

A typological and formal account of apprehensives in Australia as negative modals

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Introduction

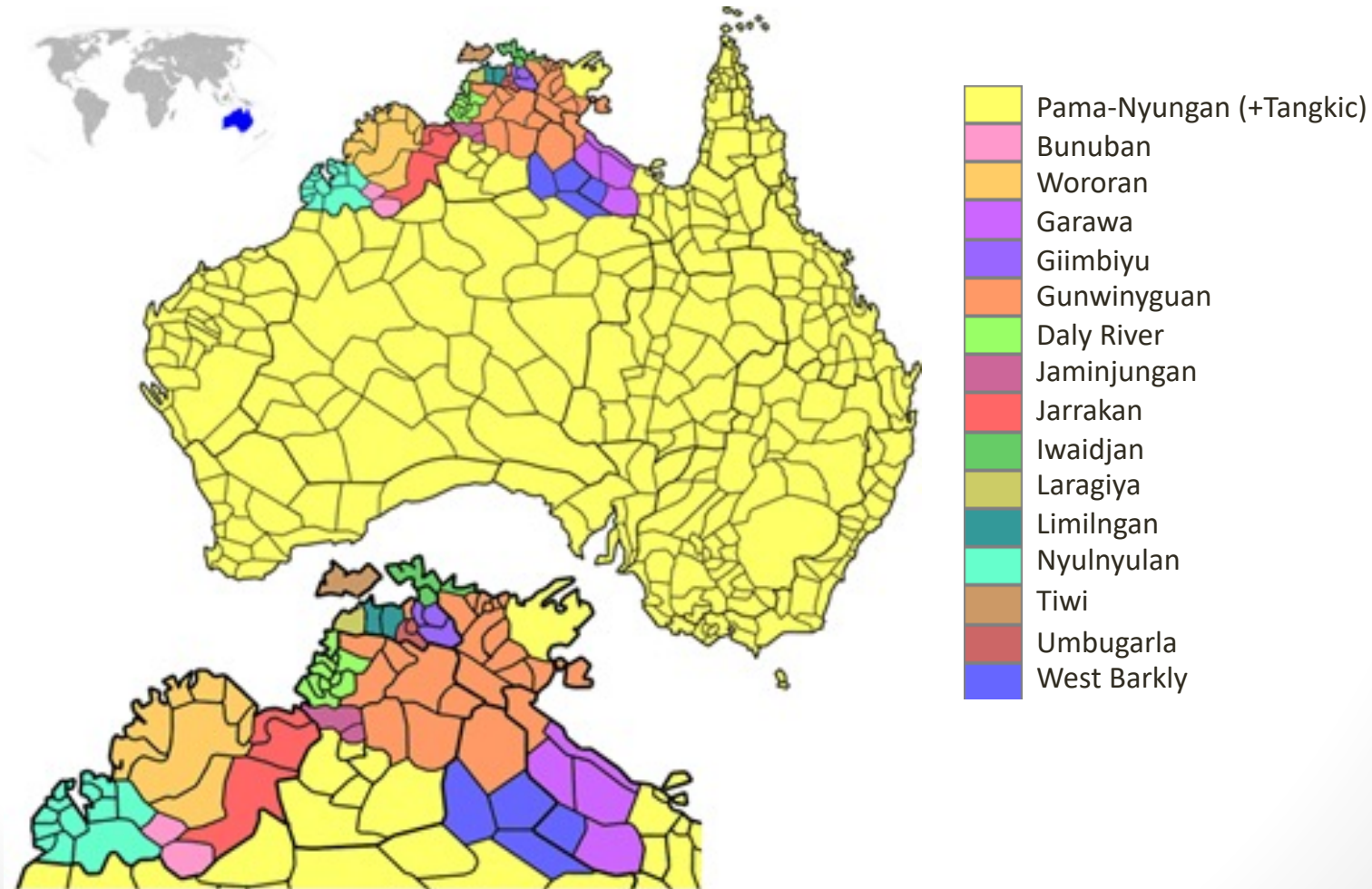
- So-called apprehensives in Australia were identified a while ago, and have been identified in numerous language on the continent
- But remain understudied from a theoretical point of view
- Objective of this talk:
 - Provide a reasonably **empirical portrait of apprehensivity** in Australian languages (areal typology + fieldwork)
 - Empirical generalizations (form/meaning, semantics vs. pragmatics)
 - Hunches about development paths (and some lexical sources)
 - Sketch a **tentative theoretical/formal account of the category in Australian languages**, capitilazing on existing accounts of apprehensivity

