Beyond Time: A workshop on temporal meaning

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MYSTERIES OF THE FUTURE

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OUTLINE

- The mysteries
- Digression: future tense is a thing!
- The data I: Yucatec
- The data II: Kalaallisut
- The data III: Ewe and Paraguayan Guaraní
- Ontology: Ginzburg & Sag 2000
- Assertions and the future
- A stab at the puzzles
- So far

THE MYSTERIES

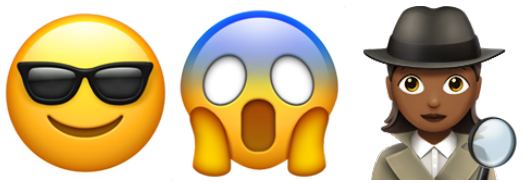
"FUTURE, N.
THAT PERIOD OF TIME IN WHICH OUR AFFAIRS PROSPER, OUR FRIENDS ARE TRUE AND OUR HAPPINESS IS ASSURED."

— AMBROSE BIERCE, THE UNABRIDGED DEVIL'S DICTIONARY

- suppose **"profound" tenselessness** (Matthewson 2006) exists
- most (all?) profoundly tenseless languages impose some sort of constraint on **future time reference** (FTR)
- there is variation in such constraints
  - some languages bar perfectives from almost all FTR contexts
    - e.g., Yucatec (Bohnemeyer 2002, 2009); Ewe
  - some have been argued to disallow future topic times altogether
    - e.g., Kalaallisut (Bittner 2005);
      Paraguayan Guaraní (Tonhauser 2011)

- the **big** mystery
  - how is it even possible for languages to be tenseless and yet to bar certain sentences from FTR?
    - and what is the *mechanism* that makes this happen?

- the **smaller** mysteries
  - why is it specifically perfectives that are typically barred from FTR?
  - what predicts the range of FTR contexts in which perfectives are (dis)allowed?
  - why is it that some languages seem to disallow future topic times altogether?
    - and by what mechanism would this happen?

- some issues to consider
  en route to answering these questions
  - situations, facts, propositions
  - knowledge
  - causality
  - epistemic modality and evidentiality
  - speech acts
    - *and liars, oh my!* 

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DIGRESSION: FUTURE TENSE IS A THING

- why have detractors of deep tenselessness not attempted to use FTR constraints as evidence of (covert) tense?

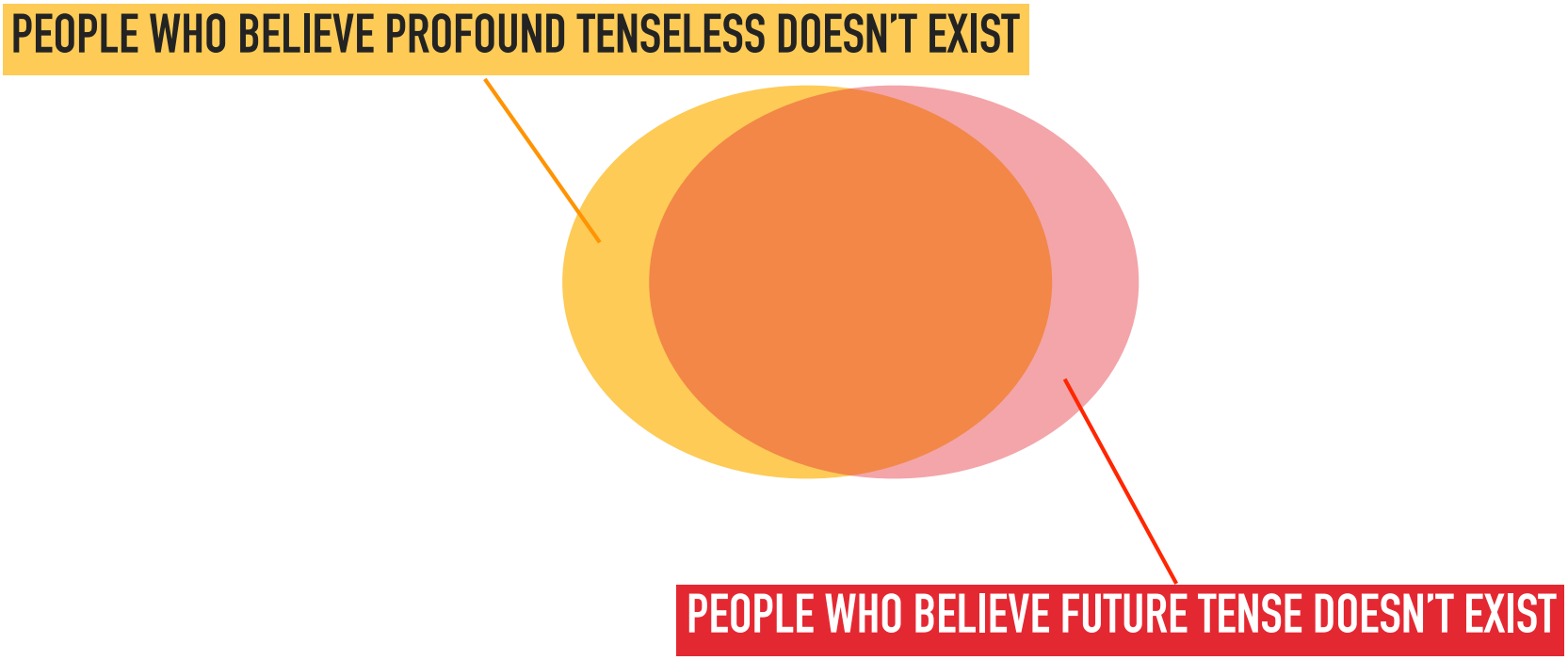

Figure 2.1. *Distribution of beliefs about tense in general and future tense in particular*

