Chapter 4

Reality status & the Yolŋu verbal paradigm

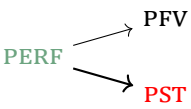
4.1 Introduction

In a 1999 monograph, Bhat posits a typological parameter along which languages variably assign prominence to TENSE, ASPECT or MOOD. For Bhat, determining which of these grammatical macrocategories a given language appears to assign "prominence" gives rise to a number of generalisations about characteristics of that language's grammar ("correlatable characteristics"). In particular, he suggests that, in a language where $\mathcal{C}$ is given prominence, notions belonging to the other two categories tend to be "viewed in terms of $\mathcal{C}$" (7).

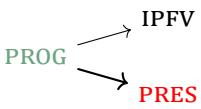
An important consequence of developing this typology, in which languages can be classified and differentiated on the basis of these three broad types, is the implication that languages can "move between them" — that is observable, synchronic variation across this parameter points to a history of reanalysis of, for example, temporal categories as modal ones. While Bhat does not explore this consequence of his typology in detail, he does point to observations in the grammaticalisation literature that have demonstrated "cross-categorial change" — that is, situations where lexical material denoting some temporal, modal or aspectual category come to be reanalysed conveying meaning about a category in another semantic domain. Bhat suggest, for example, that the well-attested alternative grammaticalisation trajectories described by Bybee et al. (1994) (among others) and represented in Figure 4.1 are determined by the "prominence" that a given language accords to either temporal or aspectual distinctions (1999:182). Of course, this treatment to some degree begs the question. In a given pair of related languages, what is it that underpins the change from, e.g. perfect marking to perfective marking for $\mathcal{L}_1$ versus past-tense marking in $\mathcal{L}_2$?

Figure 4.1. Two examples of attested meaning change between the aspectual and temporal domains

(a) PERF grams develop into PFV markers (e.g. Condoravdi and Deo 2014 for Indo-Aryan) or PST markers (e.g. Schaden 2012 a.o.)



(b) PROG grams develop into IPFV markers (see Deo 2015b) or PRES markers (e.g. Heinrichs 2002 for Neo-Aramaic)



4.1.1 Futurity and mood-prominence

Bhat marshalls data from Tibeto-Burman to show that "mood-prominent" have a tendency to grammaticalise a FUTURE/NONFUTURE distinction. He points to Manipuri, where this tense distinction appears to have 'developed from an earlier realis-irrealis modal distinction' (1999:19). The same verbal suffix *-le* is a future tense marker in Manipuri, whereas Bhat (1999:67ff) shows that in related Mao Naga, it encodes irrealis modality, occurring in a number of modal, counterfactual and evidential constructions.

Additionally, going back to Aristotle, the truth of a future predication has frequently been analysed as changing with the passage of time —- that is "'future contingent" statements can be neither true nor false' (Thomason 1970:265). Consequently, these utterances about the future are often associated wth predictive illocutionary force. Contemporary formal treatments often embrace a modal semantics for "future" operators: one that departs from the earlier, priorian tense logic type approaches where truth is defined relative to time and — the mirror image of PAST — FUTURE is a sentential operator that serves to locate their prejacent subsequent to evaluation time.[1] Modal accounts of future, then, generally tend to take future-oriented morphology to universally quantify over a modal base. Thomason (1970:274) proposes that a the semantics of a future-tensed predication is as follows:[2]

(153) $$[\![\text{FUT } p]\!]^{w,t} = \begin{cases} 1 \leftrightarrow & \forall w' \big[w' \simeq_t w \rightarrow \exists t' [t \prec t' \wedge p(w')(t')]\big] \\ 0 \leftrightarrow & \forall w' \big[w' \simeq_t w \rightarrow \neg\exists t' [t \prec t' \wedge p(w')(t')]\big] \\ & \text{undefined otherwise} \end{cases}$$

FUT p is true if there's a time t' in the future of all metaphysical alternatives to w at t which p holds and false if there is no such time.

