

Australian apprehensive grams as discursive, complex modals

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Introduction

- **Apprehensives (or apprehensionals, or aversives, or *lest* clauses/constructions)** : detrimental possibility
 - **Negative evaluation (undesirable) of some possibility; doxastic/predictive flavour**
 - Often appears within an expressive context
 - (François 2022): some priority/directive meaning is pragmatically inferred

(1) *k-ini-majpungku-n,* *marnti* *kurruni-wu-n.* (Mawng)
PR-3MA/3MA-lift.up-NP APPR 3MA/2PL-kill-NP
'It [the sea] is rough and it might kill you.' (Singer 2006: 171)
(implicated: 'you shouldn't canoe / don't canoe')

Introducing apprehensives

- **Directive + apprehensive meaning: ‘double modal’ constructions**
 - **Biclausal constructions, with mixed modal meaning**
 - **Directive as this a performative speech act (cannot be challenged)**
 - Very common in my own field data in Iwaidja + in sample

(2) *Kana-ya-njing,* *that naki* (Iwaidja)
2sg>3Obj.RMOD-look-RMOD that dog
DIRECTIVE MODAL CLAUSE

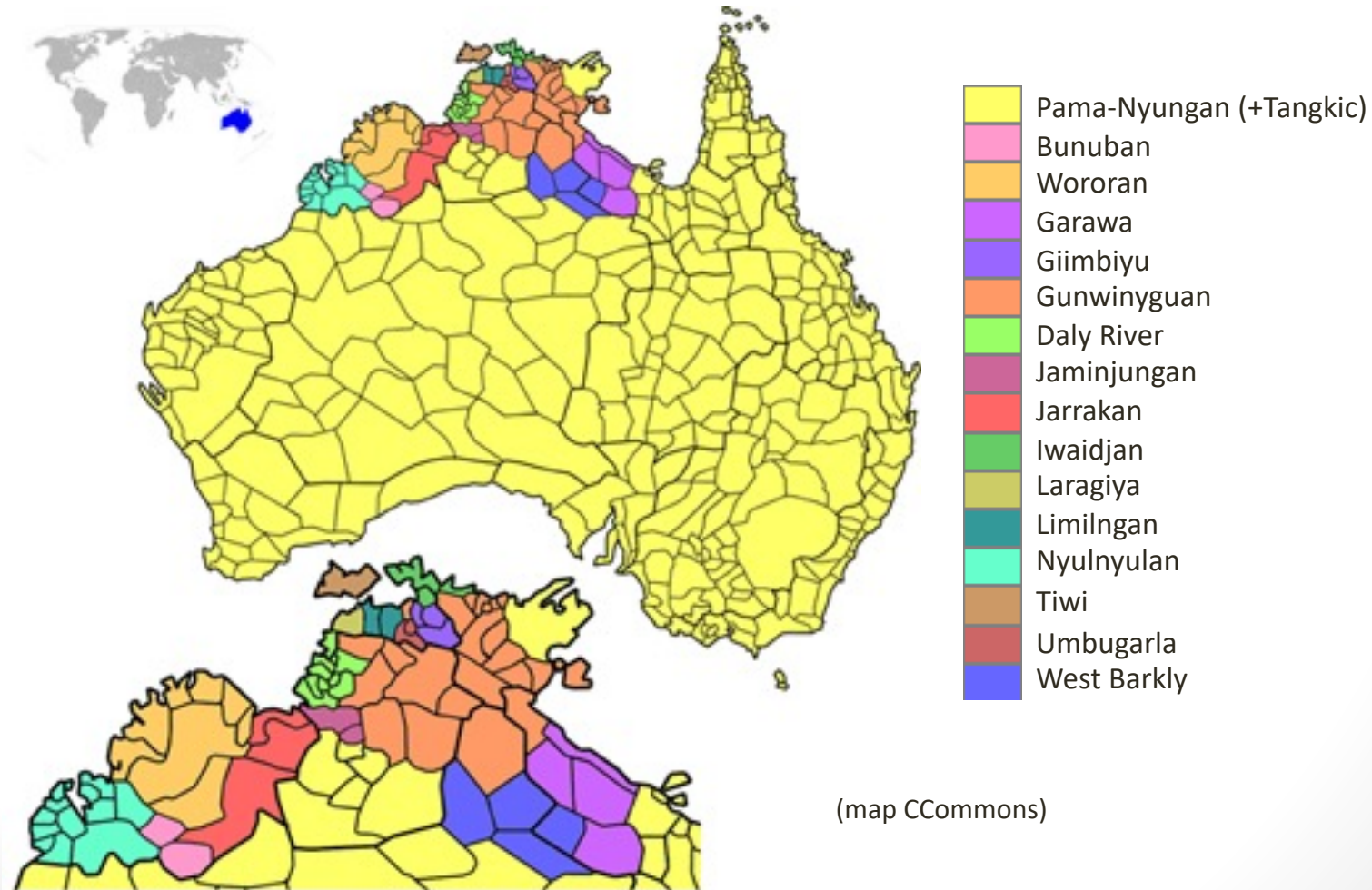
ri-mambu-∅ *ba arijumardan!*
3sg>3Obj.APPR-bite-APPR the child!
PREDICTIVE MODAL CLAUSE

