega$-accessible world, $d\alpha$ instantiates $\mathbf{d}\kappa^{\alpha}$ at every stage of any $d\eta^{\varepsilon\varepsilon}$-process
  $d\alpha =_{\mathbf{d}\omega\Omega} \mathbf{d}\kappa^{\alpha}\{d\eta^{\varepsilon\varepsilon}\}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ \mathbf{d}\omega\Omega_i \forall w' \in \mathbf{d}\omega\Omega_i w \forall e e \in \mathrm{Ran}\ d\eta^{\varepsilon\varepsilon}{}_i w' \forall e \in e e$: $d\alpha_i = \mathbf{d}\kappa^{\alpha}{}_i w' e$
- The experiencer of any realization of the result state of $d\mathrm{ə}$ expects to be in a $\mathbf{d}\omega\Omega$-accessible world
  $\mathrm{RS}\ d\mathrm{ə}\colon \mathrm{DA}\ \textit{expect}\ \mathbf{d}\omega\Omega$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\mathrm{ə}_i \exists s\colon s = \mathrm{RS}_w\ d\mathrm{ə}_i w \wedge \textit{expect}_w(s, \mathrm{DA}_w\ s, \mathbf{d}\omega\Omega_i w)$
- In any state realizing $d\omega\sigma$, there is a $\mathbf{d}\kappa^{\alpha}$-animal belonging to the experiencer, who is not that animal
  $d\omega\sigma\colon \mathbf{d}\kappa^{\alpha}\ \textit{animal.of}\ \mathrm{DA}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\omega\sigma_i \exists s\colon s = d\omega\sigma_i w \wedge \textit{animal.of}_w(s, \mathbf{d}\kappa^{\alpha}{}_i w s, \mathrm{DA}_w\ s)$
  $\mathrm{DA}\ d\omega\sigma \neq \mathbf{d}\kappa^{\alpha}\{d\omega\sigma\}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\omega\sigma_i \exists s\colon s = d\omega\sigma_i w \wedge \mathrm{DA}_w\ s \neq \mathbf{d}\kappa^{\alpha}{}_i w s$
- In any $d\omega\sigma$-world, the time of $d\omega\sigma$ is included in the period ($\cup_\tau$) spanned by $d\eta^{\varepsilon\varepsilon}$-frames
  $\vartheta d\omega\sigma \subseteq d\eta^{\varepsilon\varepsilon}$:= $\lambda i.\ \forall w \in \mathrm{Dom}\ d\omega\sigma_i \exists s\colon s = d\omega\sigma_i w \wedge \vartheta_w\, s \subseteq \cup_\tau \mathrm{Dom}\ d\eta^{\varepsilon\varepsilon}{}_i w$

$w_0 \in {}^{\top}p_0$		(p_0-story worlds)
⋮		⋮
	•••	$ee_8 = \langle {}^1\mathscr{E}\mathscr{E}'_6 w'_0 .. {}^f\mathscr{E}\mathscr{E}'_6 w'_0 \rangle$: p_0-realization of $\mathscr{E}\mathscr{E}'_6$ bear a_3 $h^{\varepsilon\varepsilon}{}_5$-sucks ${}^{\top}k^{\beta}{}_4$-milk from ${}^{\top}k^{\alpha}{}_5$-mare
	•	$e'_8 = {}^f ee_8$: end of ee_8-sucking, in e'_8-result state bear a_3 feels full
	ll	$t''_8 = \vartheta_{w0}\, e'_8$: e'_8-now
	lll	$t'''_8 = \vartheta_{w0}\, e'_8$: aft. e'_8-end of ee_8-sucking
	•	e_1: fox a_1 speaks about $\mathscr{E}_1$ (to bear a_3)
	lllllll	$t_1 = \vartheta_{w0}\, \mathrm{RS}_{w0}\, e_1$: e_1-result time
	l	$t'_1 = \vartheta_{w0}\, e_1$: e_1-now
	lllllll	$t''_1 = \vartheta_{w0}\, \mathrm{RS}_{w0}\, e_1 = t_1$: e_1-result time

~~~~~~

$w_1 \in \mathrm{Dom}\, \mathscr{E}_1 = {}^{\top}p_{\omega,1} w_0$		(e_1-suggested desirable possibility)
	llllllllll	$\vartheta_{w1}\, \mathrm{RS}_{w1}\, e_1$: time of ${}^{\top}e_1$-desired result
	•	$\mathscr{E}_1 w_1 = {}^f\mathscr{E}\mathscr{E}_1 w_1$: end of $\mathscr{E}\mathscr{E}_1$-carrying,
	======	$\mathscr{S}_1 w_1 = \mathrm{RS}_{w1}\, \mathscr{E}_1 w_1$: result state of $\mathscr{E}\mathscr{E}_1$-carrying, nice for dat = fox a_1 +bear a_3 ${}^{\top}k^{\alpha}{}_5$-mare a_2 is an animal of (owned by) dat
	llllllllllllllll	$\mathscr{T}_1 w_1 = \vartheta_{w1}\, \mathscr{S}_1 w_1$: time of $\mathscr{S}_1$ (desired res state)
	llllllllll	$\mathscr{T}'_1 w_1 = \vartheta_{w1}\, \mathrm{RS}_{w1}\, e_1$: time of ${}^{\top}e_1$-desired result
	••	$\langle {}^1\mathscr{E}\mathscr{E}_1 w_1 \ldots {}^f\mathscr{E}\mathscr{E}_1 w_1 \rangle$: fox a_1 + bear a_3 carry $k^{\beta}{}_1$-body of mare a_2 off to $\mathscr{L}_1 w_1$
	ll	$\mathscr{T}''_1 w_1 = \vartheta_{w1}\, \mathrm{RS}_{w1}\, {}^1\mathscr{E}\mathscr{E}_1 w_1$: during $\mathscr{E}\mathscr{E}_1$-carrying
	llllllllllllllll	$\mathscr{T}_1 w_1 = \vartheta_{w1}\, \mathrm{RS}_{w1}\, \mathscr{E}_1 w_1$: time of desired res state
	••… ••	$h^{\varepsilon\varepsilon}{}_1 w_1 = \{h^{\varepsilon\varepsilon}{}_5 w_1 t\colon t \in \mathscr{T}_1 w_1\}$ agt $h^{\varepsilon\varepsilon}{}_5$-sucks from $k^{\alpha}{}_5$-mare a_2 dur ${}^{\top}\mathscr{T}_1 w_1$
	llll…llll	$\mathscr{D}_1 w_1 = \mathrm{Dom}\, h^{\varepsilon\varepsilon}{}_1 w_1$: $h^{\varepsilon\varepsilon}{}_1$-milk.sucking times
	ll… ll	${}^{\top}\mathscr{D}'_1 w_1 = \{\vartheta_{w1}\, \mathrm{RS}_{w1}\, {}^1ee\colon ee \in \mathrm{Ran}\, h^{\varepsilon\varepsilon}{}_1 w_1\}$ during $h^{\varepsilon\varepsilon}{}_1$-milk.sucking (1st stg-after.times)
~~~~~~