- FTR indisputably involves a modal element
  - but this doesn't mean
    that there is no such thing as a future tense marker
- matrix clauses with English *will* convey epistemic certainty

(2.1) #*Floyd will eat that pizza,*
but I'm not sure that he'll eat that pizza

- however, on closer inspection, the element of certainty does not seem to be part of the meaning of *will*

(2.2) a. *Floyd will certainly/(?)possibly eat that pizza*
b. *Floyd may/might eat that pizza*
c. *Floyd will certainly/(?)possibly be eating/have eaten the pizza*
d. *Floyd may/might be eating/have eaten that pizza*

- *will* can be embedded under a possibility modal and in other contexts that exclude epistemic certainty

(2.3) *It is possible that Floyd will eat that pizza*

(2.4) *I wonder whether Floyd will eat that pizza*

(2.5) *I doubt that Floyd will eat that pizza*

(2.6) *I think there's no chance that Floyd will eat that pizza*

(2.7) *Sally categorically denies that Floyd will eat that pizza*

- in all of these contexts, *will* appears to express solely FTR

- the optional future tense construction *werden* + INF of German shows a similar behavior

(2.8) #*Floyd wird diese Pizza essen, aber ich*

F. werden.3SG.NPAST DEM.F.ACC pizza.ACC eat.INF but I(NOM)

bin nicht sicher dass er sie essen wird

COP.1SGPRS not sure COMPL he(NOM) she(ACC) eat(INF) werden.3SG.NPAST

'Floyd will eat this pizza,

but I'm not sure that he'll eat that pizza '

- again, epistemic certainty does not seem to be part of the lexical meaning of *werden* + INF

(2.8) *Floyd wird diese Pizza sicherlich/möglicherweise essen*

F. werden.3SG.NPAST DEM.F.ACC pizza.ACC certainly/possibly eat.INF

'Floyd will certainly/possibly eat this pizza'

- this construction also has epistemic uses outside FTR
  - which however do not entail but only implicate certainty

(2.9) *Floyd wird sicherlich/möglicherweise gerade schlafen*

F. werden.3SG.NPAST certainly/possibly just sleep.INF

'Floyd will certainly/possibly be sleeping right now'

- hypotheses
  - *will* and *werden* are epistemic modals that have been "bleached" into expressions of future tense
  - all instances of FTR involve an element of epistemic/evidential qualification
    - because future situations aren't subject to **knowledge**
  - however, the locus of the modal stance involved in FTR is the speech act
  - this does not preclude the occurrence of "pure" future tense at the propositional level

- Mandarin has been argued to be tenseless
  (Li & Thompson 1981; Lin 2003, 2006; Smith & Erbaugh 2005)
  - however:

(4.1) [QUESTION: What your brother DO if you don't go to see him today, do you think? ANSWER:]

a. *Tā* **(*/*huì*)** *(gěi wǒ) xiě* **(*-*le*)** *xìn*
He **FUT** to I write-**PRV** letter
'He will write a letter (to me).' (Yen-Ting Lin, p. c.)

- (4.1) does convey epistemic certainty

(4.1) b. #… dàn wǒ bú quèdìng
but I not certain
'… but I'm not certain (that he will).' (Yen-Ting Lin, p. c.)

- but *huì* can be embedded under matrix predicates that cancel epistemic certainty

(4.2) Wǒ huáiyí tā (*/huì) xiě xìn.
I doubt he **FUT** write letter
'I doubt that he'll write a letter.' (Yen-Ting Lin, p. c.)

- based on this, I tentatively conclude that *huì* is an optional anaphoric future tense marker
  - and so Mandarin does *not* appear to be tenseless!

- once the existence of true future tenses is accepted
  - the question how constraints on FTR can be compatible with profound tenselessness gains considerable urgency
- the remainder of this paper is dedicated to this question

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DATA I: YUCATEC

- testing for deictic tense: is a clause formed with a given marker compatible with present, past, and future topic times?
  - e.g., the perfect-like 'terminative' aspect marker *ts'o'k*
    - with a past topic time, like a pluperfect:

(3.1) *K-u=k'uch-ul-o'b=e',*
IMPF-A.3=arrive-INC=TOP

ts'o'k	*u=kim-il*	*le=chàampal=e'*.
TERM	A.3=die-INC	DEF=small:child=D3

'(By the time) they arrived, the baby **had** already died.'

- with a future topic time, like a future perfect:

(3.2) *Sáamal* *óok-a'n+k'ìin=e'*
tomorrow enter-RES+sun=TOP

ts'o'k *u=bèet-ik* *le=túus+bèel=o'*
TERM A.3=do-INC(B.3.S) DEF=send+way:REL=D2

'By tomorrow at dusk (the boy) **will have done** the errand.'
(Andrade 1955: 135-136)

- all Yucatec clauses are freely compatible with topic times in the past, present, and future of utterance time
  - with one exception: the perfective aspect marker *t-/h-*

- testing for anaphoric tense: does a clause formed with a given marker commit the speaker to certainty of realization?

(3.3)

Bíin	in=mèet-∅	le=nah=o',
REMF	A1SG=do:APP-SUBJ(B3SG)	DEF=house=D2

ba'x=e',	ma'	inw=ohel
what=TOP	NEG(B3SG)	A1SG=knowledge(B3SG)

wáah	yan	u=bèey-tal
ALT	OBL	A3=thus-INCH.INC

'It will be a long time before I build the house,
but I don't know whether it will be possible.'

