Beyond Time: A workshop on temporal meaning
CU, April 7–8, 2017

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 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

‘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

‘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

\[ ts'o'k \quad u=kim-il \quad le=chàampal=e'. \]  
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'iín=e'
tomorrow enter-RES+sun=TOP

-ts'o'k u=bëet-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**

<table>
<thead>
<tr>
<th>Category</th>
<th>Form</th>
<th>Meaning</th>
<th>Compatible with past topic times in matrix S</th>
<th>Compatible with future topic times in matrix S</th>
<th>At-issue commitment to realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfective</td>
<td>$t - / h -$</td>
<td>Perfective</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Imperfective</td>
<td>$k -$</td>
<td>Generic/habitual/imperfective</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Progressive</td>
<td>táan</td>
<td>Imperfective</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Terminative</td>
<td>$ts' o' k$</td>
<td>Perfect</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Prospective</td>
<td>mukah</td>
<td>Prospective</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Yucatec preverbal aspectual-modal (AM) markers (cont.)

- every finite verb clause must contain exactly one of these

part II: degree-of-remoteness markers

<table>
<thead>
<tr>
<th>Category</th>
<th>Form</th>
<th>Presupposition</th>
<th>At-issue content</th>
<th>Compatible with past topic times in matrix S</th>
<th>Compatible with future topic times in matrix S</th>
<th>At-issue commitment to realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote future</td>
<td><em>biin</em></td>
<td>$t_{top} &lt; \tau(e)$</td>
<td>$D(t_{top}, \tau(e))$ contextually large</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Immediate future</td>
<td><em>ta’itak</em></td>
<td>$t_{top} &lt; \tau(e)$</td>
<td>$D(t_{top}, \tau(e))$ contextually small</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Immediate past</td>
<td><em>táantik</em></td>
<td>$\tau(e) &lt; t_{top}$</td>
<td>$D(t_{top}, \tau(e))$ contextually very small</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Recent past</td>
<td><em>sáam</em></td>
<td>$\tau(e) &lt; t_{top}$</td>
<td>$D(t_{top}, \tau(e))$ contextually small</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Remote past</td>
<td><em>úuch</em></td>
<td>$\tau(e) &lt; t_{top}$</td>
<td>$D(t_{top}, \tau(e))$ contextually large</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Form</th>
<th>Meaning</th>
<th>Force</th>
<th>Modal base</th>
<th>Ordering source</th>
<th>Compatible with past topic times in matrix S</th>
<th>Compatible with future topic times in matrix S</th>
<th>At-issue commitment to realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligative</td>
<td>yan</td>
<td>“Weak” U</td>
<td></td>
<td>Circumstantial</td>
<td>Stereotypical</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Necessitive</td>
<td>ka’naan / k’abéet</td>
<td>“Strong” U</td>
<td></td>
<td></td>
<td>Teleological</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Desiderative</td>
<td>taak</td>
<td>U</td>
<td></td>
<td></td>
<td>Bouletic</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Assurative</td>
<td>he’ ...=e’</td>
<td>U</td>
<td></td>
<td>Circumstantial / Epistemic</td>
<td>Stereotypical</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Counterfactual</td>
<td>oolak</td>
<td>E</td>
<td></td>
<td>Empty</td>
<td>Realistic</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
perfective aspect excludes FTR in matrix clauses

(3.5) #T-in=ts'oni-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'oni-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!’
The mysteries

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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-\textit{pu}-q.
Ole today/tomorrow leave-\textit{DEC} _{iv}-3S_{(T)}
‘Ole left {today/#tomorrow}.’

b. Ole {ullumi/#aqagu} aallar-\textit{p(i)}-a?
Ole today/tomorrow leave-\textit{QUE} -3S_{(T)}
‘Did Ole leave {today/#tomorrow}?’

c. Aallar-\textit{li}-\emptyset!
leave-\textit{OPT} -3S_{!}
‘Let him leave!’

d. Aallar-(g)i-t!
leave-\textit{IMP} -2S_{!}
‘Leave!’

