## Session IX - Tense & Aspect

#### **1.** Introduction: Tense

- Informal definition of tense:
- (1) Tense  $=_{\text{Def}}$  the grammaticalization of location in time (Comrie 1985)

(2) 
$$before \uparrow after$$
 physical flow of time utterance time  $t_0$ 

• Issues in describing tense systems (cf. Comrie 1985, Matthewson 2005):

(3)	a. E =	event time	(the time at which the reported event takes place)
	b. S =	speech time	(the time at which the sentence is uttered)
	c. R =	reference time	(the time that serves as reference point for the reported event)

i. *Temporal relations* 

ANTERIORITY ( $\rightarrow$  past), SIMULTANEITY ( $\rightarrow$  present), POSTERIORITY ( $\rightarrow$  future)

- ii. Deixis (point of reference) (cf. also Reichenbach 1947):
- *absolute tense*: reference time = speech time (R = S)
- (4) a. past:E < S(=R)I lived in NY city.b. present:E = S(=R)I live in NY city.c. future:S(=R) < EI will live in NY city.
- *relative tense*: reference time  $\neq$  speech time
- (5) a. pluperfect: E < R < S *I had lived in NY city, when...*b. future perfect: S,E < R</li>

iii. Distance (from point of reference): very far, far, close

- Absolute tense systems in natural language
- i. tripartite systems (past, present, future): English (cf.4), Lithuanian
- $\rightarrow$  cross-linguistically not very common (Chung & Timberlake 1985: 204)
- ii. bipartite systems:
- *past* vs. *non-past*: Yidiŋ (Dixon 1977, Chung & Timberlake 1985: 205)
- *future* vs. *non-future*: Hua (Haiman 1980, Comrie 1985: 46), Takelma (Chung & Timberlake 1985: 204)
- → bipartite systems involving *present* vs. *non-present* seem to be universally absent !!! (Comrie 1985)

- NB: Some languages do not seem to make a tense distinction between *future* and *non-future*, but a *mood* distinction between *realis* and *irrealis*: e.g. *Dyirbal* (, Dixon 1972, Comrie 1985: 49)
  - *realis:* episodic sentences referring to past and present events
  - *irrealis:* hypothetical sentences referring to non-actual events in conditionals, optatives, imperatives, future etc.)

*Diagnostic:* Use of a specific marker is not restricted to reported events in the future, but showes up in other environments as well: optatives, hortatives, imperatives, conditional clauses, etc. (see Matthewson 2005 for discussion)

#### 2. A brief note on aspect

- Temporal/Aspectual system in Klein (1994):
- (6) a. ET: The time at which the relevant event takes place.
  - b. UT: The time the sentence is uttered.
  - c. RT: The time about which a claim is made.
  - i. Tense = relation between RT and UT
  - ii. Aspect = relation between ET and RT
- (7) I saw Mabel last week
  - i.  $RT < UT \rightarrow past$
  - ii.  $ET \subset RT \rightarrow$  perfective (absence of progressive form)
- (8) A: What did you notice when you looked into the room?B: The light was flickering. (adapted from Klein 1994)
  - i.  $RT < UT \rightarrow past$ ii.  $RT \subset ET \rightarrow progressive$
  - RT: the time at which B looked into the room (e.g., 9pm yesterday)ET: the time at which the light was flickering (e.g., from 8 11pm yesterday)
- Cross-linguistic variation: tense vs. Aspect languages

Languages differ with regard to which semantic dimensions (tense, aspect, tense and aspect) they grammatically encode in form of spezial morphemes, auxiliaries etc.

- i. tense/aspect languages (e.g. English, Russian): mark both
- ii. tense languages (e.g. Standard German): mark only/ mainly tense
- iii. aspect languages (e.g. Hausa, many African languages): mark only/ mainly aspect
- Musa ya-nàa tàfiyàa. (Hausa, Chadic)
   Musa 3sg.m-PROG going.away
   Musa is/ was travelling.'