‘Watch out, that dog might bite the child!’
(TAIM190603MM_Modality_1, 00:47:15)

Introducing apprehensives

- So-called apprehensives in Australia identified a while ago, and are attested in numerous languages on the continent
- But remain understudied esp. typologically and formally
 - i.e., no general or areal typological work on apprehensives yet (nothing like McGregor (2023) or Caudal (2023))
 - Only existing formal implementations of analyses of apprehensives: Tahar (2021) (French *craindre que P* ‘fear that P’ and Phillips (2021) (Kriol *bambai* apprehensive particle)

Apprehensives in Australia



Apprehensives in Australia

- **Oz modals are often variable force modals (Bednall 2020)**
 - True of APPR as well: weak OR strong doxastic ('might kill you' OR 'will kill you')
- Morphological complexity will not be stressed here, BUT a lot of discontinuous exponency (Booij 2010, Carrol 2016...)
 1. As in periphrastic morphology, lots of preverbal/postverbal modal particles
 2. As in complex, distributed exponence as found in nPN polysynthetic lgs
 3. Clitic problem: hard to distinguish from affixes sometimes...

Research questions

- **Objectives of this talk:**

1. Provide an **empirical portrait of apprehensivity** in Australian languages (areal typology + fieldwork)

- Empirical generalizations w.r.t. form/meaning pairings

(description / typological inventory)

2. capitilazing on existing works, sketch a **tentative theoretical & formal account of the category** in Australian languages,

(analysis & implementation)

Roadmap

1. Empirical portrait of apprehensives (APPR) in Australia
 1. Methodology (grammar mining+fieldwork)
 2. Results & empirical generalization – formal & semantic typology
 1. Biclausal uses (asymmetric vs. symmetric marking)
 2. Monoclausal uses and implied content
 3. Postmodal uses
 4. Apprehensive strategies
2. Discussion: can existing accounts explain the above results?
 1. Pragmatics #1: APPR trigger QuD update (Phillips 2021)
 2. Pragmatics #2: APPR trigger indirect speech acts (François 2022)
 3. Issues with pragmatic accounts
3. A novel discursive semantic account
 1. Why a *discourse semantics*-based account is preferable
 2. Sketching a TCL+SDRT Implementation

Empirical portrait of apprehensives in Oz

- First empirical method behind present work: typology
- Typological sample grammar mining on 27 languages
 - Pama-Nyungan: **Pilbara:** *Martuthunira, Panyjima, Nyangumarta; Western Desert: Pintupi-Luritja; Ngumpin-Yapa: Warlpiri, Bilinearra, Ngarinyman, Ngardi; Garrwan: Garrwa; Karnic: Diyari, Yandruwandha; Dyirbalic: Wargamay, Dyirbal; Tangkic: Kayardild*
 - Non-Pama-Nyungan: **Iwaidjan:** *Iwaidja, Mawng; Mirndi: Jaminjung, Wambaya; Gunwinyguan: Dalabon, Anindilyakwa, Bininj Gun-wok, Kuninjku, Rembarrnga, Wubuy; Daly River: Murrinh-Patha; Wororan: Worrora; Bunuban: Gooniyandi; Maningrida: Gurr-goni, Nakkara;*
- Grammaticalized apprehensives found in 25 languages out of 26
- Aim: 70+ language sample (AustriLS project; collaborative research)

Empirical portrait of apprehensives in Oz

- Second empirical method: qualitative semantic elicitation fieldwork (controlled data)
 - **Goal:** mitigate and control shortcomings of grammar mining
 - Semantic acceptability of certain forms in detailed contexts
 - Making use of current events/social knowledge in community, etc.
 - Elicitation tasks using 3D storyboards + figurines and toys
 - **Iwaidja, Mawng, Anindilyakwa** (R. Mailhammer, J. Bednall)

Empirical portrait of apprehensives in Oz



Empirical portrait of apprehensives in Oz



Empirical portrait of apprehensives - results

- Main result: APPR structures (= with APPR morphology) are essentially conditionals
- Syntactically, two main types of apprehensive clause structures (= with APPR marking) were found in grammar mining sample + fieldwork data:
 1. Biclausal conditional structures; APPR marks one or both clauses (asymmetric vs. symmetric marking)
 2. Monoclausal uses with an implicit clause = ‘reduced’ conditional structures (with implied antecedent, or consequent)

Empirical portrait of apprehensives - results

- **1st type: biclausal mixed modal directive (A)+predictive (B)**

- ‘Do A, or else B’ / ‘don’t do A, or else B’
 - Directive antecedent – Lichtenberk (1995), Vuillermet (2018): ‘precautioning’
- Similar to ‘pseudo-imperatives’ (Fraser 1969, Clark 1993)
- Starr (2020): negative conditional (‘Obey (A) or else suffer (B)’)