Introducing apprehensives

- **Apprehensives (or apprehensionals, or aversives, or *lest* clauses/constructions) « appréhensionnels »**: detrimental possibility (cf. Engl. *for fear that + <should>*)
 - Negative evaluation (undesirable) of some possibility; doxastic/predictive flavour
 - Often appears within an expressive context
 - Matrix, single clause uses: *pragmatic* priority/directive function (Portner 2018) can appear (François 2022)

(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')

Introducing apprehensives in Oz



Introducing apprehensives in Oz

- In contrast, in many biclausal constructions, directive meaning explicitly co-exists with apprehensive meaning: ‘double modal’ constructions
 - Directive modal clause(order/instruction) + apprehensive modal clause (‘lest clause’) :
 - Undesirability not a defeasible, contextual implicature in semanticized apprehensives (not so in ‘apprehensive strategies’ – more on that later)
 - Turned out to be very common in field data in Iwaidja:

(2) *Kana-ya-njing,* *that nagi* (Iwaidja)
2sg>3Obj.RMOD-look-RMOD that dog

ri-mambu-∅ *ba arijumardan!*
3sg>3Obj.APPR-bite-APPR the child!
‘Watch out, that dog might bite the child!’
(TAIM190603MM_Modality_1, 00:47:15)

Introducing apprehensives in Oz

- **Oz modals are often variable force modals**
 - True of APPR as well: weak OR strong doxastic ('might kill you' or 'will kill you')
 - **Caveat:** some fixed force readings with certain flavours, esp. In certain constructions/markings (ex. : prohibitives)
- A lot of discontinuous exponency
 1. As in periphrastic morphology, lots of preverbal/postverbal modal particles
 2. As in complex, distributed exponence as found in nPN polysynthetic lgs
- Diachronic morphological cycles from 1 to 2 (Osgarby 2018)
 - Common pathway: $AUX_{MOD}-(TA_1) V-TAM_2 > TAM_1-V-TAM_2$