### 3. The semantic contribution of tense morphemes

#### 3.1 Tense as an existential quantifier

- Tense morpheme contributes an existential quantifier over time (interval)s and locates a tensed proposition in time.
- (10) a. [[past]]  $= \lambda p_{\langle i,t \rangle}$ .  $\exists t [ t < t_0 \land p(t)]$ 
  - b. [[present]] =  $\lambda p_{\langle i,t \rangle}$ .  $\exists t [ t_0 \subseteq t \land p(t)]$
  - c. [[future]] =  $\lambda p_{\langle i,t \rangle}$ .  $\exists t [t > t_0 \land p(t)]$
- (11) a. John saw Mary.
  - b. [[ past(John see Mary)]]
  - c. =  $[\lambda p_{\langle i,t \rangle}, \exists t [t < t_0 \land p(t)]] (\lambda t. see' (john, mary, t))$
  - d. =  $\exists t [ t < t_0 \land see'(john, mary, t) ]$
  - e. = 1 iff there is a time t before the time of utterance  $t_0$ , such that the proposition 'John sees Mary' is true at t.
- *Problem for the quantifier account: negative past sentences (Partee 1972)* The quantifier account cannot account for the interpretation of (11)
- (12) I didn't turn off the stove. (uttered somewhere on the turn-pike)
  - i. There is no past time t such that I turned off the stove at t.  $\rightarrow$  false
  - ii. There is a past time t such that I did not turn off the stove at t  $\rightarrow$  trivially true
- (13) I did not turn off the stove at a specific (contextually-specified ) time t in the past

 $\rightarrow$  tense = pronouns (Partee 1972)

#### **3.2** Tense = Proform (Partee 1972, Kratzer 1998, Matthewson 2005)

The tense morpheme contributes a context-dependent variable over time intervals and a presupposition to the semantic derivation. The variable corresponds to the reference time. The presupposition determines the location of the relevant time interval relative to the utterance time  $t_0$ .

- (14)  $[[PAST_i]]^{g,C} = g(i)$ , defined iff  $g(C) < t_0$  (the utterance time)
- (15) a. Mary walked.



- c.  $[[TP]]^{g,c} = \lambda w. \lambda e [walk(e)(w) \& agent(Mary)(e)(w) \& \tau(e) \subseteq g(i)] (where g(i) < tc).$
- d. There is an event e of Mary walking, whose running time  $\tau$  is included in the contextually salient past time g(i).

### 4. Tense in a superficially tenseless language: St´át´imcets (Matthewson 2005)

#### 4.1 Observations

i. superficially tenseless clauses (STCs) receive either a past tense or a present tense interpretation:

(16) a. táyt-kan	b. k'ác-an'-lhkan
hungry-1SG.SUBJ	dry-DIR-1SG.SUBJ
'I was hungry / I am hungry.'	'I dried it / I am drying it.'

- ii. temporal reference can be restricted by overt temporal adverbials
- (17) a. táyt-kan *lhkúnsa* hungry-1SG.SUBJ *now* 'I am hungry now.'
  - b. k'ác-an'-lhkan *i-nátcw-as* dry-DIR-1SG.SUBJ *COMP.PAST-one.day.away-3CONJ* 'I dried it yesterday.'
- iii. STCs can never refer to future events: incompatibility with future adverbials
- (18) a. \* táyt-kan *natcw / zánucwem* hungry-1SG.SUBJ *one.day.away / next.year* 'I will be hungry tomorrow / next year.'
  - b. \*k'ác-an'-lhkan natcw / zánucwem dry-DIR-1SG.SUBJ one.day.away / next.year 'I will dry it tomorrow / next year.'
- iv. For a future-time interpretation, the enclitic *kelh* is required (see 4.3)
- (19) a. táyt-kan *kelh* hungry-1SG.SUBJ *kelh*'\* I was hungry / \* I am hungry / I will be hungry.'
- Conclusion:

The morphologically unmarked STC-form is not fully underspecified with respect to tense, for it cannot refer to future eventualities.

### 4.2 Analysis

- STCs contain a phonologically null tense morpheme, TENSE. TENSE introduces a variable over time intervals (the reference time), which receives its value from the contextually determined assignment function. The lexical entry of TENSE in (20) restricts possible values for the reference time to being non-future (by way of a presupposition):
- (20) [[ TENSEi ]]<sup>g,C</sup> = g(i), defined iff g(i) < tc or g(i) o tc.

