

Understanding cyclicity

Towards a theory of Djambarrpuyŋu temporal expression

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Among its aims, (the presently relevant component of) my dissertation seeks to understand:

- **The proper semantics for (sc. meaning contribution of) Yolŋu inflectional categories &**
- **How temporal relations are encoded and understood in Yolŋu.**

Background

- Yolŋu Matha is a language group (Pama-Nyungan) spoken in Northern Arnhem Land (the ‘Top End’ of Australia.)
- It is a Pama-Nyungan ‘exclave’ of sorts, surrounded by a number of genetically unrelated languages from a number of different families.
- Yolŋu languages are fusional (suffixing), predominantly dependent-marking, have a relatively free (w information structural implications) word order
- There is significant variation in strategies for encoding TAM(PE) information across thee languages, although this semantic work is (predominantly) carried out by some combination of
 - **verbal inflection, • auxiliaries & (uninflecting) particles** and pragmatic/discourse/lexical strategies.
- The data I’m examining in this presentation is from the Dhuwal(a) language (especially its *Djambarrpuyŋu* and *Gupapuyŋu* varieties.)
- This language has a number of verb classes (sc. conjugations). All verbs stems are taken to obligatorily inflect for exactly one of four ‘inflectional categories’
- Here I label them **I, II, III, IV**

The phenomenon

Metricality

- **Temporal remoteness** (sometimes known as “metrical” or “graded” tense) has received a number of treatments in the recent literature (e.g Bohnemeyer 2018, Cable 2013, Klecha and Bochnak 2016).
 - This is the grammaticalisation of markers of temporal location that are more fine-grained than PAST and FUTURE (Comrie 1983:84,Dahl 1983)
 - It is likely not a unified phenomenon semantically, these authors show different ways in which their object languages encode temporal remoteness.
 - All provide evidence for an unmarked tense marker which is blocked in particular situations by MAXPRESUPP or similarly formalised constraints.
- Djambarrpuyŋu does indeed seem to have a grammatical reflex for temporal remoteness ([MetPst])

(1) **Differential (past) temporal remoteness encoded in *djr* verbal inflections**

a. RECENT PAST with **I**

*yo barpuru-ny ŋarra ŋaŋa nhä-**ma**-ny (*nhäŋal)*
yes, yesterday-PROM 1s 3s.ACC see-**I**/***III**-PROM

‘Yes, I saw him yesterday.’

b. REMOTE PAST with **III**

*maarrma ga-**n** malwan-dja dhära-**n** yindi maŋda-*n**
two IPFV-**III** Hibiscus-PROM stand-**III** big 3d-PROM

‘Two big Hibiscus flowers were growing there’ (at some place in the speaker’s youth)
(Wilkinson 1991:339)

- The picture becomes significantly more complicated however:

I and **III** are compatible with PAST reference in Djambarrpuyŋu.¹

FUTURE interpretations occur with **I** or **II**.

Present-tensed predicates occur with **I**.

Cyclicity

The data in (2) shows the (obligatory) use of **I** in present contexts (also the recent past marker in 1a) and the (obligatory) use of **III** to refer to an earlier event on the day of speech (whereas **III** was used to encode the REMOTE PAST in 1b.)

(2) a. PRESENT with **I**

*ŋarra ga nhä-**ma** warrkun’ (dhiyaŋ bala)*
1s IPFV-**I** see-**I** bird ENDO.ERG MVTAWY

‘I’m looking at a bird (now)’

[My construction]

b. TODAY PAST with **III**

*ŋe gāthur ŋarra ŋanya nhä-**ŋal** (*nhäma) goḍarr dhiyal*
yes, today 1s 3s.ACC see-**III** (*see-**I**) morning PROX-LOC

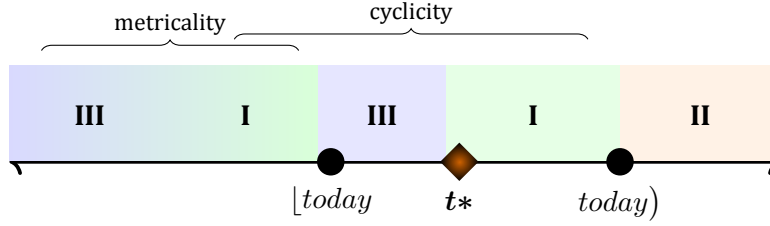
‘Yes, I saw him here this morning’

(Wilkinson 1991)

- The times that are compatible with **I** and **III** are **discontinuous**. This phenomenon has been referred to as **cyclic tense** (Comrie 1983:88) and is reported only in languages spoken in this area of Arnhem Land.