“Fact-oriented moods assert that (\textit{DEC}, \textit{FCT}), or inquire whether (\textit{QUE}), the eventuality of the verb is a \textbf{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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in Ewe (Kwa; Ghana, Togo), dynamic VPs unmarked for aspect or mood/modalilty 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-nc TV kpɔ-mí.
   when ISG-go Kofi place TP 3SG-AUX:NPRES TV see-PROG
   'When I went to see Kofi yesterday he was watching TV.'
(Bohnenemeyer & 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 kpú nɔ̀vimwɔ ęgbéá o ɖé, núka-é nè-bu
If NEG-VEN see sibling-2SG today NEG if, WH -FOC 2SG-think

bé é-wɔ-wɔ ęgbéá ɖé, núka-é nè-bu
that 3SG-RED-do PROSP / 3SG:POT-do

‘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) Kofi 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-ŋlo agbalê gaké nye-mé-ká ðé edzi bé é-ŋlo 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

des 
can be interpreted perfectly, imper 
fectively, 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

(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’e 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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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

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’
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 $\alpha$ 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 \( \sigma \) nor \( \overline{\sigma} \)

some axioms:

(6.3) a. If \( s \models \sigma \), then \( s \not\models \overline{\sigma} \)
    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 \texttt{AtProposition}(s, \sigma, p), then \texttt{Sit}(s)
    and there exist \(R, \alpha\) such that \texttt{Soa}(R,\alpha,\sigma).

b. If \texttt{Sit}(s) and there exist \(R, \alpha\) such that \texttt{Soa}(R,\alpha,\sigma),
    then there exists \(p\) such that \texttt{AtProposition}(s, \sigma, p).

(6.5) If there exists \(s, \sigma\) such that \texttt{AtProposition}(s, \sigma, p),
    then \(s \models \sigma\) if and only if \texttt{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 \textbf{Possibility}(p, f), then \textbf{Proposition}(p).
b. If \textbf{Proposition}(p),
   then there exists f such that \textbf{Possibility}(p, f).
c. \textbf{Fact}(f) if there exists p such that \textbf{Possibility}(p, f) and \textbf{True}(p).
d. Notation: \textit{poss}(p) denotes the possibility individuated by the proposition p. (Ginzburg & Sag: 2000: 95)
outcomes

realis SOAs vs. irreals SOAs

- realis SOAs are expressed by finite declarative verb forms, irreals SOAs by subjonctives and imperatives

- irreals 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 $\textbf{AtOutcome}(s, t^\hat{\sigma},o)$ then there exist $c, r$ such that

(a) $\textbf{Sit}(s)$ and (b) $\textbf{Irrsoa}(c, r, t^\hat{\sigma})$ and there is no $t_0$ such that: (a) $\textbf{Timespan}(s, t_0)$ and (b) $s \vDash t^\hat{\sigma}\{r \rightarrow t_0\}$.

(Ginzburg & Sag 2000: 98)
outcomes are neither factual nor true

but they can be *fulfilled*

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

a. **AtOutcome**($s_0$, $t^\sigma$, o) and

b. **Irrsoa**($c$, $r$, $t^\sigma$) and

c. **Anterior**($s_0$, $s_1$) and $s_1 \models t^\sigma[[r \rightarrow t_0]]$

(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) \( \neg p \) 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
   \( p = 'It is raining.' \)
   \( \text{ILL=} \text{ASSERT}_s(p) \)
   \( \text{SINC} = \{ \text{Bel}(s, p) \} \)
   \( \text{STRENGTH}=0 \)
   (Faller 2002: 25)

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


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
back to Faller: evidentials and FTR

(7.4) Paqarin Inés-qa Qusqu-ta-n ri-nqa.
     tomorrow Ines-TOP Cuzco-ACC-BPG go-3FUT