⚠ **Caveat: antecedent directive clause can be positive** (imperative marking) **or negative** (prohibitive marking)

(3) *ninda* *balan* *buni* *muymba* (Dyirbal)
you-SA THERE-NOM-II fire-NOM put.out-IMP

DIRECTIVE MODAL CLAUSE

baijgun *dambundu* *bural-bila*
there-ERG-II dambun-ERG see-APPR

PREDICTIVE MODAL CLAUSE

‘You put out the fire lest the Dambun spirit sees it (i.e. and comes to torment us).’
(Dixon 1972: 113)

Empirical portrait of apprehensives - results

- ‘Pseudo-imperatives’ have negative conditional operator (‘or else’)
 - Antecedent must not hold for consequent to hold (‘negative precondition’)
 - Form depends on whether antecedent P is desirable (imperative) or not (prohibitive)

Table 1 : Desirable antecedent P (imperative) (‘do P, otherwise Q’)

Antecedent		Consequent
DIRECT(P) (imperative <i>do P</i>) P: desirable	OR-ELSE	PREDICT(Q_{undes}) (<i>bad stuff Q will happen</i>) Q: undesirable
IF(¬P) (if <i>P is not realized</i>) P: desirable	THEN	PREDICT(Q_{undes}) (<i>bad stuff Q will happen</i>) Q: undesirable

Table 2: Undesirable antecedent P (prohibitive) (‘don’t do P/prevent P, otherwise Q’)

Antecedent		Consequent
DIRECT(¬P) (prohibitive <i>prevent P/don’t do P</i>) P: undesirable	OR-ELSE	PREDICT(Q_{undes}) (<i>bad stuff Q will happen</i>) Q: undesirable
IF(P) (if <i>P is realized</i>) P: undesirable	THEN	PREDICT(Q_{undes}) (prediction <i>bad stuff Q will happen</i>) Q: undesirable

Empirical portrait of apprehensives - results

- **NEW** Type 1': biclausal mixed modal + symmetric marking
 - APPR inflection can mark directive and/or predictive clauses
 - APPR not just about predictions in Oz – *conditional modal*

(4) *Ka-rdaya-njing* *baraka mirrnayaj*
2sg>3Obj.**APPR**-look-**APPR** that crocodile (Iwaidja)
DIRECTIVE MODAL CLAUSE (IMP MARKING ALSO POSSIBLE)

ri-mambu-∅ *ba naki.*
3Msg>3sg.**APPR**-bite-**APPR** the dog
PREDICTIVE MODAL CLAUSE

‘You’d better look!/Watch out! That crocodile might bite the dog!’

Empirical portrait of apprehensives - results

- **2nd type biclausal use: hypothetical** (warnings/threats – cf. e.g. Rooij & Franke (2012))
 - **No directive clause in this type; *bona fide* conditional**
 - (3) is an instance of **asymmetric APPR marking**
 - (symmetric marking also possible in some languages)


(5) *ŋinda* *ŋaygu* *bulgugu* (Dyirbal)
you-SA-I-GEN wife-DAT swive-*ŋay*-REL-NOM

wadilŋaŋu *ŋada* *ŋinuna maŋa* *gunbal-bila*
I-SA you-O ear-NOM cut-**APPR**

‘If you swive my wife, I’ll cut off your ears.’ (Dixon 1972: 362)

Empirical portrait of apprehensives - results

- **3rd type of biclausal APPR: mixed indicative/modal**

1. Implicit hypothetical antecedent clause > reduced hypothetical APPR
2. **OR implicit directive clause > reduced mixed modal APPR** 

(6) *Ngayu murnta-lalha wirra-a ngarti-l* (Martuthunira)
1SG.NOM take.from-PAST boomerang-ACC again-THEN
patharri-wirri-la ngurnu-ngalyarnta-lwa.
fight-LEST-LOC that.ACC-CAUSAL-ID (Dench 1995:130)
'I took away that boomerang otherwise [you'd] be fighting over it again.'
(Implied: 'If I hadn't taken it away...' OR 'I had to take it away...')

(7) (we built a huge fire ...) (Nakkara)
korla minja namunja ya-bburba-ma
lest flies 3>3.IRR+follow.food-PCT
'...otherwise the flies would have hung around' (Eather 1990: 347)
(Implied: 'we had to build a huge fire' OR 'if we hadn't built a huge fire...')