¹In fact, all four inflections (**I-IV**) are compatible with PAST interpretations. For current purposes/the sake of exposition, I put the past-referring uses of **II** and **IV** to the side.

Figure 1. Temporal expression in the Yolŋu Matha varieties of Central Arnhem, demonstrating two descriptive phenomena: (a) cyclicity — the interspersed/discontinuity of **I** and **III** forms and (b) metricality — the (subjective) division of the past domain between these two forms. $[today)$ indicates the boundaries of the privileged interval *today*. t^* is utterance time



- Descriptions (particularly of the neighbouring ‘Maningrida’ language family) have adopted a schema like the one in Table 1 (originally due to Glasgow (1964)).
- Wilkinson (1991) and other Yolŋuists discuss but seem uncommitted to this style of analysis (they’ve treated it largely as a type of polysemy, *pers. comm.*)

FRAME			
		today	before today
INFL	I	now	yesterday/recently
	III	earlier today	long ago

Table 1. A Glasgow (1964)-style analysis of **past-time restrictions** introduced by the verbal inflections, adapted for the Dhuwal(a) data. **I** and **III** inflections correspond to Eather’s **contemporary** and **precontemporary** “tenses” (“precontemporary” is Eather’s (2011:166) relabelling of Glasgow’s “remote” tense.)

- Can we get at this with a standard semantics? Only if we make a pretty *ad hoc* set of claims as in (3)

(3) POTENTIAL PRESUPPOSITIONAL-INDEXICAL TREATMENT OF THE DJR PRIMARY INFLECTION (**I**)

$$\llbracket \mathbf{I} \rrbracket^{g,c} = \lambda t : \begin{cases} t \in today \leftrightarrow t \succcurlyeq t_0 & .t \\ t \notin today \leftrightarrow t \prec t_0 \wedge \mu(t, t_0) < s_c & .t \end{cases}$$

I is only defined if the context *c* provides a **either** a time *t* within the span of *today* that coincides with or follows speech time t_0 **or** it precedes *today* by some contextually-constrained period *s*.

If it is defined then $\llbracket \mathbf{I} \rrbracket = t$

The defense of a preliminary analysis like that given in (3) would entail:

1. motivating the introduction of a privileged interval (and understanding the temporal span of) *today* into Yolŋu temporal ontology (requires additional empirical verification of the precise nature of *today* as a relevant interval);
2. motivating the joint grammaticalisation of these disjoint presuppositions (a defining characteristic of ‘**cyclicity**’); and
3. understanding whether and how a contextual standard is retrieved in order to predict in which past contexts the verb is inflected with **I** in lieu of **III** (a defining characteristic of ‘**metricality**’).

- It may be the case that deploying an interval semantics gets us closer to an elegant solution...

Temporal adverbials & deixis

In all Australian languages there is a single term for the temporal deictic centre, however its reference is always imprecise and it shows great polysemy depending on the contrastive context (ranging over ‘now, today, nowadays (in contrast to the past’)).

(Austin 1998:147)

- Dhuwal(a) has a set of lexicalised temporal adverbials: *gāthur(a)* ‘today’, *barpuru* ‘yesterday’, *bonguŋ* ‘tomorrow’ etc.

These are the standard translations but are clunky. *Per* the Austin quote above, *barpuru* and *bonguŋ* really seem to refer constrain the reference interval to RECENT PAST and NEAR FUTURE respectively. E.g. (4) below (the first token of *barpuru* appears to be attenuated by *mārr*).

- (4) *dirramu-wal yothu-wal bāpa-mirriŋu-y rrupiya barpuru djuj’yu-n mārr*
 man-OBL kid-OBL father-KINPROP-ERG money yesterday send.I somewhat
barpuru ga barpuru buna-ny dhiyal-nydja
 yesterday and yesterday arrive.I-PROM PROX.ERG-PROM

‘The father sent money to the boy recently and it arrived here yesterday’

(Wilkinson 1991:343)

- Temporal frames can also be derived by ERG-inflection on nominals (5)

(5) Productive derivation of temporal frame from nominal

bala ŋayi yaryu~yaryu-n dangga-y wāŋa-y
 MVTAWY 3s wade~RED-I fine-ERG place-ERG

‘Then he went along the water’s edge (hunting) while it was fine out (not raining).’

(Wilkinson 1991:159)

- Dhuwal(a) has an elaborated demonstrative system. Four stems participate in the paradigm and inflect as nominals:

<i>dhuwal(a)</i>	PROX
<i>dhuwali</i>	MED
<i>ŋunha</i>	DIST
<i>ŋunhi</i>	ENDOPHORIC

- All four of these stems participate in spatial/personal demonstrations.