- (21) matq [kw s-Mary] walk [DET NOM-Mary]'Mary walked / Mary is walking.'
- TP (22) a. 1 \ Т AspP 1 / TENSE<sub>i</sub> Asp VoiceP / \ PERF matq kw sMary
  - b. [[ (22a) ]]g,c =  $\lambda$ w.  $\lambda$ e [walk(e)(w) & agent(Mary)(e)(w) &  $\tau$ (e)  $\subseteq$  g(i)]] (where g(i) < tc or g(i) o tc).
  - c. There is an event e of Mary walking, whose running time  $\tau$  is included in the contextually salient past or present time g(i).
- There aren't two different null morphemes for past and present, respectively, in St'át'imcets, but only one null morpheme underspecified for past and present:
- $\Rightarrow$  STC-clauses can refer to past and present tense at the same time !
- (23) *Context:* Your white friends Theresa, Charlie and Marie got drunk at the bar. You are looking after them because you don't drink. Theresa threw up at 10pm; Marie hasn't thrown up at all. Just as Charlie is in the process of throwing up, another friend calls and asks (a); you can answer with (b):
  - a. wat'k' ha i snek'wnuk'wa7-lhkálh-a vomit YNQ DET.PL friend(PL)-1PL.POSS-DET Literally: 'Our friends throw up?'
  - b. wat'k' kw s-Theresa múta7 s-Charlie
     vomit DET NOM-Theresa and NOM-Charlie
     'Theresa and Charlie threw up / are throwing up.'

#### 4.3 The special status of the future marker -kelh

- *-kelh* is not an *irrealis* marker:
- i. It does not occur in *non-future irrealis* contexts, such as conditionals, counterfactuals, imperatives, futures, questions, negatives, obligations, desideratives, potentials, warnings, ... (see end of section 1), but has obligatory future import:
- (24) 7aoz *kelh* kw-s ít'-em kw s-Henry (negative) NEG *kelh* DET-NOM sing-MID DET NOM-Henry 'Henry may not sing.' / \* 'Henry isn't singing.' / \* Henry didn't sing.

(Y/N-question)

(25) ít'-em há kelh s-Tammy
sing-MID YNQ kelh NOM-Tammy
'Is Tammy going to sing / Will Tammy sing?' (only readings)

(26)lh-smem'lhats-áskakelh kun-skwékwza7,(conditional)COMP-woman(DIMIN)-3CONJ IRRkelh DET1SG.POSS-offspring(DIMIN)

nah-en-lhkán ka ku Philomena name-DIR-1SG.SUBJ IRR DET Philomena

'If I had a daughter, I would call her Philomena.' (volunteered gloss)

- ii. *-kelh* cannot occur in imperatives:
- (27) sima7-cí(t)-ts (\*kelh) ta lasál-a come.here-IND-1SG.OBJ kelh DET salt-DET 'Hand me the salt.'
- *-kelh* is not an epistemic modal meaning 'might'. It does not express epistemic modality in past or present tense, but always has future import:
- (28) *Situation:* Your friend asks you how many fish were in the net this morning, and you aren't quite sure of the number, but you know approximately. You say 'It might have been five.'
  - a. tsétsl'ekst *k'a sxek* five(animal) *APPAR perhaps* 'It might have been five.' (volunteered form)
  - b. tsétsl'ekst *k'a kelh* five(animal) *APPAR kelh* 'It might be five.' (future reading only)

Consultant's comment: "You might get five ... because you've been getting five, you might get five again."

- *kelh* seems to act in all aspects of its interpretation like English (temporal) *will/would*. It gives future readings in simple sentences, yet allows *would* readings just as English does, e.g. when embedded under a past matrix clause. It disallows simultaneous future readings, and shifts forward the evaluation time of a clause embedded under it.
- (29) tsut tu7 kw s-Susan ánwas-as xetspásq'et lhel i DET NOM-Susan COMP.PAST two-3CONJ week say tu7 from lhkúnsa [kw-s lhwál-en-as *kelh* ta kwtámts-s-a [DET-NOM leave-DIR-3ERG kelh DET husband-3SG.POSS-DET now l-ku pála7xetspásq'et] in-DET one l-week]

'Susan said two weeks ago that she'll leave her husband in one week from now / would leave him one week from then.'