Empirical portrait of apprehensives - results

- **Monoclausal uses: matrix predictive APPR is well known**
 - Implied modal directive clause, cf. (1) – see e.g. François (to appear)
 - APPR *semantically* akin to conditional structure – reminiscent of Kratzer’s (1986, 1991) treatment of modals as conditional-like

(1) *k-ini-majpungku-n,* *marnti* *kurruni-wu-n.* (Mawng)
PR-3MA/3MA-lift.up-NP APPR 3MA/2PL-kill-NP
'It [the sea] is rough and it might kill you.' (Singer 2006: 171)
(implicated directive: 'you shouldn't canoe / don't canoe')


Empirical portrait of apprehensives - results

- **NEW**: monoclausal *directive* APPR + implied predictive meaning
 - Found in languages with symmetric marking of biclausal APPR
 - APPR marker can have both a directive-apprehensive and predictive-apprehensive meaning
 - **Caveat**: takes overt negation (prohibitive modal) for APPR reading to arise
 - No existing account can apply to this (so far undescribed) phenomenon

(8) *mere na-ngi-mathputh-nukun=thurru* (Murrinh-Patha)
NEG 2SGS.HANDS(8).FUTIRR-LSGO-interrupt-APPR=2SGS.GO(6)[KEEP.ON].FUTIRR
'Don't you continually interrupt me.' (⇒ Implied threat: 'or I'll punish you')
(Nordlinger & Caudal 2012:104)

(9) *mere=nukun thurru* (Murrinh-Patha)
NEG=APPR 2SG.GO(6).FUTIRR (Mansfield 2014:446)
'you better not go!' (⇒ Implied prediction: 'or you'll regret it')

Empirical portrait of apprehensives - results

-  **Postmodal uses attested** – effective and undesirable events
 - Actuality entailment type of use

(10) *ngayu bama wawa:l wandanḡingu.* (Yidiny)
I-SA person-ABS see-PAST fall-APPR-ERG

‘I saw the person as I was (unfortunately) falling over’.
(Dixon 1977:352)

Empirical portrait of apprehensives - results

- **Synthetic vs. periphrastic marking (... + clitics!):**

- *Bambai* Kriol particle, has been incorporated in several Indigenous languages as a novel periphrastic apprehensive-making morphological element

(11) *Burrb ya-rri-minda=burri mangarra.*
finish IRR-2PL>3SG-eat=3PL plant.food
"You might eat up all the food on them. »

Thet min, bambai yu finish-im taka fo MAI femili.
that mean **APPR** 2SG finish-TR food for my family

"That means, you might finish the food (that was) for MY family."
(Jaminjung and Westside Kriol; staged conversation; IP, ES96_A08_02.073)
(Schultze-Berndt & D'Angelo 2016)

Empirical portrait of apprehensives - results

- **Also possible ‘apprehensive strategies’** (typically with IRR marking)
 - Undesirability then contextually determined, not simply semantically encoded (matter of world-knowledge and common sense reasoning ?)
 - **Underspecified vs. ambiguous forms? (if ambiguous, then semantic!)**
 - *Yama=lhangwa*: optional warning expression, separate intonation unit, NOT an apprehensive particle (unlike e.g. *bambay*)

(12) (*yama=lhangwa!*) *n-ak* *nenangkwarba* (Anindilyakwa)
(watch.out=ABL) 3M-that 3M.man
kənə-wənyamba-dhu-∅=ma
IRR.3M-angry-INCH-USP=MUT
‘Watch out! The man might become angry!’ (Bednall 2020: 328)
(no inflectional apprehensive, nor apprehensive particle)

Empirical portrait of apprehensives - results

- **Apprehensive clitics in sample: Anindilyakwa, =*maka* (Bednall 2020:97)**
- In addition, =*maka* seems to have developed admonitive uses:
 - Negative preference, BUT about implied negative event ('he did not hit him on the head')

(13) *n-akəna kenu-warda-ng=maka arung=manja* (Anin.)
3M-that IRR.3M>1-hit-PST=EVIT NEUT.head=LOC
'He should have hit me on the head' [author translation; prompt:
'He should have hit me on the head']¹⁰⁵ (JL, ANI_2016-07-06_02,
00:21:23-00:21:27) (Bednall 2020:296)



Empirical portrait of apprehensives - results

- Summary of findings: 5 broad form/meaning types of APPR
 - ...*plus apprehensive strategies*...
 - 1. Mixed modal directive-predictive (negative) conditional ('do P, or else Q')
 1. Overt mixed modal conditional: directive antecedent, predictive consequent
 - 2. Reduced apprehensive denoted by monoclausal structure
 1. Monoclausal predictive, implied directive ('do something!' / 'pay attention!')
 2. Monoclausal directive, implied predictive (cf. negative prediction with 'careful!')
 - 3. Conditional hypothetical (positive, *bona fide* conditional)
 1. Overt biclausal hypothetical APPR ('If P, then Q')
 - 4. Mixed indicative/modal sequence: 'X did P, otherwise Z would have Q'
 1. Reduced hypothetical conditional: implied antecedent clause 'If X hadn't done P'
 2. Reduced mixed modal structure: implied antecedent clause 'X had to/was compelled to do P'
 - 5. Postmodal monoclausal uses: 'X did P (unfortunately)'
 1. Implied admonition/regret: 'Y should have prevented P/I wish P hadn't happened'

Empirical portrait of apprehensives - results

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Discussion of results & existing literature

- **Central question: what's being implied in monoclausal structures + indicative-APPR_{PRED} structures?**
-
- **Is the implied content semantic or pragmatic?**
- Existing works: implied content is **pragmatically introduced**
 -   they do not cover the entire spectrum of APPR structures!