Temporal deixis ‘at this/that time’ is normally lexicalised using the PROX or ENDO stem.

- ‘now’ is generally translated as *dhiyaŋu bala*. This is composed of the PROX-stem inflected with ERG and a particle, means ‘then/thereafter’ and is used in other expressions, glossed by Wilkinson as MOVEMENT AWAY (from some deictic centre). **NB:**

- *dhiyaŋu bala* is also compatible with a ‘nowadays’ type reading.
- The interval picked out by *dhiyaŋu bala* is compatible with non-present interpretations (e.g. 6)

- (6) *dhiyaŋ bala napurr bāpi nhā-ŋal gāthur*
PROX.ERG MVTAWY 1p.EXCL snake see-**III** today

‘We saw a snake today’

(Wilkinson 1991:256)

- This contrasts with *ŋuriŋi bala*, an expression that picks out some “other” (nonpresent) time (sc. some salient time in the past or future, ‘at that time’...)

- (7) *Way, marŋgi nhe (ŋarra-kalaŋa-w bāpa-’mirriŋu-w-nydja [ŋunhi [ŋayi dhiŋga-ma-ny*
 hey know 2s 1s-OBL-DAT father-KINPROP-DAT-PROM **TEXTD** 3s die-**I**-PROM
ŋuriŋi bala dhuŋgara-y]]]
TEXTD-ERG then year-ERG

‘Hey, did you know my father, who died last year?’

(Wilkinson 1991:343)

- The vagueness built into these frame adverbials potentially provides a clue for how *djr* is organising temporal reference

Towards a theory of Dhuwal(a) temporal reference

We’re thinking that an elegant formalisation for cyclic tense may emerge out of interval semantics. The analysis would need to predict:

- The exponence of **III** in REMOTE PAST and TODAY PAST situations;
- The infelicity of **III** in *non-today* RECENT PAST situations

A tool for relating a reference interval to a related interval comes from Condoravdi and Deo (2014). In order to capture the meaning component of the PERFECT aspect they define a relation NONFINAL INSTANTIATION that holds between a property and two intervals *i*, *j*:

$$\text{NFINST}(P, j, i) \leftrightarrow \exists k[\text{INST}(P, k) \wedge k \subseteq j \wedge k \prec i]$$

such that this relation holds when we can find some interval *k* contained in *j*, **preceding** the reference interval *i*, in which *P* is instantiated.

(8) A first tilt

- a. Adapting from a treatment of the PERFECT in Condoravdi and Deo (2014):

$$\llbracket \text{III} \rrbracket^{g,c} = \lambda P \lambda i_c. \exists j [i_c \sqsubseteq_{\text{final}} j \wedge \text{NFINST}(P, j, i)]$$

- b. Which may for current purposes be equivalent to a simpler denotation...(?)

$$\llbracket \text{III} \rrbracket^{g,c} = \lambda P \lambda j_c. \exists k [k \sqsubseteq_{\text{nonfinal}} j_c \wedge \text{INST}(P, k)]$$

- What this genre of analysis would buy us is a situation in which *i* is identified either as the time-of-speech (roughly **now**) or some constrained (recent) period *prior to the day-of-speech*.
- **III** is then licensed when the property which is denoted by the verb that it inflects is instantiated within *j* (a superinterval of *i* that shares its right boundary) but not in *i* itself.

- An implication of this initial treatment would be that the temporal work that **III** is not really that of an absolute tense marker (taken by, e.g. Klein 2009 to be the relation of utterance time to a reference time. Here eventuality time is directly built in to the semantics.)
- It's likely possible to maintain a pronominal treatment of tense in the style of Partee (1973) (roughly, $\llbracket_{\text{PST}}\rrbracket = \lambda t : t \prec \mathbf{now}.t$), but how to do or what the implications are aren't immediately clear to me as I get this handout together.

- AXIOMS OF AN INTERVAL-BASED TENSE LOGIC *PER* HAMBLIN (1971) & *SEQ.*
 - i. antisymmetry of $\mathcal{I} \times \prec$
 - ii. transitivity of $\mathcal{I} \times \prec$
 - iii. connexity of $\mathcal{I} \times \prec$
 - iv. intersection
 - v. join
 - vi. divisibility (density of \mathcal{I})
 - vii. universe (infinity)
- Three-valued truth system: $p(i) = 1, p(i) = 0$ or p changes in i

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