• *-kelh* is not an irrealis, nor a tense marker, but corresponds to the English modal operator *WOLL* (Abusch 1985, 1988): *-kelh* combines with the tense morpheme, which picks out a past or present reference time. This will enable sentences containing kelh to receive either will- or would- readings.

 $(30) \quad [[ WOLL ]] = \lambda P \in D_{<i,st>} . \ \lambda t . \ \lambda w \ . \ \exists t' \ [t < t' \ \& \ P(t')(w) = 1]$ 

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- *-kelh* behaves like other St'át'imcets modals in that it has not specified quantificational force, and can be rendered as *may* or *must*.
- $\Rightarrow$  Cross-linguistic variation:
  - English: modals tend to have a specified quantificational force (universal or existential), but leave the conversational background up to context (Kratzer 1991).
  - St'át'imcets: modals have no inherently specified quantificational force, and thus allow both necessity and possibility interpretations, but conversely lexically specify the conversational background.
- Conclusion:

St'át'imcets has no future tense marker, but only a modal operator (with future import) that combines with the tense morpheme), see Enc (1996) and many others on the modal status of so-called 'future' *will* in English.

## 4.4 Conclusion

St'át'imcets possesses only one tense morpheme, TENSE, which picks out a past or present reference time. This morpheme may co-occur with a morpheme instantiating the (modal) temporal ordering predicate WOLL.

# 5. Semantic Variation: Case Studies

## 5.1 Micro-variation: St'át'imcets vs. English

- *English:* tense morphemes overt, different specifications for past and present
- *St'át'imcets:* only one covert tense morpheme that is underspecified for past-present
- $\Rightarrow$  Language variation due to feature content of a functional element (Fukui 1988)
- Parallels between St'át'imcets and English:

future morpheme shifts temporal reference in embedded clauses; future morpheme allows for *will*- and *would*-interpretation.

## 5.2 Macro-variation: Other tenseless languages

- Chinese (Lin 2005):
- no separate tense morpheme (no T-projection)
- tense interpretation derived either (i.) from default aspectual interpretation (corresponding to the VP-aspect: e.g. telic predicate  $\rightarrow$  imperfective  $\rightarrow$  present), or (ii.) from the lexical specification of overt aspectual markers (perfectivity markers *guo* and *le* encode a temporal precedence relation between event time and topic time  $\rightarrow$  past interpretation in neutral contexts)
- Kalaallisuut (Bittner 2005):
- no tense specification in the grammar (Kalaallisuut a true tenseless language?)

- apparent future reference achieved by a large number (>30) of prospective predicates (*hope, fear, desire, expectation, intent,...*) that are evaluated with respect to the utterance time, but have a future import by weay of inference.

#### 5.3 On the future 'tense': No variation?

• *Observation:* 

Apparent 'future' forms have a special, mood like status in many typologically unrelated languages (English, St'át'imcets)  $\rightarrow$  In many languages they are generated in the same position as modal operators (e.g. Kwa, Aboh 2004)

- **Q:** *Is there a future tense at all?*
- *Potential Universals:*
- i. There is no future tense: Future must always combine with tense, but is no tense.
- ii. FUT-morphemes are always modals. Variation may exist with regard to the quantificational force (universal or unspecified) or with regard to the question of whether the FUT-morpheme is an *irrealis* morpheme or not.

