Mapping irreality: Temporal and modal dimensions

Kilu von Prince

Konstanz, 12 July 2018
The upshot

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- But most tense/mood systems are more complex than this.
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- But most tense/mood systems are more complex than this.
- I am going to report results from fieldwork in Vanuatu, conducted by Manfred Krifka, Ana Krajinović, Valérie Guérin, Michael Franjieh and myself as part of the MelaTAMP project.
- By focusing on the counterfactual future, we will see that not all tense/mood systems in the region are equally mood-prominent.
The notion of irrealis

- Some languages show a binary distinction between realis and irrealis mood.
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  - about the actual present.
- Irrealis mood is used for:
  - the future;
  - counterfactuality;
  - possibilities;
- The realis/irrealis distinction also interacts with polarity and with sentence type (directives are typically in irrealis).
Irrealis and branching time

- The irrealis/realis distinction relies crucially on the (epistemic) difference between the past/present and the future.
- This asymmetry has long been modeled with a branching approach to time.

Figure: Solid line: the actual past; dashed: the possible futures; dotted: counterfactuality. Compare Thomason (1970, 1984).
The prominence of mood and tense

**Figure:** Left: mood-prominence; Right: tense-prominence.

Compare Bhat (1999)
The prominence of mood and tense

Figure: Left: mood-prominence; Right: tense-prominence.

Compare Bhat (1999)
The counterfactual future: more counterfactual or more future?

1. Possible future:  
   *If it rains tomorrow, I won’t go to the park.*

2. Counterfactual past:  
   *If it had rained yesterday, I wouldn’t have gone to the park.*

3. Counterfactual future:  
   *If it rained/were to rain tomorrow, I wouldn’t go to the park.*
The counterfactual future

Diagram showing a network with a node $i_c$ and connections to other nodes.
Interim summary

- The distinction between realis and irrealis can be modeled by a branching-time framework.
### Irreality

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- This framework allows for a three-way distinction between the actual, the counterfactual, and the possible (future).
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• This framework allows for a three-way distinction between the actual, the counterfactual, and the possible (future).
• The branching structure can be combined with a linear temporal order.
• The combination of the two orders allows for a fine-grained dissection of the temporal-modal space.
The subject languages
TAM in Oceanic: clitics

<table>
<thead>
<tr>
<th>SUBJ.AGR</th>
<th>(=)TAM</th>
<th>(AUX)</th>
<th>(REDUP-)</th>
<th>Verb</th>
<th>(-RES)</th>
<th>(=TRANS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>na/ko/ ...</td>
<td>=m, ...</td>
<td>du/pwer</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>=ne</td>
</tr>
</tbody>
</table>

Table: Structure of the finite verbal complex in Daakaka

(4) \(na=m\) **yungpan=ne wye**
1SG=REAL thirsty=TRANS water
“I’m thirsty for water.”
# TAM in Oceanic: Daakaka

<table>
<thead>
<tr>
<th></th>
<th>enclitic</th>
<th>proclitic</th>
<th>monosyllabic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pos. Realis</strong></td>
<td>=m</td>
<td>=mw</td>
<td>=mwe/mV</td>
</tr>
<tr>
<td><strong>Neg. Realis</strong></td>
<td></td>
<td></td>
<td>to</td>
</tr>
<tr>
<td><strong>Pos. Potential</strong></td>
<td>=p</td>
<td>=w</td>
<td>=wV</td>
</tr>
<tr>
<td><strong>Neg. Potential</strong></td>
<td>=n</td>
<td></td>
<td>=nV</td>
</tr>
<tr>
<td><strong>Distal</strong></td>
<td>=t</td>
<td>=t</td>
<td>=tV</td>
</tr>
</tbody>
</table>

*Open Polarity*  
*Change of State*  

doo)  
bwet)

**Table:** The Daakaka TAM system
TAM in Oceanic: Nafsan portmanteau proclitics

<table>
<thead>
<tr>
<th>Subject Pronoun</th>
<th>Realis (General)</th>
<th>Irrealis</th>
<th>Perfect-agreeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg a=</td>
<td>ka=</td>
<td>kai=</td>
<td></td>
</tr>
<tr>
<td>2sg ku=</td>
<td>ña=</td>
<td>kui=</td>
<td></td>
</tr>
<tr>
<td>3sg i=</td>
<td>ke=</td>
<td>ki=</td>
<td></td>
</tr>
<tr>
<td>1du.incl ta=</td>
<td>tak=</td>
<td>takai=</td>
<td></td>
</tr>
<tr>
<td>1du.excl ra=</td>
<td>rak=</td>
<td>rakai=</td>
<td></td>
</tr>
<tr>
<td>2dl ra=</td>
<td>rak=</td>
<td>rakai=</td>
<td></td>
</tr>
<tr>
<td>3dl ra=</td>
<td>rak=</td>
<td>rakai=, rai=</td>
<td></td>
</tr>
<tr>
<td>1pl.incl tu=</td>
<td>tuk=</td>
<td>tu=, tui=, tukoi=</td>
<td></td>
</tr>
<tr>
<td>1pl.excl u=</td>
<td>ko=</td>
<td>ui=, koi=</td>
<td></td>
</tr>
<tr>
<td>2pl u=</td>
<td>ko=</td>
<td>koi=</td>
<td></td>
</tr>
<tr>
<td>3pl ru=</td>
<td>ruk=</td>
<td>rui=, rukui=</td>
<td></td>
</tr>
</tbody>
</table>

