tense & mood

semantics of the Djambarrpuynu verbal paradigm

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Djambarrpuyŋu verbs inflect for one of four “categories”

- **‘EAT’**  luka  luki  lukan  lukanha
- **‘GIVE’**  gurrupan  gurrupul  gurrupara  gurrupana
- **‘SEE’**  nhäma  nhäṇu  nhäṇal  nhäṇha

These inflections encode **tense** and **mood** information.

Existing descriptions eschew unified semantics for each category.

Understanding two phenomena — **cyclic tense** and **negative asymmetry** (w/r/t reality status marking) — permits for this
Roadmap

introduction
- modelling assumptions
- language background
- Wägilak
  - Djambarrpuynu

cyclic tense

verbal mood & the negative asymmetry
- co-occurrence

the djambarrpuynu inflectional paradigm

appendices
  - Same-day future
Branching times

if the determinist sees Time as a line, the indeterminist sees it as a system of forking paths

- Futurity as a modal concept (Abusch 1985, Kaufmann 2005, Giannakidou 2012...)
- Partially ordered set of indices (Thomason, Krifka, von Prince...)
- Metaphysical assumption: given $i$, there is a single past (left-linearity) and multiple possible “branching” futures to the right

Burgess ’78
Branching times

*If the determinist sees Time as a line, the indeterminist sees it as a system of forking paths*  

Burgess ’78

- This tree represents metaphysical alternatives futures to $i_0 \cap \approx i_0$
- Relative to $i^*$, $\prec$ partitions the tree into an **actual**, **potential** and **counterfactual** domain
Yolŋu

- Exclave of Pama-Nyungan spoken in NE Arnhem Land
  - Complex cluster of dialects
  - Surrounded by unrelated languages
- Western Dhuwal(a) of Raminginŋiŋ
  - Djambarrpuyŋu: representative Dhuwa variety
- Pronounced contact effects in west
Yolŋu

- Significant variation in grammatical expression of TMA
- Cognate inflectional paradigms point to semantic change
- **Djambarrpuynu** and **Wägilak**: all verbs inflect for four categories
Inflection in Wägilak


**PAST, PRESENT, FUTURE**

- Fourth inflection: **PAST POTENTIAL**

\[ t^* \]
Djambarrpuyŋu morphosemantics

- Four inflectional categories
- Two particular phenomena exhibited in (geographically Western varieties) include:
  - **Cyclic tense** (Comrie 1985)
  - **Negative asymmetry** (Miestamo 2005)
- Assigning metalinguistic labels to the Djambarrpuyŋu inflectional categories is non-obvious:
  - They will be numbered I, II, III, IV throughout
Djambarrpuyŋu the past domain

1. bäynu ŋarra ga nhäma mukulnha
   NEX 1s IPFV.I see.I aunt-ACC
   ‘I see my aunt (right now).’

2. bäynu ŋarra nhänal mukulnha gäthur
   NEX 1s see.III aunt-ACC today
   ‘I saw my aunt this morning.’

3. bäynu ŋarra nhäma mukulnha barpuru
   NEX 1s see.I aunt-ACC yesterday
   ‘I saw my aunt yesterday.’

4. bäynu ŋarra nhänal mukulnha (ŋunhi ŋarra yothu yän)
   NEX 1s see.III aunt-ACC (today TEXD 1s kid
   ‘I saw my aunt (when I was little).’
Distribution

I  PAST, PRESENT, FUTURE

II  FUTURE, NONPAST, IRREALIS
    PAST, PRESENT NEGATIVE

III  PAST

IV  PAST IRREALIS,
    PAST HABITUAL,
    PAST NEGATIVE

★ here we go...