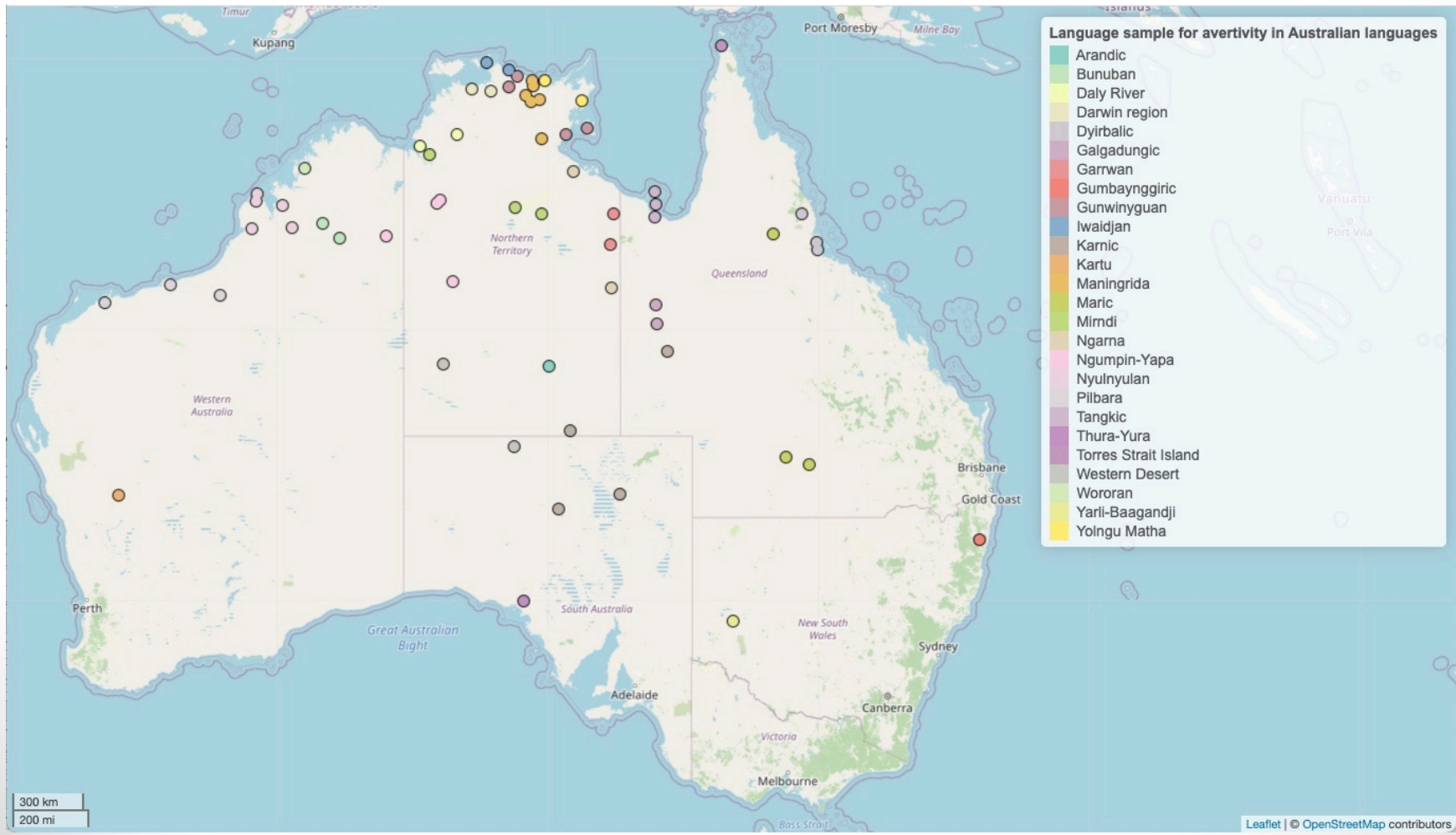
Research questions

- **Typological profile of apprehensivity in Australia?**
 - **Semantics or pragmatics?**
 - When semantic: what kind of form is involved? (form meaning/pairing)
 - **Lexical/grammatical sources**
 - What are the development paths of these categories in Australia?
- **How to model the negative (undesirability) meaning of apprehensives ?**
 - Implied or semantically encoded?
 - *Where* and *how* should we represent it as logical form? (à la Recanati)

Empirical portrait of apprehensives in Oz

- First empirical method behind present work:
 - Areal typological approach: grammar mining
 - AustrILS project; **collaborative research**
 - Aim: 70+ language sample
 - Tense, aspect, modality, evidentiality; phonetics & phonology
 - Currently: 26 languages for apprehensives
 - Data base of glossed, transcribed & annotated examples (tagset built upon a hierarchical structure, to allow for both language comparison AND language specificity, polyfunctional categories...)
 - Grammatized apprehensives found in 25 languages out of 26

Empirical portrait of apprehensives in Oz



Empirical portrait of apprehensives in Oz



Empirical portrait of apprehensives in Oz



Empirical portrait of apprehensives in Oz

- **AustrILS: (Atlas of) Australian Indigenous Language Structures**



- 70 Australian languages
 - 26 language families/groups
 - 10 non-Pama-Nyungan families/groups
(Iwaidjan, Gunwinyguan, Mirndi, Worroran, Maningrida, Gaagudju, Darwin Region, Daly River, Nyulnyulan, Tangkic)
 - 16 Pama-Nyungan families/groups
(Western Desert, Arandic, Ngumin-Yapa, Pilbara, Yolngu Matha, Ngarna, Maric, Karnic, Bunuban, Gumbaynggiric, Galgadungic, Kartu, Dyrbalic, Yarli-Baagandi, Thura-Yura, Garwan)