Table: Subject proclitics in Nafsan based on Thieberger (2006, 150)
TAM in Oceanic: Nafsan TAM markers

<table>
<thead>
<tr>
<th>TMA marker</th>
<th>Proclitic</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>pe</td>
<td>perfect, realis</td>
<td>perfect</td>
</tr>
<tr>
<td>fe</td>
<td>irrealis</td>
<td>perfect in immediate future</td>
</tr>
<tr>
<td>po</td>
<td>realis</td>
<td>prospective realis</td>
</tr>
<tr>
<td>fo</td>
<td>irrealis</td>
<td>prospective irrealis</td>
</tr>
<tr>
<td>f/fla</td>
<td>realis, irrealis</td>
<td>conditional</td>
</tr>
<tr>
<td>ta</td>
<td>realis, irrealis</td>
<td>still</td>
</tr>
</tbody>
</table>

Table: TMA markers in Nafsan

Table: Verbal complex in Nafsan
## Gaps in our knowledge

<table>
<thead>
<tr>
<th>Language</th>
<th>Actual past/pres.</th>
<th>Poss. future</th>
<th>Ctf. past</th>
<th>Ctf. future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mavea</td>
<td>SUBJ.(REAL)</td>
<td>FUT, SUBJ.(IRR)</td>
<td>(IRR), <em>imte</em>?</td>
<td>(IRR), ∅?</td>
</tr>
<tr>
<td>Nafsan</td>
<td>∅</td>
<td>SUBJ.IRR</td>
<td>IRR?</td>
<td>?</td>
</tr>
<tr>
<td>Daakie</td>
<td>REAL/DIST</td>
<td>POT</td>
<td>DIST</td>
<td>?</td>
</tr>
<tr>
<td>Daakaka</td>
<td>REAL/DIST</td>
<td>POT</td>
<td>DIST</td>
<td>?</td>
</tr>
<tr>
<td>Dalkalaen</td>
<td>REAL/DIST</td>
<td>POT</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>North Ambrym</td>
<td>REC.PST/ NREC.PST</td>
<td>IRR</td>
<td>CTF</td>
<td>?</td>
</tr>
</tbody>
</table>

**Table:** The state of our knowledge about distinctions between TAM contexts prior to storyboard elicitations.
Interim Summary

- TAM is encoded primarily by clitics and portmanteau subject agreement markers.
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- The systems we find are rich and complex and go far beyond the binary distinction between realis and irrealis.
- To find out more about exactly how the TAM systems work, we need to fill in the gaps in our knowledge.
Methods: Overview

- To fill in the gaps in our corpus data and previous descriptions, we used storyboard-based elicitations.
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- Each storyboard was run with 4 to 10 speakers per language.
Totem Field storyboards
The MelaTAMP storyboards
The Fortune Teller
Storyboards for counterfactual futures

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Storyboards for counterfactual futures

The Fortune Teller
The Fortune Teller
The Fortune Teller
# Festival

<table>
<thead>
<tr>
<th>Background</th>
<th>Methods</th>
<th>Results</th>
<th>Conclusions</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</table>

Storyboards for counterfactual futures
Festival
Festival
Festival

Storyboards for counterfactual futures
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Festival

Storyboards for counterfactual futures
Festival
Storyboards for counterfactual futures

Festival

1. Rainy day:
   - People playing soccer
   - Clouds

2. Sunny day:
   - People playing soccer
   - Raindrops on heads

Calendars:
- Day 1
- Day 2
Festival

Storyboards for counterfactual futures
Festival
Festival
Storyboards for counterfactual futures

Festival
Festival
Background

Methods

Results

Conclusions

Storyboards for counterfactual futures

Festival

![Image of festival with a calendar page and people eating]

2
Festival
The Fortune teller: target context 1

Figure: If you marry the tall guy, you will have many children.
The Fortune teller: target context 2

Figure: If you had married the short guy, you would have been rich.
Festival: target context 1

Figure: *If I had played, I would have gotten wet.*
**Festival: target context 2**

*Figure: If I played [tomorrow], my wound would bleed again.*
Target contexts
Methodology: ANNIS