- none of the future-oriented 'aspect-mood markers' of Yucatec commit the speaker to certainty of realization

- none of the future-oriented 'aspect-mood markers' of Yucatec commit the speaker to realization of the event
  - compare:

(3.4) *#It'll rain, but I'm not sure that it'll rain*

- Yucatec preverbal aspectual-modal (AM) markers
  - every finite verb clause must contain exactly one of these
    - part I: aspectual markers

Table 3.1. *Yucatec preverbal aspect markers*

Category	Form	Meaning		Compatible with past topic times in matrix S	Compatible with future topic times in matrix S	At-issue commitment to realization
Perfective	*t- / h-*	Perfective	$\tau(e) \subseteq t_{top}$	Yes	No	Yes
Imperfective	*k-*	Generic/ habitual/ imperfective	$\exists s.\textbf{habitual}(e,s)$ & $t_{top} \subset \tau(s)$	Yes	Yes	No
Progressive	*táan*	Imperfective	$t_{top} \subset \tau(e)$	Yes	Yes	No
Terminative	*ts'o'k*	Perfect	$\exists s.\textbf{cause}(e,s)$ & $t_{top} \subset \tau(s)$	Yes	Yes	No
Prospective	*mukah*	Prospective	$\exists s.\textbf{inertial.cause}(s,e)$ & $t_{top} \subset \tau(s)$	Yes	Yes	No

- Yucatec preverbal aspectual-modal (AM) markers (cont.)
  - every finite verb clause must contain exactly one of these
    - part II: degree-of-remoteness markers

Category	Form	Presupposition	At-issue content	Compatible with past topic times in matrix S	Compatible with future topic times in matrix S	At-issue commitment to realization
Remote future	*bíin*	$t_{top} < \tau(e)$	$D(t_{top}, \tau(e))$ contextually large	Yes	Yes	No
Immediate future	*ta'itak*	$t_{top} < \tau(e)$	$D(t_{top}, \tau(e))$ contextually small	Yes	Yes	No
Immediate past	*táantik ...=e'*	$\tau(e) < t_{top}$	$D(t_{top}, \tau(e))$ contextually very small	Yes	Yes	No
Recent past	*sáam*	$\tau(e) < t_{top}$	$D(t_{top}, \tau(e))$ contextually small	Yes	Yes	No
Remote past	*úuch*	$\tau(e) < t_{top}$	$D(t_{top}, \tau(e))$ contextually large	Yes	Yes	No

Table 3.2. *Yucatec preverbal degree-of-remoteness markers*

- Yucatec preverbal aspectual-modal (AM) markers (cont.)
  - every finite verb clause must contain exactly one of these
    - part III: modal markers

Table 3.3. *Yucatec preverbal modal markers*

Category	Form	Meaning			Compatible with past topic times in matrix S	Compatible with future topic times in matrix S	At-issue commitment to realization
		Force	Modal base	Ordering source			
Obligative	*yan*	"Weak" U	Circum-stantial	Stereotypical	Yes	Yes	No
Necessitive	*k'a'náan/ k'abéet*	"Strong" U		Teleological	Yes	Yes	No
Desiderative	*táak*	U		Bouletic	Yes	Yes	No
Assurative	*he' ...=e'*	U	Circum-stantial/ Epistemic	Stereotypical	Yes	Yes	Yes
Counter-factual	*óolak*	E	Empty	Realistic	Yes	Yes	No

- perfective aspect excludes FTR in matrix clauses

(3.5) #**T-**in=ts'on-ah le=kèeh sáamal=o',
PRV-A1SG=shoot-CMP(B3SG) DEF=deer tomorrow=D2
intended: 'I will shoot the deer tomorrow'

- it does, however, occur w/ FTR in conditional protases

(3.6) Wáah **t-**in=ts'on-ah le=kèeh sáamal=o',
ALT **PRV-**A1SG=shoot-CMP(B3SG) DEF=deer tomorrow=D2

he' in=tàas-ik=e'!
ASS A1SG=come:CAUS-INC(B3SG)=D3

'If I shoot the deer tomorrow, I agree to bring it!'

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DATA II: KALAALLISUT

- Bittner (2005)

"PROSPECTIVITY THESIS
Kalaallisut translations of future auxiliaries comprise three related classes:
A. prospective statives evoking (current) attitude states to de se prospects,
B. prospective inchoatives evoking (realized) starts of expected processes,
C. prospective matrix moods marking the speech act as a request or wish."
(Bittner 2005: 354)

- Bittner (2013): Kalaallisut as a mood-centered language
  - four matrix moods

(4.2) a. *Ole {ullumi/#aqagu) aallar-**pu**-q.*
Ole today/tomorrow leave-**DEC**$_{iv}$ -3S$_{(T)}$
'Ole left {today/#tomorrow}.'

b. *Ole {ullumi/#aqagu) aallar-**p(i)**-a?*
Ole today/tomorrow leave-**QUE** -3S$_{(T)}$
'Did Ole leave {today/#tomorrow}?'

c. *Aallar-**li**-Ø!*
leave-**OPT** -3S$_{!}$
'Let him leave!'

d. *Aallar-**(g)i**-t!*
leave-**IMP** -2S$_{!}$
'Leave!'