Intro Empirical portrait of apprehensives in Oz

- Second empirical method behind present work: qualitative semantic elicitation fieldwork (controled data)
 - **Goal:** mitigate and control shortcomings of grammar mining
- Translation questionnaires, retrotranslation, acceptability judgements
- Elicitation tasks using 3D storyboards (cf. Ana Krajinović's work) using figurines and toys (human and local animals)
 - Found this to be more 'engaging' than 2D storyboards
 - Also 2D can be problematic in languages encoding directionality in their morphology (distal/proximal/neutral)
 - Allows for 'on the fly' corrections if some problem occurs
- **Iwaidja, Mawng, Amurdak, Anindilyakwa, Dalabon** (R. Mailhammer, J. Bednall, M. Ponsonnet)
- **Burrara, Rembarrnga** (D.F. Guerrero-Beltran, M. Legentil)

Empirical portrait of apprehensives in Oz

- Our typical setup:



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- **Hypothetical constructions:** warnings, threats

(3) *ɲinda* *ɲaygu* *bulgugu* (Dyirbal)
you-SA I-GEN wife-DAT swive-ŊAY-REL-NOM

wadilɲaɲu *ɲada* *ɲinuna maɲa* *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 in Oz

- **Mixed directive+apprehensive biclausal constructions**
 - Known as ‘pseudo-imperatives’ ’) (Fraser 1969, Clarke 1993)
 - Starr (2020): negative conditional meaning (‘if you don’t conform to directive A, then B’)

(4) *ninda* *balan* *buni* *muymba* (Dyirbal)
you-SA THERE-NOM- I1 fire-NOM put.out-IMP
baijgun *dambundu* *bural-bila*
there-ERG-I1 dambun-ERG see-APPR
‘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 in Oz

- **Some forms can have both directive/priority and doxastic flavour:**
 - **Overt negation must be involved; prohibitive modal**
 - Complementary of example (1), where directive content is pragmatic
 - Implicative meaning is a sort of conventional implicature (non-defeasible)
 - Also: expressive, threatening content; **phonological cues**
 - **Caveat:** Cliticised SVC construction =*thurru* ('keep on') differs from *thurru* verb

(7) *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.' (>Implicit threat: 'or I'll punish you')
(Nordlinger & Caudal 2012:104)

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- **Apprehensive clitics in the sample – cf. 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')

(8) *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 in Oz

- *-nukun/=nukun* can also have a predictive-apprehensive reading

(9) *ke-nhi-bath-nukun!*

3SGS.POKE:RR(21).FUTIRR -2SGO-cook-APPR

‘It might burn you!’ (RN 20070608-002:035) (Nordlinger & Caudal 2012:84)

(10) *ma-ŋi-ŋka-ɬum-nukun*

do.3SG.NFUT-2SG.OBJ-eye-dry-APPR

‘you might get hazy vision’ (Mansfield 2020:208)

- Empirical generalisation: *nukun* can trigger both directive and predictive readings
 - *NEG V_{subject-controlled}-nukun* > prohibitive (« don’t P_{undes} »)
 - *V_{non-subject-controlled}-nukun* > predictive-apprehensive (« might P_{undes} »)
 - Suggests that ‘dispreferencel’, negative modal content needs not project into a volitional/deontic/directive meaning

Empirical portrait of apprehensives in Oz

-  **Postmodal uses attested** – effective and undesirable events

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

‘I saw the person as I was **(unfortunately)** falling over’.
(Dixon 1980:352)