Discussion of results & existing literature

- **François (to appear): APPR PRED trigger indirect speech acts**

- Nature of pragmatic inference not specified

(14) (context: addressee just smiled teasingly at speaker's sister))

Ēt! *Dō* *tiple* *wulus!* (Mwotlap)

INTJ 1inc:du APPR brother.in.law

'Hey! you and I might end up becoming in-laws!'

(> Implied: you'd better stop smiling at my sister!)

- **François (to appear): no monoclausal DIR APPR**

- ..but we could claim that they trigger an indirect warning speech act

(15) Watch your step!

(⇒ Implied: you might trip)

Discussion of results & existing literature

- **However, treating (16) as a pragmatic matter is unsatisfying**

(16) *Watch your step!* (\Rightarrow or you might fall)

- Conveys *command* conventionally associated with implied **warning**; ‘double speech act’ (*command* & implied *warning*) (Clapp 2009)
- Observation carries over to monoclausal PRED APPR; ‘double speech act’ conveys *warning* conventionally associated with implied *command*
- **Therefore: monoclausal APP do not centrally rest on speaker’s meaning pragmatic enrichment**

Discussion of results & existing literature

- **A typological aside:** mixed directive-predictive conditional expressions, with a semantic covert threatening content can be found in e.g. S.A.E. languages
- **Engl.** (17) *Don't you dare P (or else Q)*
(18) *You don't wanna mess with me (or else Q).*
(monoclausal use: threat is implied)
- **Fr.** (19) *T'as pas intérêt à P (sinon Q)*
You.have-2sg.PR NEG interest to P (or else Q)
(20) *Il vaudrait mieux pour toi que P (sinon Q)*
it be.worth-COND better for you that P (or else Q)
'≈ you'd REALLY better not P (or else Q)!'
(monoclausal use: threat is implied)
- **Complex, semantically hybrid deontic-predictive/threatening expressions**
 - Content of threat can be left underspecified (in monoclausal use), but threatening meaning part of the at-issue content of such expressions

Discussion of results – Phillips (2021)

- Phillips (2021:64) analysis of APPR *bambai* (based on Phillips and Kopek's (2019) analysis of 'anaphoric *otherwise*'), where \ominus stands for a DRS operator (almost a discourse relation...); (21) = meaning of *bambai*
« the conditions of K_i hold; however, in case (some of) these conditions — those of $K_{i_{\text{sub}}}$ — do not hold, the conditions in K_j may then hold. »

$K_{i_{\text{sub}}}$ is a negative precondition for K_j , stemming from part of K_i

(21)

PROPOSAL. A dynamic semantics for *bambai*

$$K_i \ominus K_j \iff (K_i) \wedge (\neg K_{i_{\text{sub}}} \diamond K_j)$$

In words: $K_i \ominus K_j$ is satisfiable iff both C_{K_i} and $(\neg K_{i_{\text{sub}}} \diamond K_j)$ are satisfiable, where $K_{i_{\text{sub}}}$ is some DRS that is contained within K_i .⁵⁴

Discussion of results – Phillips (2021)

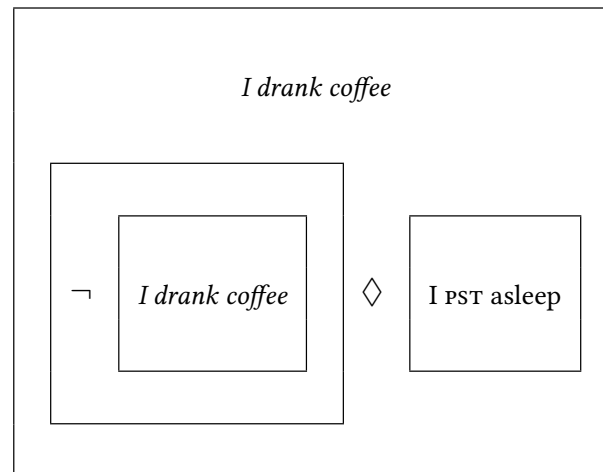
- **Phillips (2021:66): only considers reduced hypothetical**
 - Modal dependency à la Roberts (1989, 2012) with QuD-derived antecedent
- NEW** Move to justify $K_1 >$ should stress *necessity* of K_1 ('I **had** to have a coffee') in (22)

(22) [K1 aibin dringgi kofi] bambai aibina silip
1sg.PST.have drink coffee APPR 1sg.PST.be asleep
'I had a coffee, otherwise I might've slept.' (Phillips 2021:66)