(Wilkinson 1991: 362)
Section 2

cyclic tense
Djambarrpuyŋu cyclic tense

- Tense morphology licensed by discontinuous intervals
- Reported in the languages of Maningrida
Existing treatments of Burarra-like temporal reference follow Glasgow 1964

- conspiracy of “reference frame” and CONTEMPORARY vs. REMOTE ‘tense’ marking

<table>
<thead>
<tr>
<th>Frame of Reference</th>
<th>TODAY</th>
<th>BEFORE TODAY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ngupa-nga</strong></td>
<td>I am eating</td>
<td>I ate recently</td>
</tr>
<tr>
<td><strong>ngupa-de</strong></td>
<td>I ate today</td>
<td>I ate long ago</td>
</tr>
</tbody>
</table>

There are a number of allomorphs of these ‘contemporary’ and ‘remote’ suffixes, which may be the basis for determining subclasses of verbs, but the interaction of form and frame of reference upon meaning is the same.

1 The double meaning of these suffixes was pointed out in Les Hiatt’s material which he shared with us before we went to Maningrida in April of 1962. Les Hiatt spent two years with the Burura people, and is now with the Sydney University.

2 I am grateful to Richard Pittman for applying the term ‘frame of reference’ to this feature of Burura.
theorising cyclicity

“CYCLICITY” due to Comrie 1985 phenomenon emerges out of recapitulation of a similar correspondence in from and function: the range of III precedes that of I in hodiernal and again in prehodiernal contexts

(Comrie ’85:88)
Condoravdi & Deo 2015 define a relation between intervals and predicates to capture the semantics of the Indo-Aryan Perfect

Where $j \sqsubseteq_{\text{FINAL}} i$:

$$\text{NFIINST}(P, i, j) \iff \exists k (\text{INST}(P, k) \land k \sqsubseteq i \land k \prec j)$$
temporal frames

- Reference time $i_c$ is associated with either a hodiernal or pre-hodiernal frame $F_c$
  - CONTEMPORARY eventualities are situated in final subintervals of $F$
**precontemporaneity**

Given a fixed context, PRECONTEMP establishes a partition over the NONFUT domain.
deriving cyclic tense

- Djambarrpuyŋu inflections as *(partial)* identity functions

\[ [I]^c = \lambda i. i \]

- That is, they impose presupposition/s on \( i_c \)

\[ [III]^c = \lambda i : \text{PRECONTEMP}_c(i) \cdot i \]
deriving cyclic tense

IP

ηarra nhäma mukulnha
I.SAW.AUNTY(ICC)

I

VP

ηarra NHÄ- mukulnha
λI.I.SAW.AUNTY(I)

I

ICC

I

λI.I

IP

ηarra nhänal mukulnha
PRECONTEMP(Ic)
I.SAW.AUNTY(ICC)

I

PRECONTEMP(Ic)

ηarra NHÄ- mukulnha
I is analysed here as something of a neutral inflection

In precontemporary predications, it is blocked by III

That is, I carries an antipresupposition of precontemporaneity (cf. Heim’s MAXIMIZE PRESUPPOSITION, Sauerland 2002 et seq)
explaining cyclic tense

- A question of mode
  - discourse likely to be concerned with a **PRESENT** v. **PAST** distinction (events overlapping with here-and-now)
  - narrative likely to be concerned with a **RECENT** v. **REMOTE** distinction (events completed prior to here-and-now)

- That is, the **HODIERNAL** frame is associated with conversational modes, the **PREHODIERNAL** frame is associated with narratives/storytelling

- *Cyclic tense* as a reflex of this mode distinction; categorisation of reference frames.
explaining cyclic tense

12  Quoted dialogue in a narrative context inducing reference frame shift

*nhanŋu ŋāndi’mirrinyaŋyuŋja waŋa-na-na:*

3s.s.DAT mother.KINPROP.PROM say-III-SEQ

“Go, gäma’*kama*-na nhuma dhu girriny’tja mala, nhakuna
bring.RED-1-SEQ 2p FUT thing.PROM PL like
munhdhurrnyŋja ŋayi waku. Ga ŋunhi dhu yolthu warrpam’
gift.PROM 3s DA and TEXD FUT who.ERG all
*gurrupan ŋunhi nhaku ŋarra ŋäŋ’thu-rruna, ga ŋuriniyi dhu*
give.l TEXD what.DAT 1s ask-III and TEXD.ERG.ANA FUT
*märrama wakunhanyŋja ŋarraku.”*

get.l DA.ACC.PROM 1s.DAT

‘...then her mother said: “Okay, bring stuff, gifts for my daughter. And who ever brings everything that I asked for, that person gets my daughter.”’