Potential Consequences:

- $\Rightarrow$  There may not be future non-future *tense* languages after all
- $\Rightarrow$  apparent *past non-past* tense languages are really *past present* tense languages, with a covert FUT-morpheme

# 6. Tense/Aspect in West African Languages? Hausa (Chadic)

- *Observations:*
- i. Hausa does not (or only marginally) overtly encode tense
- ii. There are two aspect markers for PERF and PROG (31a) and a future marker (31b).
- iii. The future marker does not co-occur with aspectual markers, and it does not surface in the same position as aspectual markers, but in a position accessible to mood markers (see also Aboh 2004 on Kwa) (31c).
- (31) a. Hàwwa ta**a** / ta-**nàa** dafà waakee Hawwa 3SG.F.PERF 3SG.F-PROG cook beans 'Hawwa cooked / is cooking beans.'
  - b. Hàwwa **zaa** tà dafà waakee Hawwa FUT 3SG.F cook beans 'Hawwa will cook beans.'
  - c.\*Hàwwa **zaa** ta**a** / ta-**nàa** dafà waakee Hawwa FUT 3SG.F.PERF 3SG.F-PROG cook beans
- $\Rightarrow$  FUT as a modal operator ? = Lilloet Salish
- iv. PROG-marked clauses and PERF-marked clauses in Hausa are underspecified for tense and can receive *either present or past interpretation*, *but no future interpretation* (32abc)
  - = Lilloet Salish;  $\neq$  Mandarin Chinese

(32)	a.	<b>ta-nàa</b> 3sg.F-prog 'She is boil	dafà boil ing wa	ruuwà water ater rigl	<b>yanzı</b> now nt now.'	u / '/'Sh	<b>jiyà</b> yestei e was	rday boiling wat	er yesterd	lay.'	
	b.	Naa 1sg.perf 'I see him n	gan see low.' /	shì y 3sg r	z <b>anzu</b> Iow I saw hi	/ jiy ye im yes	v <b>à</b> sterda sterday	y 			
	c. * <b>ta-nàa</b> dafà ruuwà <b>gòobe</b>										
	d.	*Naa	gar	n shì	gò	obe					
v.	Th	e Hausa FUT	ſ-mark	er give	s rise to	will/	would	-readings =	English,	Lilloet Salish	
(33)	[A at	mako biy week tw	7u da o REI	suka L 3pL	wu REL pa	ice] ssed	Susar S.	n ta 3sg.f.perf	ce say		
	<b>za</b> FU	ta T 3SG.F.PE	rab RF sep	ou contrate v	la mi vith hu	jinta sband	-her	mako d'aya week one	ı bayan after	nan now	

'Two weeks ago Susan said that she would leave her husband two weeks from then.'

- $\Rightarrow$  Future does not indicate a tense of its own
- Possible Analyses:
- 1<sup>st</sup> option: Hausa = Lilloet Salish: there is an unpronounced T-morpheme with the value [present, past] in all clauses and receives a past or present interpretation depending on context; the future modal combines with the covert tense morpheme to yield *will* or *would*-readings.
- $\Rightarrow$  Hausa as a superficially tenseless language

 $2^{nd}$  option: Hausa  $\neq$  Lilloet Salish:

- i. only overtly aspectually marked clauses (PROG, PERF) introduce a T-projection (*T-Asp-dependency*) with a covert morpheme that is interpreted depending on context.
- ii. one of the semantic functions of the ASP-marker is to introduce existential closure over the event variable: *There was an event/ is an event taking place such that* ....
- iii. In the absence of aspectual marking, modal operators (including FUT !) operate directly over the verb's event variable; FUT indicates posteriority relative to a contextually given temporal reference point.
- $\Rightarrow$  Hausa as a partially tenseless language

3rd<sup>d</sup> option: more radical still

- i. There is no T-projection in Hausa;
- ii. Only the two ASP-markers introduce a reference-time variable  $t_R$  the value of which is restricted to [present, past] and must be recovered from context.
- iii. Since the FUT-marker does not co-occur with the aspectual markers, the posteriority expressed by FUT must resolved from the context.
- $\Rightarrow$  Hausa as a syntactically tenseless language

### 7. Research Assignments

- i. What kind of aspectial and modal markers are found in your language?
- ii. Do they occur in the same syntactic position; or in different ones?
- iii. Can future-marker and aspectual markers co-occur?
- iv. What is the range of possible *temporal* interpretations (present, past, future) of progressive-, perfective-, and future-marked clauses in the language?
- v. To what extent does the language resemble the behaviour of Lilloet Salish?

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