K_1 . DRS first clause



K_2 . DRS full sentence



Discussion of results – Phillips (2021)

- Key question: accommodation of missing/unexpressed antecedent K_{isub}
 - With overt biclausal $APPR(P,Q)$: $APPR$ accommodates negation of basic proposition associated with P (= preajcent of antecedent imperative or other modal operator)
 - Link between conditionals and questions: ‘utterance q if p links assertion of $[[q]]$ to the raising of a question $[[?p]]$ ’ (Starr 2010: 36).
- Phillips (2021:69): Pragmatics of *bambai* = discourse “setup” move adding to the QuD stack a question about complement of a discursively salient, calculated set of worlds p
 - Undesirable *alternative* possibilities arise in \bar{p} (= complement of p) (in (4), \bar{p} = worlds where speaker has no coffee)

« what could (unfortunately) happen next in $w \in \bar{p}$? »

⇒ answer to question found in consequent clause: « I might sleep »

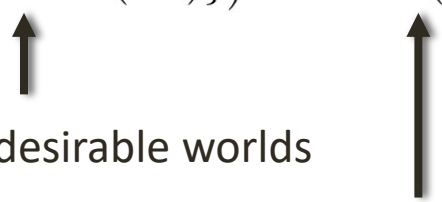
(23) [K1 airra dringgi kofi] bambai me silip
 1sg.FUT.have drink coffee APPR I sleep

‘I’ll have a coffee, otherwise I might sleep!’ (Phillips 2021:65)

Discussion – Phillips (2021)

- Phillips's (2021): *bambai*'s prejacent offers answer to question raised by antecedent of apprehensive / prior discourse context

$$(24) \quad \exists w'' [w'' \in \underset{s'typ(w)}{\text{BEST}} \left(\underset{\text{CIRC}}{\cap} \{m(w) \cup \overline{\text{DRINK.COFFEE}(w'')}}\} \right) \wedge \text{SLEEP}(w'')]$$



 alternative, undesirable worlds
 (negative precondition)

prejacent of *bambai*
 (= consequent content)

Discussion – Phillips (2021)

- Main issues with generalizing Phillips's (2021) analysis:
 1. Core part of analysis is pragmatic – not right : same issue as François (2022): 'implied' meaning is *conventional*
 2. Does not apply to hypothetical biclausal APPR: not negative conditionals ($\neg K_{iSub}$ is wrong) + no partial sub-DRS (K_{iSub} is wrong)

Summary of discussion

- **Theoretical generalization: at least some APPR markers semantically encode directive AND predictive meaning even in monoclausal uses**
 - Monoclausal uses **semantically imply covert type of modal**; complement content to make up a (bipropositional) conditional

Overt PREDICTIVE → covert DIRECTIVE
Overt DIRECTIVE → covert PREDICTIVE (some lgs only)

- Typologically speaking, one should regard APPR morphology as **modal morphology associated with overt OR covert conditional structures**
 - Conventional bi-propositional semantics
 - **Inherently complex semantic expressions even in matrix uses** (not just a matter of context-sensitivity, *pace* e.g. François, to appear, a.o.)
 - **Implicative meaning is conventional** (not just pragmatic, not contingent)



An alternative *semantic* discursive account

- **Common place idea:** conditionals can be treated as *discursive* expressions; cf. e.g. Kitis 2004, or the SDRT (Asher & Lascarides 2003)
Conditional relation in Sanders et al. (2021)

⇒ APPR structures, as conditionals, should also be treated as discursive expressions, involving discourse relations

- Jayez & Dargnat (2008) argue that ‘pseudo-imperatives’ involve a *conditional* discourse relation
- A SDRT-style approach will be sketched here

An alternative *semantic* discursive account

- **Hypothesis:** three semantically different sets of modal *constructions* in langs with predictive+directive APPR marker
 - (+ postmodal uses; seems rare)
- 1. Overt hypothetical APPR constructions ('over hypothetical APPR')
- 2. Mixed modal constructions without covert directive or predictive meanings ('overt mixed APPR conditionals')
- 3. Constructions with covert directive or predictive meanings ('covert mixed APPR conditionals') (\approx monoclausal APPR)
 - Monoclausal predictive OR directive APPR
 - Indicative + (monoclausal)
 - **Implicit APPR meaning = underspecified, context-sensitive proposition**

An alternative *semantic* discursive account

- Overt hypothetical APPR constructions involve a conditional discourse relation bearing on an undesirable possibility
 - **Normal conditional DR + scalar, undesirable possibility modal**
- Both overt and covert APPR with mixed modal meaning introduce a **negative conditional discourse relation, *NegConditional***
 - negative precondition ('do P, otherwise Q' \Leftrightarrow 'if you don't P, then Q') construed from antecedent biclausal mixed modal uses
 - lexified by English *otherwise*, or else, French *autrement*, Iwaidja *birta* 'otherwise' etc.
- **Covert mixed modal APPR introduces TCL underspecified, context-sensitive propositional content $\varphi_{-\epsilon}$ for implicit DRS (Asher 2011)**
 - **Strategy inspired by Nishyama & Koenig's (2010) for perfect**