Note that this semantics draws on the mechanics for futurity introduced in Ch. 2 above. *I.e.*, $\cup \simeq_t w$ is an equivalence class of worlds with identical histories to w up to t — equivalent to Kratzer's *metaphysical modal base*.

4.1.2 Negation and mood

Developing a broad cross-linguistic typology of sentential negation, Miestamo (2005:208) proposes a class of languages (A/NONREAL) which have 'grammaticalized the fact that negation belongs to the realm of the non-realized.' In many languages this means that a grammatical distinction between REALIS and IRREALIS modalities, drawn in positive clauses, is *neutralised* in negative clauses. If irrealis markers are taken as operators which displace the instantiation of a given eventuality into the realm of the nonrealized, we can think of this semantic space as including or excluding negative declaratives. It is on these functional grounds that negation and mood interact; predicting parametric variation across languages.

[1] This is not to suggest that Arthur Prior was unconcerned with this asymmetry between the future and the past — indeed, over the course of his career he departs from an earlier belief in determinism and develops branching time models concerned with the indeterminate nature of the future. (see Copeland 2020 and also Copley 2009:13). Generally speaking, on a deterministic view of the future, future morphemes can be understood to universally quantify over an epistemic modal base, whereas on non-deterministic views they quantify over a metaphysical modal base.

[2] This following Copley's (2009:14) conversion of Thomason's account based on "histories" (which effectively imply sets of historical alternatives) into an equivalent one that speaks in terms of possible worlds. Thomason himself develops $\mathcal{T} \times \mathcal{W}$ frames in a 1984 paper.

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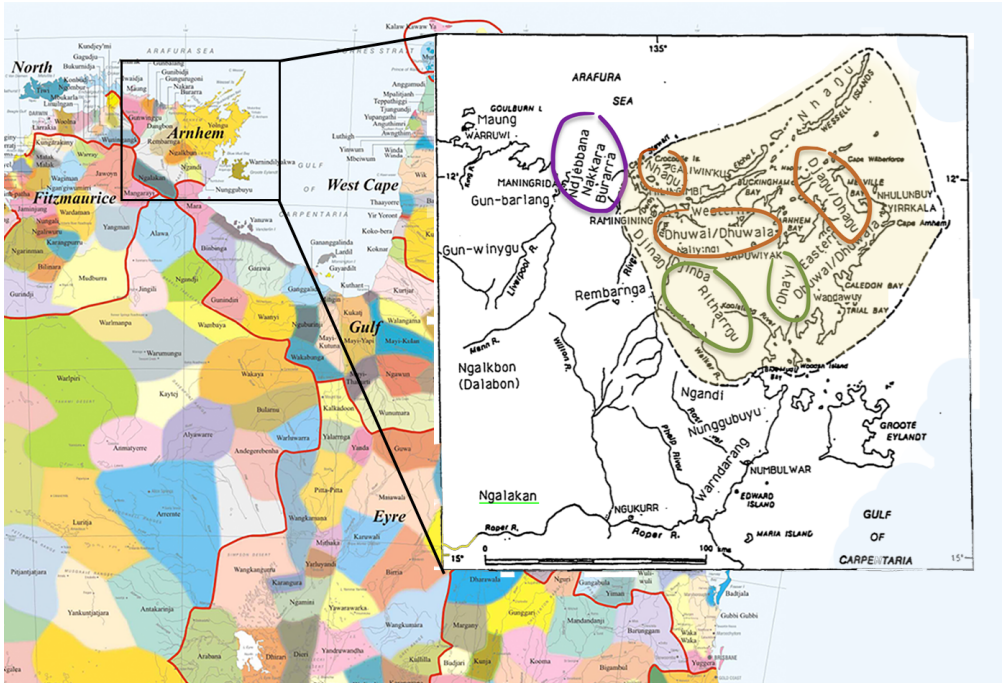
4.1.3 Yolŋu Matha

Yolŋu Matha is a small language family spoken in North-Eastern Arnhem Land, in the Northern Territory of Australia. The family is a subgroup of the larger Pama-Nyungan family, representing something of an enclave in Northern Australia; surrounded by a diversity of unrelated languages.