We imported the data into our ANNIS platform for maximally efficient searches.
Nafsan: Possible future

(5) I=f-wel \( kin \) \( ku=tauulu \) John, akam rak=fo
3SG=COND-like COMP 2SG=marry John 2DL 2DL.IRR=PSP.IRR
pitlak teesa \( ruk=fo \) laap.
have children 3PL.IRR=PSP.IRR many
“If you marry John, you will have a lot of children.” (AK-010.24)
Nafsan: Counterfactual past

(6) \( I=f-wel \text{ } kin \text{ } a=mes \text{ } futbol \text{ } nanom, \)  
    3SG=COND-like COMP 1SG=play football yesterday  
    \( ka=fo \text{ } lom. \)  
    1SG.IRR= PSP.IRR wet  
    “If I had played football yesterday, I would have gotten wet.”  
    (AK1-021-01.39)
Nafsan: Counterfactual future

(7) \( I=f{-}wel \quad \text{kin} \quad \text{ka}=\text{mes} \quad \text{“vole”} \quad \text{matol}, \quad \text{go} \quad \text{3SG}=\text{COND-like}\) \(\text{COMP} 1\text{SG.IRR}=\text{play volleyball tomorrow and} \)
\(\text{nfang} \quad \text{nen} \quad \text{kin} \quad \text{a}=\text{tai} \quad \text{naru}-\text{k} \quad \text{ke}=\text{fo} \quad \text{mer} \quad \text{toop}. \)
\(\text{sore that COMP} 1\text{SG}=\text{cut hand-1SG.DP} 3\text{SG.IRR}=\text{PSP again big} \)
\(\text{“If I played volleyball tomorrow, the sore that I cut on my hand} \)
\(\text{would become big again.”} \quad (AK1-021-01.49) \)
Nafsan: Counterfactuality

(8) ka=f  \textit{mer pei ūi “bol” nanom,}  ka=fo  \textit{lom}  
1SG.IRR=COND CTF first kick ball yesterday 1SG.IRR=PSP.IRR wet usrek.
completely
“If I had played football yesterday I would have gotten soaked.”
(AK1-004-01.163)

(9) Ka=f  \textit{mer mes “volibol” matol, nakni-k}  
1SG.IRR=COND CTF play volleyball tomorrow finger-1SG.DP
ke=fo  \textit{mra.}  
3SG.IRR=PSP.IRR bleed
“If I played volleyball tomorrow, my finger would bleed.”
(AK1-004-01.23/24)
Nafsan: Summary

Figure: The irrealis domain in Nafsan. Solid outline: irrealis subject proclitics; dashed outline: optional *mer.*
Daakaka: Possible future

(10) \( Ko=^t \) lene temeli man na ma waswas a veop, te 2sg=dist marry child male comp real thin and long then nat-omaa nye ka ye=p puo.
child.of-2dl.poss pc ASR 3dl=pot many
“If you marry the skinny and tall boy, you’ll have lots of children.” (FortuneTeller_AN18/19)
Daakaka: Counterfactual past

(11) ka ko=p pwer teyvan yaapu ente, te bili ka
COMP 2SG=POT stay with man this then time ASR
s-amaa mani nyoo tu puo.
CL3-3DL.POSS money PL DIST plentiful
“If you had married this man, you two would have been rich.”
(FortuneTeller_SB.038)
Daakaka: Counterfactual future

(12) ka na=t ple volibol te volibol ka we me comp 1sg=dist play volleyball then volleyball asr pot come syute vy-ok te myanok ente saka ne map. hit hand.of-1sg.poss then wound this neg.asr neg.pot heal
“If I played volleyball, the volleyball would hit my hand and then my wound wouldn’t heal.” (Lafet_AN.14/15)
Daakaka: Summary

**Figure:** Our current hypotheses about the domain of irrealis in Daakaka. Solid: main domain of the potential marker; dashed: main domain of the distal marker.
Overview of results
Conclusions

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## Conclusions

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- Some languages, like Nafsan and Mavea, prioritize the modal over the temporal dimension.
- In others, such as Daakaka and Daakie the temporal dimension takes precedence in parts of the system.
- North Ambrym and Dalkalaen show a mix between the two situations.
- To map the entire domain of irreality, we need to take into account all combinations of tense and modality.
One more type of result

We have also produced picture books in three of the local languages from our results.
Thank you!
Definition: simultaneity

1. Every index $i$ has a time value $t(i)$.

2. There is a strict linear order on time values, such that for every pair $t(i), t(i')$ either $t(i) = t(i')$ or $t(i) < t(i')$ or $t(i') < t(i)$.

3. For all $i, i'$ if $i < i'$ then $t(i) < t(i')$. 
Branching time and types of irreality

The same system allows for a much more fine-grained mapping of temporal-modal categories.
References I


References III


References IV