[Mätjarra [trans.], *Dhäwu märmawa ʤirramuwa*]
Cyclicity as the grammaticalisation of text type

The cyclic tense phenomena exhibited in Djambarrpuyŋu and related languages are a result of the reanalysis of present- and past-tense markers’ apparently divergent usage in conversational versus narrative contexts.
Section 3

verbal mood & the negative asymmetry
Negative asymmetry

II and IV as irr

- II-marking is associated with future orientation
- co-occurs with a range of modal particles (esp. dhu ‘FUT’, balanŋ ‘MOD’)

13 Barpuru godarr ŋarra dhu nhä-ŋu
funeral tomorrow 1s FUT see. II
‘I’ll see the funeral tomorrow’

14 nhä-ŋu nhanŋu dhurrwara!
look. II 2s.DAT door
‘Look at her mouth!’

15 ŋayi bala balanŋu bakthu-rru
3s MVTAWY MOD break. II
‘It [the recorder] might break.’
II and IV: basic distribution

▶ IV-marking for counterfactuals & past habits

16 waṭuy balanju luka-nha chocolate
   dog,erg mod eat-IV chocolate

‘The dog may/must have eaten the chocolate.’

17 ŋarra ŋuli baman’ luplupthu-na dhiyal
1s hab prior swim-IV prox.loc

‘I used to swim there.’

18 ŋäthil ŋarra ŋuli balanŋ liya-ŋamaŋamayunmi-nya
   earlier 1sg mod mod head-make.I.refl-IV

   balanŋ ŋarra waŋa-nha-n
   then 1s mod speak-IV-seq

‘Had I thought of it before, I would have spoken.’

(Wilk 91)
Following Condoravdi (2002), the modal particles (*dhu, balan*)... are taken to uniformly displace the runtime of some eventuality forward (“future orientation”)

So far, the distinction between II and IV appears to be one of present and past perspective respectively.
The negative asymmetry
We’ve seen how the distribution of I and III is governed by a cyclic tense system.

There are a number of overt operators which constrain the distribution of I and (particularly) III as presented.

I and III are ungrammatical under negation.

The negative asymmetry

negation in the paradigm

I  III  I  III  I  II

[ today]  t*  today)

IV  II  IV  II  I  II

[ today]  t*  today)
Asymmetric negation

13  bäŋu  njarra  ga  nhäma  mukulnha
   NEX 1S   IPFV.I  see.I  aunt-ACC
   'I see my aunt (right now).'

14  bäŋu  njarra  nhänal  mukulnha  gäthur
   NEX 1S   see.III  aunt-ACC  today
   'I saw my aunt this morning.'

15  bäŋu  njarra  dhu  nhäŋu  mukulnha  (goḏarr)
   NEX 1S   FUT  see.II  aunt.ACC
   'I’ll see my aunt (tomorrow).'

16  bäŋu  njarra  nhäma  mukulnha  barpuru
   NEX 1S   see.I  aunt-ACC  yesterday
   'I saw my aunt yesterday.'
**Negative asymmetry**

**In Djambarrpuyu**

Negative **realis** and **irrealis** predications are inflected identically.

<table>
<thead>
<tr>
<th>INFLECTION</th>
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<tbody>
<tr>
<td>−NEG</td>
<td>+NEG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td>II</td>
<td></td>
<td></td>
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<tr>
<td>III</td>
<td>IV</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td></td>
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</tbody>
</table>
Recap

II and IV: co-occurrence

- II and IV co-occur with:
  - future marking
  - modals (nonepistemic)
  - negation

- Formal treatments of the future predict a range of modal uses of future morphemes

- Compare En. will ‘FUT’: that’ll be the postman
  - (∀-quantification over different “conversational bkgrds”)