"Fact-oriented moods assert that (DEC , FCT), or inquire whether (QUE), the eventuality of the verb is a **currently verifiable fact** –i.e. an event that has already happened (see [(4.2a-b)]), or a state that has at least begun […], in the same world as the speech act." (Bittner 2013: 36; emphasis *JB*)

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DATA III: EWE AND PARAGUAYAN GUARANÍ

- in Ewe (Kwa; Ghana, Togo), dynamic VPs unmarked for aspect or mood/modality have perfective reference
  - for imperfective reference, a progressive marker is used

(5.1) a. Kɔfí kpɔ TV etsɔ.
Kofi see TV yesterday
'Kofi watched TV yesterday'.

b. Esi me-**yi** Kɔfí gbɔ etsɔ là é-nɔ TV kpɔ-**ḿ**.
when lSG-**go** Kofi place yesterday TP 3SG-AUX:NPRES TV see-**PROG**
'When I went to see Kofi yesterday he was watching TV.'
(Bohnemeyer & Swift 2004: 276)

- neither the zero-marked nor the progressive form occur by themselves with FTR (Essegbey 1999: 33-42)
  - outside conditional protases!
  - instead, either prospective aspect or a kind of irrealis marker are used

(5.2) Né me-váe kpɔ́ nɔvíwò égbéá o ɖé, núka-é nè-bu
If NEG-VEN see sibling-2SG today NEG if, WH –FOC 2SG-think

bé é-wɔ-wɔ **gé** / **âwɔ**?
that 3SG-RED-do **PROSP** / 3SG:**POT**-do

Â-ŋlɔ agbalẽ / é agbalẽ **ŋlɔ** **gé** (ná-m)
3SG:**POT**-write book / 3SG book write **PROSP** DAT-1SG
'If you don't go see your brother today, what do you think he'll do?
– He'll write / is going to write a letter.' (James Essegbey, p. c.)

- neither form is restricted to FTR

(5.3) Kɔfí **â-**yi Ge xóxó
Kofi **POT-**go Accra already
'Kofi would have gone to Accra already.' (Essegbey 1999: 34)

- neither form conveys epistemic certainty

(5.4) **Â-ŋ**lɔ agbalẽ gaké nye-mé-ká **ɖ**é edzi bé é-**ŋ**lɔ gé o.
3SG:**POT-**write letter but 1SG-NEG-bite ALL top that 3SG-write PROSP NEG
'He may/will write a letter, but I am not sure that he will write it.'
(James Essegbey p. c.)

- like Ewe, Paraguayan Guaraní (PG) has verb forms that are not overtly morphologically marked for TAM
  - these can be interpreted perfectively, imperfectively, and habitually (Tonhauser 2012)

(5.5) A: Mba'e´-pa **re-japo** domingo-kue´-pe? B: A-jahu .
what-QU **A2sg-do** Sunday-NOM .TERM -at **A1sg-bathe**
A: 'What do you do on Sundays? B: 'I bathe.'

(5.6) [Context: What did Juan do last Sunday?]
O-pu'a , **o-jahu** ha **o-rambosa**.
A3-get.up A3-bathe and **A3-breakfast**
'He got up, bathed and ate breakfast.' (Tonhauser 2011: 263-164)

- outside conditional protases,
  these are not compatible with FTR

(5.7) Mba'e ei-mo'ã o-japó-ta nde-ryvy **nde-re-hó-i-rõ** e-ñandu chupe?
what A2sg-think A3-do-PROSP your-brother **NEG-A2-go-NEG-if** A2sg-visit him
'What do you think your brother is going to be doing if you don't go visit him?'

- O-haí**(*/-ta)** peteî kuatiañe'ê cheve.
A3-write-**PROSP** one card to.me
'He is going to write me a card.' (Judith Tonhauser, p. c.)

- the 'prospective' marker *-ta*
  has both aspectual and modal uses
  - but does not commit the speaker to predicted realization

(5.8) [Context: I am in Paraguay and wondering whether it will rain later today. A friend tells me that according to the weather report two days ago…]
Kuehe o-ký**-ta** kuri ha **nd-o-ky-i**.
yesterday A3-rain**-PROSP** back.then and **NEG-A3-rain-NEG**
It was going to rain yesterday but it didn't rain.' (Tonhauser 2012: 19)

- Tonhauser (2011): Bittner's Prospectivity Thesis applies to PG as well
- this would suggest that declaratives are incompatible with FTR despite being morphologically unmarked
  - this remains to be investigated

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ONTOLOGY: GINZBURG & SAG 2000

- where we are headed now - the plot
  - the problem with aspects and moods that are barred from FTR in tenseless languages is that they are factual
  - the future is non-factual
  - therefore, propositions about the future differ from propositions about the present/past
    - at the speech act level

- to theorize this a bit, we need a framework that
  - has an ontology of abstract semantic/discourse objects capable of distinguishing
    - propositions about facts
      from propositions about futurate objects
  - has the machinery
    for a compositional analysis of speech acts
    - that describes how these operate
      on factual and nonfactual propositions (etc.)

- a partial solution
  - Ginzburg & Sag (2000): situation-theoretical treatment of the semantics of questions and answers
  - Ginzburg (2012): expand the G&S framework into a dynamic theory of conversation
    - using ‘Type Theory with Records’