Figure 4.2. Traditional language communities in Northern Australia (Horton 1996).Yolŋu Matha is the gold coloured area within the square in the primary map.
Inset. Northeast Arnhem land (colourised from Wilkinson 2012:2. Yellow shading indicates the *Yolŋu Wäŋa* (homeland). Brown and green circles indicate the contemporary distribution of Yolŋu languages investigated. Purple circling indicates the neighbouring (but genetically unrelated) Maningrida language family.



Most Yolŋu linguistic phylogenies posit a high-level split between Western, Northern and Southern subgroups. This is schematised in Figure 4.3. Yolŋu society is traditionally organised according to a moiety system — *Yirritja* and *Dhuwa* — and continues to be strictly exogamous with respect to moiety. Given that each Yolŋu clan is associated with a single patrilineal moiety and language variety, households are necessarily multidialectal, one member of a couple speaking a *Yirritja* lect, the other speaking a *Dhuwa* lect. This chapter focuses primarily on a number of Southern Yolŋu varieties (see Fig 4.4).

As indicated in the diagram, the *Dhuwal* and *Dhuwala* groupings effectively represent the distinct clan-lects of a single speech community — associated with *Dhuwa* and *Yirritja* moieties respectively. Incidentally, Wilkinson (2012) points out that the degree of similarity between Western Dhuwal and Dhuwala are more closely related to one another than either is to Eastern Dhuwal and Dhuwala (I assume that this fact is representable phylogenetically and has been represented in Figure 4.4). The primary distinction between Dhuwal and Dhuwala varieties results from a productive apocope rule (Morphy 1977:51, see also

Figure 4.3. A broad phylogenetic classification of Yolŋu subgroups, following Schebeck 2001, Waters 1989, Wilkinson 2012 a.o.

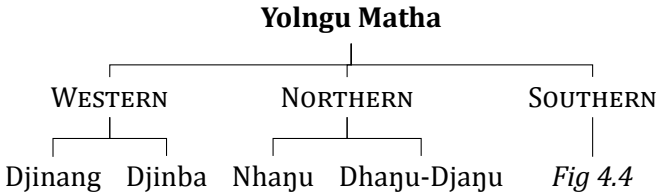
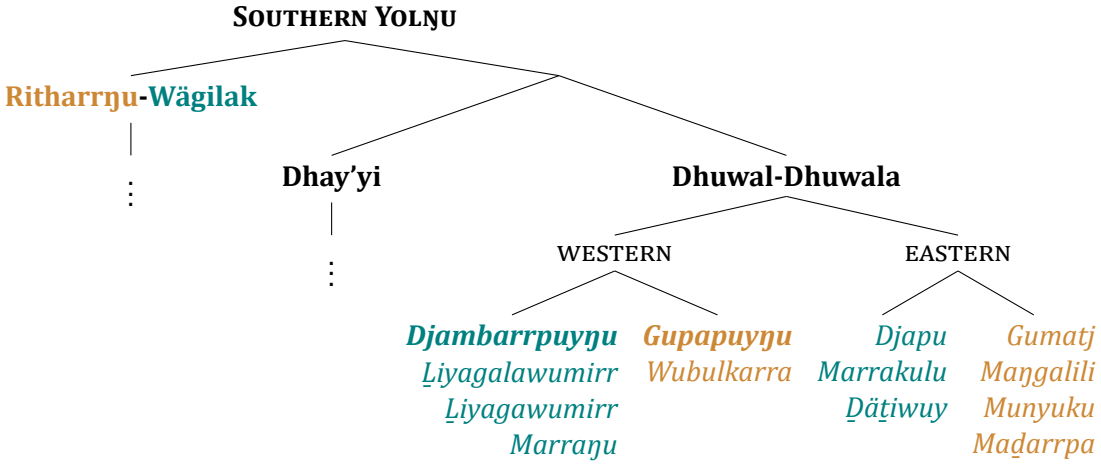


Figure 4.4. Varieties (dialects) of Dhuwal-Dhuwala in the context of the Southern Yolŋu languages (following Wilkinson 2012:13) with some adaptation following Schebeck 2001:15.