- Can all this data be unified?
Negation as a modal operator

Building on a symbolic-logical tradition that conceives of negation as a modal operator

**Negation as a (species of) alethic impossibility** (cf Wansing 2001):

\[ M, w \models \sim A \iff \forall u. w \subseteq u \rightarrow M, u \not\models A \]

**yaka, bäyŋu** ‘NEG’ can be understood as being of a natural class with the modal particles (2-place operators, following Kratzer a.o.)

\[ \llbracket \text{NEG} \rrbracket = \lambda P_{\langle s,t \rangle} \lambda i. \not\exists^i b [b \in \bigcap \mathbb{C}(i) \land \text{AT}(P, i)] \]

Pred modifiers that asserts that there’s no w-compatible world, the pred is not instantiated

*i.e.*, they effectively mark the counterfactual status of *P*

**Takeaways**: we can conceive of NEG and the MPS as species of *nonveridical operators.*
This treatment allows us to posit a natural class with the other licensing environments for II and IV.

In one way or another, WD modal particles signal the objective nonveridicality of prejacent

\[ \exists w' [w' \in M \land w' \in \neg p] \]  

this p much means that the truth of a given proposition can’t be known/asserted as a “settled” fact in a given situation

Our semantics for negative and modal operators — those elements that co-occur with II and IV — all satisfy nonveridicality in some circumstantial modal base
II and IV as **IRREALIS** mood

- suggests a treatment of WD inflections as verbal mood
- super dissimilar to the IND-SBJV distinction in European
  - **NOT** licensed by subordinating preds
  - Also not licensed by **epistemic modals**
- Paradigm realises a systematic **REALIS-IRREALIS** distinction
  - this notion is both much-used and much-maligned in the typological literature
  - Krifka, von Prince *et al.* have formal proposals in N/C-vanuatuans langs
- For Palmer (2001), IRREALIS/SUBJUNCTIVE systems are distinguished on these syntactic grounds.
  - Both taken to signal "**non-assertion**" in some sense
The contribution of the irrealis-aligned inflections (II & IV): presupposition of **objective** (metaphysical) **nonveridicality**

\[
\text{IRR}(i) \overset{\text{df}}{=} \exists b \in \cap \approx_c(i) \land \exists i'[i \preceq i' \land \neg P(i')]
\]

**IRR** guarantees that there is some **metaphysical alternative** to the (beginning of the) reference interval — \(c(i)\) — posterior to which the prejacent doesn’t hold

**i.e.** \(P\) is **not settled/determined** (see Kaufmann 2002, 2005)
how does this get us the negative asymmetry?

- There’s a long tradition that emphasises asymmetries between positive and negative sentences
  - negative sentences are taken to be (pragmatically) marked
    (Horn 2001 for an overview of the debate)
  - “negative sentences ‘suppose’ the corresponding affirmative”
  - ‘it’s my second time not coming to Singapore this year’
    (Jens Hopperdietzel 23 June 2021)
negative as irrealis

bāynu ṇarra nhāņu mukulnha dhiyan bala
NEG 1s see.ILL aunt.ACC now

‘I don’t/can’t see aunty right now’
irrealis signals ‘non-assertion’  
(Palmer 2001)

- in what sense is this true?
- modals and negatives invoke diverse metaphysical alternatives: histories at which their prejacent holds and at which it doesn’t
- the irrealis domain (potential and counterfactual situations) is metaphysically unsettled → unknowable → unassertable simpliciter.
Section 4

the djambarrpuyŋu inflectional paradigm
Proposal for the WD paradigm

The paradigm encodes **tense** and **mood**. It’s organised around two semantic features:

- **Nonveridicality**
  satisfied when scoping over a nonveridical operator

\[ \exists b \in \cap \approx e(i) \land \exists b' [i \preceq i' \land \neg P(i')] \]