- the ontology

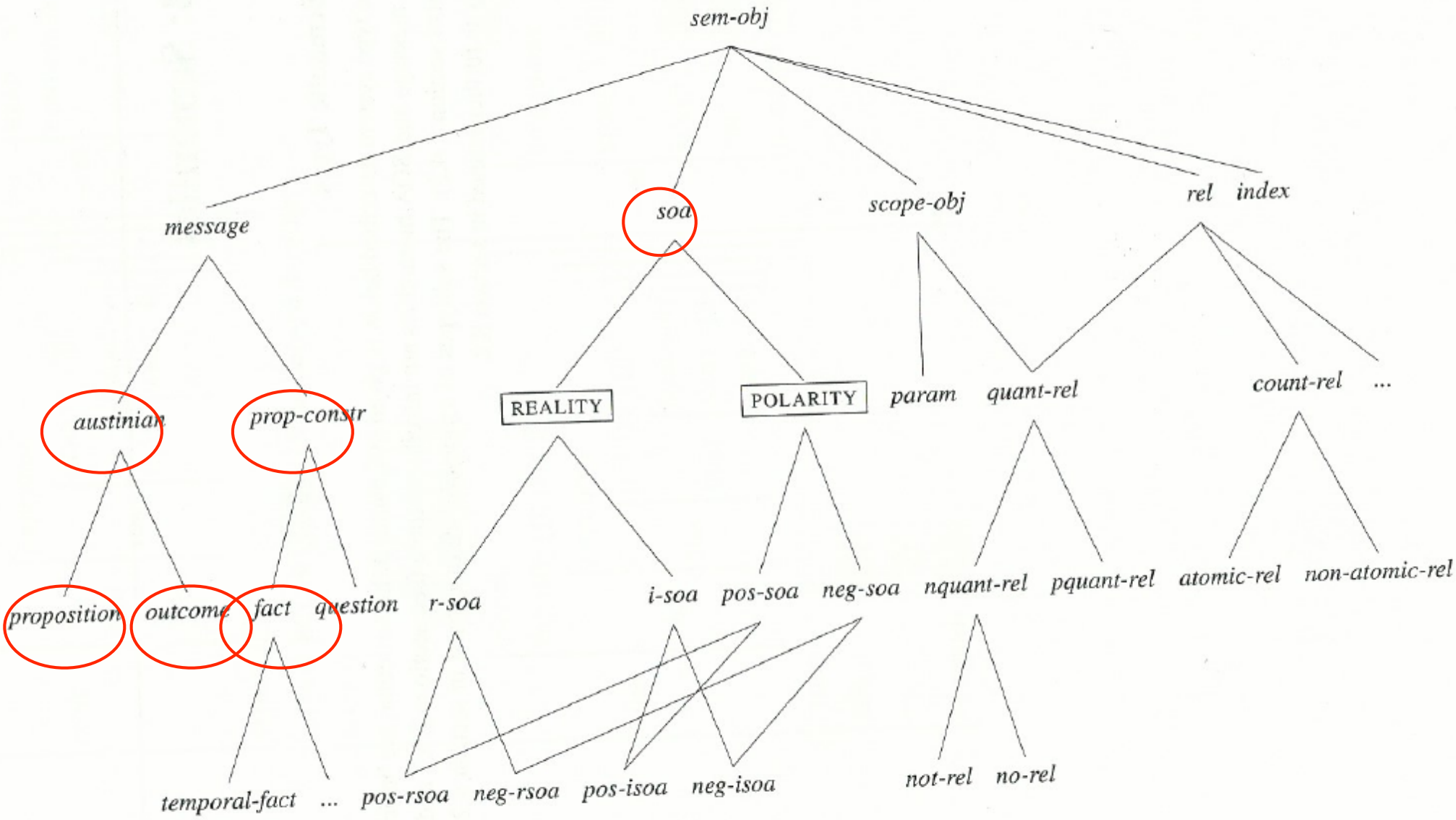

Figure X.1. *Semantic type hierarchy (Ginzburg & Sag 2000: 386)*

- the basic ingredients
  - situations
    - particulars, occupy space-time regions, can be perceivable and participate in causal relations
  - SOAs ('infons' in other versions of Situation Theory)
    - structured objects designating properties of situations
    - composed from a relation *R*
      and an assignment α of entities to argument roles

(6.1) a. ⟪Slap; slapp-er: sally; slapp-ee: floyd⟫
b. ⟪Toast; theme: floyd; location: 617 Baldy; time: utterance time⟫

- situations 'support' SOAs; SOAs 'classify' situations

(6.2) $s \models \sigma$

- SOAs have polarity; but situations are partial, so may support neither σ nor $\bar{\sigma}$
  - some axioms:

(6.3) a. If $s \models \sigma$, then $s \not\models \bar{\sigma}$

b. Either $s \models \sigma$ or $s \not\models \sigma$

- the basic universe: a **Situation Structure** (SITSTR)
  - see Appendix
- enhancements: a **Situational Universe with Abstract Entities** (SU+AE)
  - a SITSTR closed under *abstraction* (an operation relativizing SOAs to place holders in argument positions)
    - with additional sorts for **propositions**, **possibilities**, and **outcomes**

- atomic propositions

(6.4) a. If **AtProposition**(s, σ, p), then *Sit*(s)
and there exist R, α such that **Soa**(R,α,σ).
b. If *Sit*(s) and there exist R, α such that **Soa**(R,α,σ),
then there exists p such that **AtProposition**(s, σ, p).

(6.5) If there exists s, σ such that **AtProposition**(s, σ, p),
then $s \models \sigma$ if and only if *True*(p).
(Ginzburg & Sag 2000: 95)

- possibilities: a generalization over facts and **outcomes**
  - the idea is basically that some (but not necessarily all) propositions define **possibilities**
    - which can be either facts or outcomes
    - a proposition is true if it defines a fact

(6.6) a. If **Possibility**(*p, f*), then **Proposition**(*p*).
b. If **Proposition**(*p*),
then there exists *f* such that **Possibility**(*p, f*).
c. *Fact*(*f*) if there exists *p* such that **Possibility**(*p, f*) and *True*(*p*).
d. Notation: poss(*p*) denotes the possibility
individuated by the proposition *p*. (Ginzburg & Sag: 2000: 95)

- outcomes
  - *realis* SOAs vs. *irrealis* SOAs
    - realis SOAs are expressed by finite declarative verb forms, irrealis SOAs by subjunctives and imperatives
    - irrealis SOAs are “SOA abstracts
      - - SOAs out of which the temporal argument has been abstracted away” (p98)

- outcomes are structured objects constructed from an irrealis SOA $t\hat{}\sigma$ and a situation s
  - where $t\hat{}\sigma$ describes a property uninstantiated in s which represents a possible path of evolution for s

(6.7) If **AtOutcome** (s, $t\hat{}\sigma$,o) then there exist c, r such that (a) *Sit*(s) and (b) **Irrsoa**(c, r, $t\hat{}\sigma$) and there is no t_0 such that: (a) *Timespan*(s, t_0) and (b) $s \models t\hat{}\sigma\{r \longrightarrow t_0\}$.