$p = \text{‘Inés will go to Cuzco tomorrow.’}$

$EV = \text{Inés told the speaker that she will go to Cuzco tomorrow (Faller 2002: 147)}$

- 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 $t_{TOP}$

```
\[\text{s: In the afternoon, Floyd took a walk}\]
```

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

```
\[\text{s: At noon, Floyd was walking in the park /grumpy}\]
```

Figure 7.3. Temporal schema for perfective assertions

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) $\text{PRV}(s, \sigma, t, c) \iff s \models \sigma \land \text{Timespan}(s, t) \land t \subseteq t_{TOP}(c)$

(8.2) $\text{PRV}(s, \sigma, t, c) \iff \text{AtProposition}(s, \sigma, p) \land \text{True}(p)$
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
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
A Situation Structure (SITSTR) is a relational structure of the following type:\textsuperscript{24}
\[ [ A, \text{SelAdVal}^3, \text{Soa}^3, \text{Pos}^1, \text{Neg}^1; \text{Sit}^1, \text{\textup{\textbf{-}}}^2, \text{Rel}^1, \text{ArgRole}^1, \text{Approp}^1, \text{NegOf}^2, \text{Time}^1, \text{Timespan}^2, \text{Anterior}^2 ] \]
such that:

1. Basics concerning SOAs:
   (a) If \( \text{Soa}(R, \alpha, \sigma) \), then \( \text{Rel}(R) \) and \( \text{Approp}(\alpha) \).
   (b) If \( \text{SelAdVal}(i, a, \alpha) \), then \( \text{ArgRole}(i) \).
   (c) If \( \text{Soa}(R, \alpha, \sigma) \), then for any \( i, a, b \) such that \( \text{SelAdVal}(i, a, \alpha) \) and \( \text{SelAdVal}(i, b, \alpha) \) it follows that \( a = b \).
   (d) If \( s = \sigma \), then \( \text{Sit}(s) \) and there exist \( R, \alpha \) such that \( \text{Soa}(R, \alpha, \sigma) \).
   (e) Notation: If \( \text{Soa}(R, \alpha, \sigma) \), then we write: \( \sigma = \langle \langle R; \alpha \rangle \rangle \).

2. Negation and SOAs:
   (a) If for some \( R, \alpha \) \( \text{Soa}(R, \alpha, \sigma) \), then exactly one of the following: \( \text{Pos}(\sigma) \) or \( \text{Neg}(\sigma) \)
   (b) The \( \text{NegOf} \) relation is symmetric and functional (If \( \text{NegOf}(\sigma, \tau) \), then \( \text{NegOf}(\tau, \sigma) \)
       If \( \text{NegOf}(\sigma, \tau) \) and \( \text{NegOf}(\sigma, \tau') \), then \( \tau = \tau' \))
   (c) Dual SOAs are constituted from the same SOA and role assignment: If \( \text{Soa}(R, \alpha, \sigma) \),
       then there is a SOA \( \overline{\sigma} \neq \sigma \) such that \( \text{NegOf}(\sigma, \overline{\sigma}) \) and \( \text{Soa}(R, \alpha, \overline{\sigma}) \)

3. \( \text{Soa}^* \) and \( \text{SelAdVal}^* \) are disjoint.

4. Temporal Structure:
   (a) If \( \text{Timespan}(s, t) \), then \( \text{Sit}(s) \) and \( \text{Time}(t) \). \( \text{Timespan} \) relates a situation to the times occurring within it.
   (b) If \( \text{Anterior}(s_1, s_2) \), then \( \text{Sit}(s_1) \) and \( \text{Sit}(s_2) \). \( \text{Anterior} \) is a partial ordering on the class of situations in terms of temporal constitution such that \( \text{Anterior}(s_1, s_2) \) intuitively means that the temporal instants of \( s_1 \) precede the temporal instants of \( s_2 \).

Ginzburg & Sag (2000: 87)