Empirical portrait of apprehensives in Oz

- **Synthetic vs. periphrastic marking:**

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

(12) Burreb 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 in Oz

- **Multiple inflectional means: Kayardild**
 - Kayardild has the most complex apprehensive system in sample
 - Modal agreement is very frequent (not mandatory), esp. Object
 - Related pattern in Yandruwandha: nominal APPR –*puru* (+ APPR verbal inflection -*yi*)
 - + *nginja* ‘would not’! (negative purposive)
- X V-*nyarr* : apprehensive inflection
- X V-*nyarr* Y-MPROP (propriative case)/MOBL (oblique case) in the regular case
- X V-*nyarr* Y-MLOC (locative case) if actual undesirable event

(14) *Nyingka ngudi-na* *wangalk,* (Kayardild)
youNOM throw-NEG.IMP boomerangNOM
ngada ngumban-ju *burldi-nyarr.*
1sgNOM you-MPROP hit.by.throwing-APPR
'Don't you throw the boomerang, or I'll throw (one) at you.'(Evans 1995:3)

Empirical portrait of apprehensives in Oz

- **Multiple means inflectional means: Kayardild**

- Concurrent periphrastic construction with preverbal apprehensive particle 'bambay/baymbay' (loanword from Kriol; also found in many non-Australian Creoles, see Schultze-Berndt & D'Angelo 2016)

(15) *baymbay nyingka ra-yii-j, kamarr-ii-wa-th*
APPR 2sgNOM spear-M-ACT stone-VALL-PST
'You might get stung by a stonefish.' (Evans 1995:388)

- Traditional Kayardild equivalent (APPR modal agreement *-nharr* on N; can also appear with *bambay!*)

(16) *nyingka ra-yii-nyarr, kamarr-ii-wa-nharr*
2sgNOM spear-M-APPR stone-VALL-APPR (Evans 1995:388)
'You might get stung by a stonefish.'

Empirical portrait of apprehensives in Oz

Summary of findings in sample

- **Extreme diversity of formal marking**
- Form – obvious development path:
 - Form : particle > clitic > morph (classic morphological cycle in Australia, cf. Osgarby 2018)
- 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

Formal analysis for semantic avertives

- **D'Angelo & Schultze Berndt (2016):**

The function of bambai, in our analysis, is to flag proposition q as possible and undesirable (...).

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

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

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

Formal analysis for semantic avertives

- **Modals are scalar expressions:** Lassiter (2010, 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), but not force ('Variable force modals', cf. [Matthewson 2008 ???](#), [Bochnak ???](#))
- **General intuition:** APPR denote negative modals in that they involve an undesirable possibility
 - Proposal: can be modelled as **negative scalar** 'preference/priority' modals for imperative/deontic-looking avertive clauses (Condoravdi & Lauer 2011, Portner 2018)
 - OR negative scalar doxastic modals for 'might' avertives

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)

(19) 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 a 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 & ‘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:
 - () *The sea might be rough* (> Don’t canoe!)
 - () *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) or Portner (2018)

Why apprehensives are scalar expressions

- Obvious requirement for doxastic meanings in apprehensive structures: we want some notion of gradable *doxastic* content – not the simple negation of a proposition
 - Apprehensive doxastic modals are not *binary*; they can encode concerns, preoccupations, or fears – cf. e.g. Tahar (2021), Evans (2022)
 - COMPARISON essential to defend degree analysis (see IRR in BNG)

Dynamic pragmatics & ‘apprehensive strategies’

- Given some undesirable proposition ϕ , could we update relevant *tdl* with $\neg \phi$ to account for directive interpretations?
 - Would prompt addressee to act so as to realise $\neg \phi$
 - But that’s not what we actually need
 - Instead, addressee should be prompted to act so as to *prevent* ϕ (which may involve a number of fairly different actions)
- And recall that we want some notion of gradable *doxastic* content – not the simple negation of a proposition

Dynamic pragmatics & ‘apprehensive strategies’

- Solution #1: introduce *negative* slates for priority effects of apprehensives (i.e. implied orders/requests)
 - Introduce a *ntdl* ‘not-to-do-list’
 - Introduce a *ncs*, a ‘negative commitment slate’, to indicate that some agent considers a proposition as pointing to an undesirable potentiality (one that should be avoided)
- Cons:
 - Looks *ad hoc*, as we would also need negative and positive doubling of other mechanisms to account for e.g. predictive, doxastic meanings
 - How to account for variable force effects?