(Ginzburg & Sag 2000: 98)

- outcomes are neither factual nor true
  - but they can be *fulfilled*

(6.8) *Fulfilled*(*o*) iff there exist s_0, s_1, $t\hat{}\sigma$, *c*, *r*, t_0 such that:

a. **AtOutcome**(s_0, $t\hat{}\sigma$, *o*) and

b. **Irrsoa**(*c*, *r*, $t\hat{}\sigma$) and

c. *Anterior*(s_0, s_1) and $s_1 \models t\hat{}\sigma\{[r \longrightarrow t_0]\}$

(Sag & Ginzburg 2000: 98)

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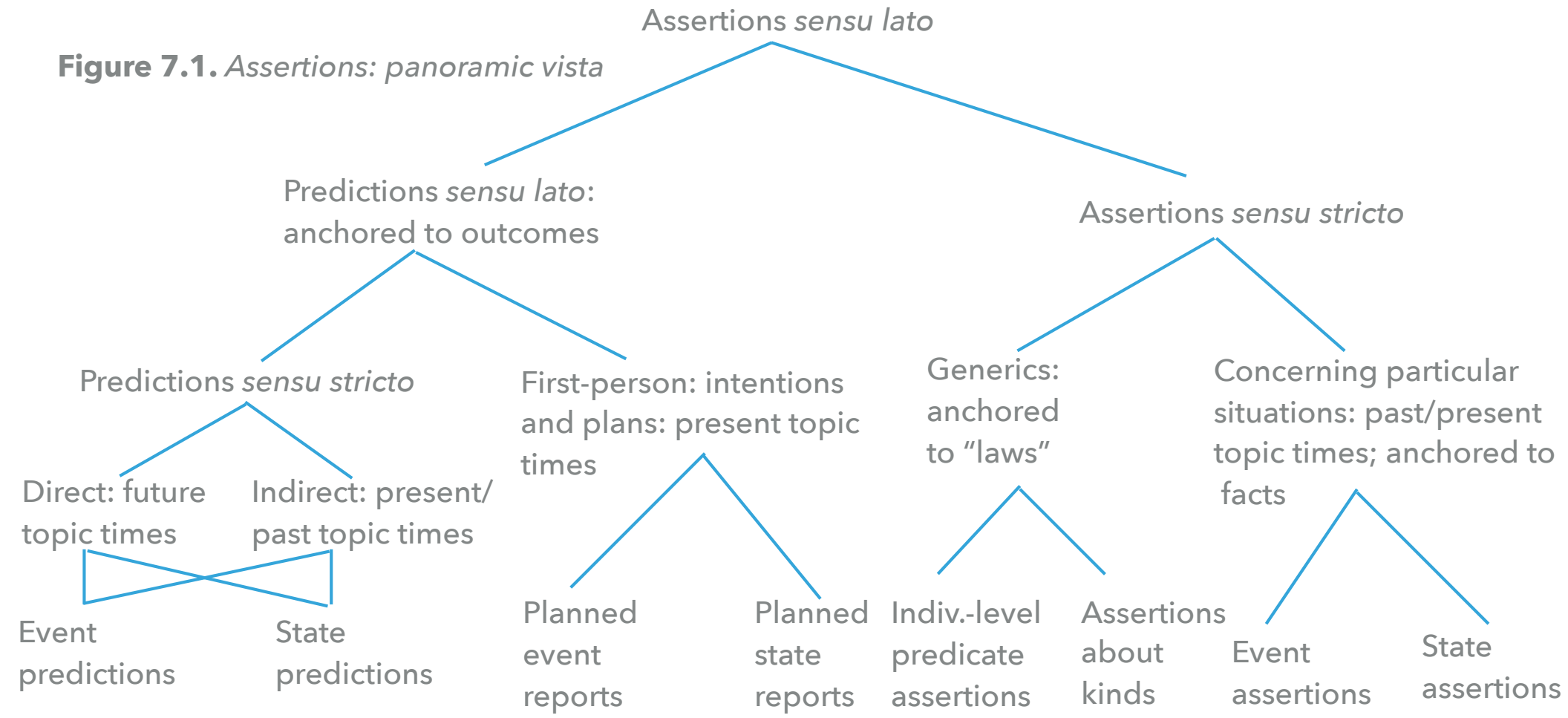
ASSERTIONS AND THE FUTURE

- a tentative classification of assertions in terms of speaker commitments

Figure 7.1. *Assertions: panoramic vista*



- contrary to Ginzburg & Sag, I assume that propositions can be anchored to outcomes as well as to facts (and "laws")
  - propositions concerning outcomes seem to occur in the same environments as propositions concerning facts

(7.1) a. *Sally believes/doubts/thinks that Floyd wrote the note*

b. *Sally believes/doubts/thinks that Floyd will be late*

- what's in an assertion?
  - assumption I: assertions operate on propositions
    - which can be "anchored" to facts, outcomes, or laws
  - assumption II: assertions purport to provide the "best" answer to the QuD the speaker is capable of providing
    - where "best" implies optimization
      along a number of independent dimensions, including
      - informativeness (optimal for the purposes of the interaction per Gricean maxims)
      - epistemic/evidential strength

- what's in an assertion? (cont.)