Sketching a TCL+SDRT Implementation

- If directive APPR prejaçant: consequence comprises $\varphi_{-\epsilon}$ underspecified propositional content under predictive modal
 - vague, and hinges on contextual information, e.g.
 - Implied threat ('don't you dare do this!') \Rightarrow impeding retribution
 - Mere warning ('you might not want to do this') \Rightarrow vague impeding consequences
- If predictive APPR prejaçant: consequent comprises $\varphi_{-\epsilon}$ underspecified propositional content under priority/directive modal
 - Strength of modal is contextually dependent (normal in Oz)
 - $\varphi_{-\epsilon}$ should constitute an action potentially blocking prejaçant's propositional content (e.g.: « X might hurt Y! » \Rightarrow $\varphi_{-\epsilon}$ « remove Y from X », « disable X », etc.)

Sketching a TCL+SDRT Implementation

- Tentative treatment of *NegConditional* discourse relation
 - Modal + causal dependency in SDRT – *Dep* DR: McCready (2008)

(25) $\langle \alpha, \beta, \gamma \rangle \wedge \text{Epist_mod}(\alpha) \wedge \text{occasion}(\alpha, \beta) > \text{Dep}(\alpha, \beta)$

- I'll assume a negative *NegDep* modal dependency relation instead, involving a directive modal-antecedent as a negative precondition to a predictive modal-consequent
 - See also Wu (2021, 2023)
- LIC axiom on *NegDep*:
 - $\mu(K)$ extracts main propositional content (main proposition) from K

(26) $\text{NegDep}(\alpha, \beta) \rightarrow \text{Dir_mod}(\alpha) \wedge \text{Pred_mod}(\beta) \wedge \neg \mu(K_\alpha) \diamond \mu(K_\beta)$

Sketching a TCL+SDRT Implementation

- (27)-(29) three different discursive representations **lexically encoded** by three different APPR constructions
 - Implicit speech act referent γ introduced by *NegDP* disc. Relation
 - γ either has directive (26) or predictive (27) propositional content

$$(27) \text{ APPR}_{\text{MIXED.OVERT}} = \lambda. \alpha, \beta. [\text{NegConditional}_{\text{MIXED}}(\alpha, \beta) \rightarrow (\text{Dir_mod}(\alpha) \wedge \text{Pred_mod}(\beta) \wedge \text{NegDep}(\alpha, \beta))]$$

$$(28) \text{ APPR}_{\text{MONO.PRED}} = \lambda. \alpha, \beta. \exists \gamma [\text{NegConditional}_{\text{PRED}}(\alpha, \beta) \rightarrow (\text{Dir_mod}(\gamma) \wedge \text{Pred_mod}(\beta) \wedge \text{NegDep}(\gamma, \beta) \wedge \mu(K_\gamma) = \varphi_{\epsilon\text{-DIR}})]$$

$$(29) \text{ APPR}_{\text{MONO.DIR}} = \lambda. \alpha, \beta. \exists \gamma [\text{NegConditional}_{\text{DIR}}(\alpha, \beta) \rightarrow (\text{Dir_mod}(\beta) \wedge \text{Pred_mod}(\gamma) \wedge \text{NegDep}(\beta, \gamma) \wedge \mu(K_\gamma) = \varphi_{\epsilon\text{-PRED}})]$$

Conclusion

- ‘Implicit’ meaning of monoclausal APPR is not purely pragmatic
 - Monoclausal DIR: ‘threat/warning’ meaning though (vague) is real (very much like with Engl. ‘careful!’ / ‘watch out!’ ‘beware!’)
 - Monoclausal PRED: semantically prompts agent (addressee) to (re)act
- A pragmatic account of how implicit meaning is added (François 2022, or QuD update à la Phillips 2021) seems less convincing
- Better trade-off at the semantics/pragmatics interface
 - Context-sensitive **underspecified propositional content** in semantics of monoclausal uses
 - Role of pragmatics: down to (i) specifying underspecified propositional content (Nishiyama & Koenig 2010) and (ii) picking up reading of APPR morphology (if non-apprehensive readings possible)

Conclusion

- Semantics of *NegConditional* discourse relation
 - rather partitioning possible worlds into complement sets, *NegConditional* discourse referent involves a negative propositional content as alternative
 - Inspirations: McCready (2008), Wu (2021, 2023)
- Open issues/to-do-list:
 - Discourse accessibility of γ , and other discourse structural issues
 - Apprehensive strategies: pragmatic cases of semantic ambiguity?
 - Sparse + second hand data problem when trying to address this issue
 - *Yandruwandha*: *-yi* –POT given as apprehensive in Breen (2004)
 - And yet one positive/desirable context is attested in the grammar!
- **Mitigation/control strategies are essential *via* fieldwork**