Dynamic pragmatics for ‘avertive strategies’

- Solution #2: 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
 - Positively or negatively oriented flavour scale S
 - Doxastic scale
 - Priority scale (Potential issue: prohibitives tend to have ‘strong’ force)
 - (Circumstantial scales too, as we have negative capacity modals)
- Maybe expand projection principles of commitments to adapt them to negative scales.

Conclusion

- Implications identified for positive preference modals and positive directives (positive imperatives) (see e.g. Portner 2018) hold for negative preference modals and negative directives
(Cf. *-nukun/=nukun*)
 - ‘negative preference modals’ *implicates* ‘negative directive’ (DISP>PROH)
 - ‘negative directive’ *implicates* ‘negative preference modal’ (PROH>DISP)
 - ‘positive preference modals’ *implicates* ‘positive directive’ (PREF>IMP)
 - ‘positive directive’ *implicates* positive ‘preference modals’ (IMP>PREF)

Conclusion

- Great formal and semantic variety found in Oz apprehensives
- We need to expand our model of dynamic pragmatics to account for undesirable possibilities
- Negative modals have implicative patterns similar to those of positive modals
- Some apprehensive forms can surface as directives rather than predictive/doxastic modals
 - Suggests that some kind of symmetry is at play here:
 - Directive > predictive is implied
 - Predictive > directive is implied

Conclusion

- Open issues:
 - Implicative meanings : conventional, lexical, conversational ?
 - **Actual undesirable event readings**
 - Sparse + second hand data problem did arise!
 - *Yandruwandha*: -yi –POT given as apprehensive in Green (2004)
 - And yet one positive/desirable context is attested in the grammar!
 - But what is -yi? An IRR inflection capable of apprehensive strategies? Some apprehensive with vestigial positive uses?
 - **Mitigation/control strategies are essential**

Conclusion

- Open issues:
 - Negative purposives > apprehensives
 - Prohibitives > apprehensives
- Variable force?
 - Not so clear: negative deontic apprehensives, especially monoclausal ones, appear to only have strong force ('don't you dare!')
 - Seems possible that doxastic modals and deontic/directive modals align in terms of force
 - Strong doxastic APPR (Stern warning) > strong deontic APPR
 - Weak doxastic APPR > weak deontic APPR

Conclusion

- Similar phenomena are found in regular SAE languages:
 - Matrix undesirable possibility (with an implied consequent):

(20) *Si (jamais) tu (oses) V...* (apprehensive construction when special threatening intonation)
'If you (dare) V...'

- And conversely, we can have a matrix negative directive, with an implied negative doxastic consequent:

(21) *Ne va* *surtout* *pas* *V!*
NEG go-PRS especially NEG V

(22) *Don't you (dare) V!*

Conclusion

- The following near equivalence also holds

(23) *I'll whip you if you dare leave this house again!* (A. Miller, *The Crucible*, Act II)

(24) *Don't you (dare) leave this house again, or I'll whip you!*

(25) *Je te fouetterai si (jamais) tu quittes cette maison à nouveau!*

(26) *Ne quitte pas cette maison à nouveau, ou bien je te fouetterai.*

.

Conclusion

- ‘Pseudo-imperatives’ incorporate a negative conditional operator
 - Hence some possible analogies, truth conditionally, with *bona fide* conditionals
 - (undesirable) hypothetical antecedent parallels a negative directive antecedent
 - ‘pseudo imperatives’ is a pretty bad label...

Prejacent		Consequent
¬DIRECT(P_{undes}) (<i>‘prevent bad stuff P’</i>)	OR-ELSE	PREDICT(Q_{undes}) (<i>‘bad stuff Q will happen’</i>)
POT(P_{undes}) / IF(P_{undes}) (<i>‘should bad stuff P happen’</i>)	THEN	PREDICT(Q_{undes}) (<i>‘bad stuff Q will happen’</i>)