"**Assertion**
a. Point: Convince the audience that p is true.
b. Sincerity condition: The speaker believes that *p*.
c. Preparatory condition: It has not been accepted in the context that either (a) ¬*p* is true or (b) *p* is true." (Ginzburg & Sag 2000: 76)

- problem I: (a) cannot be met under FTR since *p* cannot be true
- problem II: not obvious that belief is sufficient as a sincerity condition for assertion

- what's in an assertion? (cont.)
  - assumption III: *bare* assertions of propositions anchored to facts carry sincerity conditions of knowledge
    - *S* asserting *p* implies ***S believes that S knows that p***
    - if *S* does not wish to maintain that she knows that *p*, she must use evidential/epistemic modifiers
      - which are illocutionary modifiers in the sense of Faller 2002

- excursus: Faller 2002 on evidentials as illocutionary modifiers in Cuzco Quechua

(7.2) a. Para-sha-n.
rain-PROG-3
p = 'It is raining.'
ILL=ASSERT$_s$(*p*)
SINC={*Bel*(*s*,*p*)}
STRENGTH=0
(Faller 2002: 25)

b. Para-sha-n-**mi**.
rain-PROG-3-**BPG***
p = 'It is raining.'
ILL=ASSERT$_s$(*p*)
SINC={*Bel*(*s*,*p*), *See*(*s*,*p*)}
STRENGTH=1
(*'best possible grounds')

- excursus: Faller 2002 (cont.)
  - contrary to G&S and Faller, I do not think that mere belief is sufficient as a sincerity condition for bare assertions
    - rather, the speaker must maintain (belief of) *knowledge*

(7.3) a. *I believe Floyd ate your burger, but I'm not certain of it*
b. #*Floyd ate your burger, but I'm not certain he did*

  - I assume this knowledge condition is the origin of the selectional pressure for the evolution of evidentials

"FAITH, N. BELIEF WITHOUT EVIDENCE IN WHAT IS TOLD BY ONE WHO SPEAKS WITHOUT KNOWLEDGE, OF THINGS WITHOUT PARALLEL."
— AMBROSE BIERCE, THE UNABRIDGED DEVIL'S DICTIONARY

- pitfalls of knowledge: the Gettier twist
  - Gettier 1963: accidental true belief is not knowledge
  - knowledge states are belief states
    that are *causally linked* to the facts they concern
    - cf. Kratzer 1989, 2002
  - hence
    - we use evidentiality to "reconstruct" that causal chain
    - there can be no factual knowledge of future propositions
      - since causality doesn't work backward in time

Figure 7.2.
Edmund Who?

- back to Faller: evidentials and FTR

(7.4) Paqarin Inés-qa Qusqu-ta-**n** ri-nqa.
tomorrow Ines-TOP Cuzco-ACC-**BPG** go-3FUT
p = 'Inés will go to Cuzco tomorrow.'
EV = Inés told the speaker that she will go to Cuzco tomorrow (Faller 2002: 147)

  - for FTR, the constraints on the use of the 'direct', i.e., 'best possible grounds' evidential *-mi* are relaxed

    - in (7.4), Inés telling the speaker about her plans constitute BPG for predicting their execution

a stab at the semantics of predictions

Prediction

a. Point: Convince the audience that all evolutions of the topic situation most compatible with what the speaker believes to know contain a situation *s* that fulfills the prediction.

b. Sincerity condition: The speaker believes that she knows that all evolutions of the topic situation most compatible with what she believes to know contain a situation *s* that fulfills the prediction.

c. Preparatory condition: It has not been accepted in the context whether or not all evolutions of the topic situation most compatible with what the interlocutors assume to know contain a situation *s* that fulfills the prediction.

- assertions and the state-event distinction
  - perfective assertions
    entail the **realization** of an event at t_{TOP}

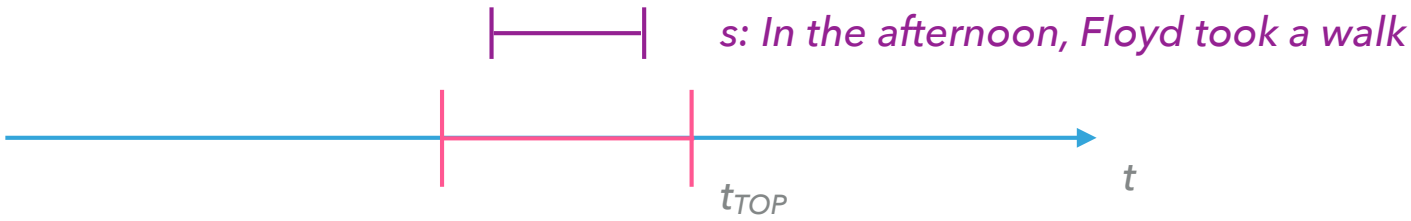


Figure 7.3. *Temporal schema for perfective assertions*

  - in contrast, stative assertions do not entail the realization of a state, but merely it's holding at t_{TOP}

Figure 7.4. *Temporal schema for stative assertions*

- assertions and the state-event distinction (cont.)
  - the realizations of states seem to have the status of freely accommodated presuppositions
  - in addition, perfectives, but not stative assertions, introduce new temporal reference points
    - (cf. Bohnemeyer 2009)

(7.5) a. *Sally took a walk in the park. Suddenly she knew the answer. She called Floyd.*
b. *Sally was taking a walk in the park. Suddenly she knew the answer. She called Floyd.*

- assertions and the state-event distinction (cont.)
  - hypothesis: for the above reasons, individual languages may exempt stative assertions from FTR restrictions

OUTLINE

- The mysteries
- Digression: future tense is a thing!
- The data I: Yucatec
- The data II: Kalaallisut
- The data III: Ewe and Paraguayan Guaraní
- Ontology: Ginzburg & Sag 2000
- Assertions and the future
- A stab at the puzzles
- So far