Conclusion

- Postmodal readings: admonitive/regretful implicative meaning

'I was unfortunately falling' > *I should have done something differently/I wish I hadn't fallen*

Open issues: development paths

Development paths

- Meaning:
 - Implied meaning > semanticized
(conversational>lexical>semanticised?)
 - Lexical sources:
 - Temporal-predictive adv (future tempora): *baymbay* < *by and by*
 - Causal-temporal connectives: Wambaya: *ngabayi* < *ngaba* 'so, then'
 - Reconstruction needed for many non-transparent items

Open issues: apprehensive strategies

- **‘Semantic’ approach does not apply to:**
 - Apprehensive strategies, i.e. avertive readings pragmatically construed for otherwise non-apprehensive-denoting modals
 - Also true of apprehensive ‘implicature’ associated with monoclausal apprehensives, whether deontic or doxastic:

(30) *The sea might be rough* (> Don't canoe!)

(31) *Don't you (dare) eat my food!* (> or I'm going to punish you)

- **Framework:** so-called ‘dynamic pragmatics’, with *commitment slates* à la Condoravdi & Lauer (2011, 2012) or Portner (2018)

Dynamic pragmatics for 'avertive strategies'

- Dynamic pragmatic context à la Portner (2018:305) (p : participant; cs : commitment slate; cg =common ground; tdl =to-do-list; IC : individual commitments; MC : mutual commitments; PC =projected commitments – i.e., anticipated developments of conversation)

(32) A context is a tuple $\langle MC, IC, PC \rangle$, where:

1. $MC = \langle cg, tdl \rangle$
 2. For each participant p , $IC(p) = \langle cs_p, tdl_p \rangle$
 3. $PC = \langle pc_{cg}, pc_{tdl} \rangle$
- Given some directive content ϕ (order or request), variable force is treated by adding modalized proposition ϕ to either :
 - $tdl_{addressee}(addressee)$ (**weak priority/directive**: proposes the addressee's commitment to treating ϕ as a priority)
 - $tdl_{speaker}(addressee)$ (**strong priority/directive**: proposes the speaker's commitment to treating ϕ as a priority)

Dynamic pragmatics for 'avertive strategies'

- Solution: make dynamics pragmatics model scalar *and* polar
- Commitment slates/to-do-list etc. should be updated with *pairs* $\langle \phi, d_S \rangle$, not 'bare' propositions
 - Degree of desirability d for volitional/apprehensive modals
 - Positively or negatively oriented flavour scale S
 - Doxastic scale
 - Priority scale (Potential issue: prohibitives tend to have 'strong' force)
- Maybe expand projection principles of commitments to adapt them to negative scales.

Open issues: APPR as *scalar modals*

- **Tahar (2020):** *craindre* ('fear') apprehensive = doxastic apprehensives treated as involving **gradable alternatives p & q** (p has a very low desirability when compared to contextual alternatives q)

(33)

$\llbracket \textit{craindre} \rrbracket = \lambda a. \lambda p. \lambda w.$

- Doxastic meaning:** $\exists w' \in \text{Dox}_a(w): p(w')$
- Undesirability meaning:** $\forall w' \in \text{Dox}_a(w): \forall q \in C \rightarrow q \neq p:$
 $\exists d [\text{Desirability}(\text{Sim}'_w(q)) \geq d \wedge \neg \text{Desirability}(\text{Sim}'_w(p)) \geq d]$

Open issues: APPR as *scalar modals*

- **D'Angelo & Schultze Berndt (2016):**
'The function of bambai [...] is to flag proposition q as possible and undesirable (...).'
- **Phillips (2021:68):** apprehensives establish 'negative speaker attitude *vis-à-vis* the prejacent'
- Undesirable meaning of predictive APPR is not *binary* ; encode a vast array of nuances of undesirability (concerns, preoccupations, or fears – cf. e.g. Tahar (2021), Evans (2022))
- Predictive apprehensives as scalar modals?
 - **Scale of undesirability**

Open issues: APPR as *scalar modals*

- **Modals are scalar expressions:** Lassiter (2014, 2017), Klecha (2014), Bowler & Gluckman (2021)...
 - English: lexicalises force (strong vs. weak), rather than flavour (although some modals are less polyfunctional than others...)
 - Australian languages: lexicalise flavours (at least to some extent), rather than force ('variable force modals')

Open issues: APPR as *scalar modals*

- Predictive component of APPR conditional meaning (= semantic consequent) would benefit from *scalar modal* implementation
- Several options possible – e.g. à la Lassiter (2014), with additional degree argument for contextual interpretation :
 - Doxastic apprehensives:

$$\llbracket APPR_{predict} \rrbracket = \lambda a. \lambda p. \lambda w. \exists w' \in \text{Dox}_a(w) [\text{Desirability}(\text{Sim}'_w(p)) \geq d \wedge d \in S_{APPR} \wedge \text{NEG}(S_{APPR})]$$

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