- **“Precontemporaneity”**

\[ i \sqsubseteq F_c \land i \prec j_F \]
Proposal for the WD paradigm

\[ [\text{I}]^c = \lambda i. i \]
\[ [\text{II}]^c = \lambda i : \text{IRR}(i) . i \]
\[ [\text{III}]^c = \lambda i : \text{PRECONTEMP}(i) . i \]
\[ [\text{IV}]^c = \lambda i : \text{PRECONTEMP}(i) \land \text{IRR}(i) . i \]

(Heim 1991, Sauerland 2002 a.o.)
Conclusions

- Cyclic tense as a conventionalisation of mode/register distinctions
- Treatment of negative operators predicts their irrealis-licensing behaviour
- We’ve seen how the Djambarrpuyŋu inflectional paradigm encodes a presuppositional tense & mood distinction
  - inflections impose felicity conditions on reference indices
  - appeal to interaction of two properties—NONVERIDICALITY and PRECONTEMPORANEITY

(see dissertation for intricacies & semantic composition)
Selected References

Under negation, I occurs only in same-day future predications

17 (bäŋu) ɳarra dhu ga ɳhäma mukunha [SAME-DAY FUT]
(NEG) 1S FUT IPFV.I see.I aunty.ACC
‘I’m (not) seeing my aunt (tonight).’
Appendix A

The same-day future

▶ A grammaticalised FUTURATE  
\[ \text{PLAN}(d)(p)(w)(t) \]

▶ ‘The speaker of a futurate has some high level of confidence that the future eventuality will happen’

▶ Copley’s conditional presupposition: \emph{If} $p$ \emph{is planned, $p$ will happen}

▶ In this case, the reality status of $\text{PLAN}(p)$ and $\text{PLAN}(\neg p)$ ought to be the same.
Appendix A  The I same-day future

▶ Conversely the neutralisation still happens in the present

7  bäŋŋu ŋarra  ga  nhäma  mukulnha  [PRESENT]
NEX  1S  IPFV.1 see.1  aunt-ACC

‘I see my aunt (right now).’

▶ Negative present descriptions are still counterfactual

▶ Note that this is fine for the current analysis:
  I is maximially underspecified, and is outcompeted by the
  other inflections (MaxPresupp)
I’d pointed out that the semantics of higher predicate doesn’t license IRR \((\text{cf. European sbjv})\).

Similarly \textit{mak} ‘\textit{EPIST}’ doesn’t.

Anchoring at C level (Krifka 2021)

- identified with utterance parameters in matrix clauses
- \textit{mak} is taken to be a judgment modifier
- embedding predicates are taken to shift evaluation index “away from speakers’ commitment slate”
Appendix C

- Yolŋu as a Pama-Nyungan “enclave” in the Arnhem Land
- Most other (nPn) Arnhem languages express neg asymmetry
- Maningrida language family has cyclic tense
- Waters (1989) provides a number of other features shared between W Yolŋu and Arnhem languages
- Evidence of a Sprachbund
- Bowern (2009) proposes a 6-way inflected Proto-Yolŋu paradigm. The West Arnhem Sprachbund features are not reconstructed.
Appendix D

Inflection in Wägilak

2 goďarr ɲarra nhāŋu-’ma’ mukulnha
tomorrow 1s see.II-NEG aunt.ACC
‘I will see my aunt tomorrow.’

3 nhāma-’ma’ rra yakuthi mukulnha
see.I-NEG 1s now aunt.ACC
‘I’m (not) looking at my aunt currently.’

4 gātha ɲarra nhāwala-’ma’ mukulnha
today 1s see.III-NEG aunt.ACC
‘I saw my aunt this morning.’
Appendix D  Inflection in Wägilak

- Closest related Yolŋu languages do not exhibit the asymmetry
- Inflections encode temporal information
- Imperatives formally identical to declaratives
- II and V also occur in conditionals (without modal particles)

5  wäniya ŋay şnumbalaya bulu, ŋayi guyupiya
    go.ıı 3s that way again 3s die.ıı
    ‘If he had gone that way, he would’ve died’

6  wäni ŋay şnumbalaya bulu, ŋayi guyupi
    go.ıı 3s that way again 3s die.ıı
    ‘If he had gone that way, he would’ve died’