A STAB AT THE PUZZLES

- the trouble with perfectives
  - assuming t_{TOP} is determined by the QuD
    - it follows that only perfectives express **realization** as part of an utterance's at-issue content
      - cf. Bohnemeyer & Swift 2004

(8.1) $\text{PRV}(s, \sigma, t, c) \Leftrightarrow s \vDash \sigma \wedge \textit{Timespan}(s, t) \wedge t \subseteq t_{TOP}(c)$

(8.2) $\text{PRV}(s, \sigma, t, c) \Leftrightarrow \textbf{AtProposition}(s, \sigma, p) \wedge \textit{True}(p)$

- the trouble with perfectives (cont.)
  - consequently, perfectives are the wrong type for predictions
    - since they express factual propositions
      - and predictions require propositions about outcomes
  - this means perfectives are minimally infelicitous in predictions
    - and very possibly semantically anomalous
      - desideratum: a formal compositional account of speech acts

- the trouble with perfectives (cont.)
  - subordinate/embedded contexts are not directly subject to this constraint since they do not express speech acts
  - hypothesis: projective/presuppositional contexts are subject to a similar constraint
    - since perfectives in such contexts require situations to be in the CG as realized facts
  - in contrast, perfectives are fine with FTR in conditional protases
    - since these are neither predictive nor projective

- the trouble with perfectives (cont.)
  - state predictions may be exempt from the FTR constraint
    - since they do not require an at-issue commitment to the realization(/existence) of the state
- Ewe submits to this analysis assuming that zero-marked dynamic VPs are perfective

- the trouble with Kalaallisut declaratives
  - based on Bittner's (2013) account, Kalaallisut 'fact-oriented' moods are incompatible with predictions
    - since they require propositions anchored to facts
      - this holds for declaratives, interrogatives, and for the dependent 'factual' mood
- it seems that the language's system ecology has evolved a practice of conventional indirect predictive speech acts
  - to compensate for the limitations imposed by this constraint

- the trouble with Kalaallisut declaratives (cont.)
  - this analysis extends to Paraguayan Guaraní (PG)
    - assuming that declaratives in this language likewise require factual grounding

OUTLINE

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SO FAR

- the truth and felicity conditions of predictions are fundamentally different from those of assertions of facts
- it appears that there are at least two routes to constraining FTR in tenseless languages
  - Route I: perfectives are barred from predictions due to semantic and pragmatic incompatibility
    - e.g., Ewe; Yucatec
  - Route II: factual moods are barred from predictions since they require anchoring to facts
    - e.g., Kalaallisut; Paraguayan Guaraní?

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"THE FUTURE'S NOT CERTAIN
AND THE END IS ALWAYS NEAR."
— THE DOORS, ROADHOUSE BLUES

- the basic universe: a **Situation Structure** (SITSTR)

A Situation Structure (SITSTR) is a relational structure of the following type:[54]
$[\mathcal{A}, \mathbf{SelAdVal}^3, \mathbf{Soa}^3, \mathbf{Pos}^1, \mathbf{Neg}^1; Sit^1, \models^2, Rel^1, ArgRole^1, Approp^1, NegOf^2, Time^1, Timespan^2, Anterior^2]$ *such that:*

1. *Basics concerning SOAs:*
   (a) *If* $\mathbf{Soa}(R, \alpha, \sigma)$, *then* $Rel(R)$ *and* $Approp(\alpha)$.
   (b) *If* $\mathbf{SelAdVal}(i, a, \alpha)$, *then* $ArgRole(i)$.
   (c) *If* $\mathbf{Soa}(R, \alpha, \sigma)$, *then for any i,a,b such that* $\mathbf{SelAdVal}(i, a, \alpha)$ *and* $\mathbf{SelAdVal}(i, b, \alpha)$ *it follows that* $a = b$.
   (d) *If* $s \models \sigma$, *then* $Sit(s)$ *and there exist* R, α *such that* $\mathbf{Soa}(R, \alpha, \sigma)$.[55]
   (e) *Notation: If* $\mathbf{Soa}(R, \alpha, \sigma)$, *then we write:* $\sigma = \langle\langle R; \alpha \rangle\rangle$
2. *Negation and SOAs:*
   (a) *If for some* R, α $\mathbf{Soa}(R, \alpha, \sigma)$, *then exactly one of the following:* $\mathbf{Pos}(\sigma)$ *or* $\mathbf{Neg}(\sigma)$
   (b) *The NegOf relation is symmetric and functional (If* $NegOf(\sigma, \tau)$, *then* $NegOf(\tau, \sigma)$; *If* $NegOf(\sigma, \tau)$ *and* $NegOf(\sigma, \tau')$, *then* $\tau = \tau'$)
   (c) *Dual SOAs are constituted from the same SOA and role assignment: If* $\mathbf{Soa}(R, \alpha, \sigma)$, *then there is a SOA* $\overline{\sigma} \neq \sigma$ *such that* $NegOf(\sigma, \overline{\sigma})$ *and* $\mathbf{Soa}(R, \alpha, \overline{\sigma})$
3. $\mathbf{Soa}^*$ *and* $\mathbf{SelAdVal}^*$ *are disjoint.*
4. *Temporal Structure:*
   (a) *If* $Timespan(s, t)$, *then* $Sit(s)$ *and* $Time(t)$. *Timespan relates a situation to the times occurring within it.*
   (b) *If* $Anterior(s_1, s_2)$, *then* $Sit(s_1)$ *and* $Sit(s_2)$. *Anterior is a partial ordering on the class of situations in terms of temporal constitution such that* $Anterior(s_1, s_2)$ *intuitively means that the temporal instants of* s_1 *precede the temporal instants of* s_2.

Ginzburg & Sag (2000: 87)