Wilkinson 2012:94*ff* for further details.). The formal consequences of Dhuwal apocope on the verbal paradigm are partially indicated in parentheses in Table 4.1 below. The table gives examples of the verb paradigm for each of the major Djambarrpuyŋu conjugation classes as described by Wilkinson (2012:306ff) (parentheses give the corresponding verb group number assigned by Lowe (1996) for Gupapuyŋu.)

4.2 Verbal inflection in Western Dhuwal(a)

TMA distinctions in Dhuwal(a) are partially encoded in a paradigm that distinguishes four 'inflections', which are cognate with a number proto-Yolŋu inflections according to the reconstructions provided by Bowern (2009). Work on Dhuwal and Dhuwala varieties (notably Lowe 1996, Wilkinson 2012) has tended to eschew a metalinguistic gloss for these inflections, given the ostensible non-unifiability of their semantics: the distribution of each of these inflectional categories is discussed in greater detail in what follows. In addition to these inflections, the labour of encoding TMA relations is shared by a (closed) class of auxiliaries, which appear to interact with the verbal paradigm.

Further complicating the exposition of this, is the fact that there are a number of *conjugation (sub)classes*: Lowe (1996) identifies nine classes. The (more detailed) description by Wilkinson (2012) shows that these correspond to three larger conjugation classes —

the *Ø-*, *N-* and *Ŋ*-classes — each associated with a number of subclasses,[3] in addition to "non-inflecting" and (semi-)irregular categories Wilkinson (2012). The paradigm for four WD verbs, taken to be representative of four different conjugation patterns is given in Table 4.1.

f course I can provide more etailed information (the ubclasses) but that feels ke it'd be better appended? he comparative preadsheet i've ade/Claire's 2009 stuff has ost of this formative data... **ote: Andrea Simms rongly suggests more xposition of the formal aradigm**

Class	*Example*	*I*	*II*	*III*	*IV*
$\emptyset_i$ (2)	*marrtji* 'go'	*marrtji*	*marrtji*	*marrtji**n(a)***	*marrtji**nya***
$\emptyset_a$ (3)	*l̲uka* 'consume'	*l̲uk**a***	*l̲uk**i***	*l̲uka**n(a)***	*l̲uka**nha***
$\emptyset_{rr}$ (4)	*wan̲d̲irr(i)* 'run'	*wan̲d̲i**rr(i)***	*wan̲d̲i*	*wan̲d̲i**n(a)***	*wan̲d̲i**nya***
N (5)	*l̲upthun* 'wash'	*l̲uphtu**n***	*l̲upthu**rr(u)***	*l̲upthu**rr(una)***	*l̲upthu**na***
$\mathbf{N}_L$ (6)	*gurrupan* 'give'	*gurrup**an***	*gurrupu**l(u)***	*gurrupa**ra***	*gurrupa**na***
Ŋ (7)	*nhäma* 'see'	*nhä**ma***	*nhä**ŋu***	*nhä**ŋal(a)***	*nhä**nha***

Table 4.1. Examples of the paradigm of four morphological TMA inflections in Djambarrpuyŋu [djr] and (Gupapuyŋu [guf] resyllabification in parentheses).
[djr] data and classification from Wilkinson (2012); [guf] data and classification from *Gupapuyŋu* (1996).

Above, I alluded to Beulah Lowe's eschewal of a "semantic description" for each of the four inflectional classes, also followed by Melanie Wilkinson. In the following subsections, I provide examples of the functional domains of each of the four inflections in Dhuwal-Dhuwala and other lexical material relevant to encoding TMA relations in this language. Throughout, these categories will be glossed with bold-faced Roman numerals, following the conventions established by Lowe (see also Table 4.2, which adapts Wilkinson's summary of glossing decisions made by other grammarians.)

	I	**II**	**III**	**IV**
Wilkinson 2012 djr	First	Second	Third	Fourth
Lowe 1996 guf[4]	Primary	Secondary	Tertiary	Quartenary
Tchekhoff and Zorc 1983 djr	Base	Future	Past_1	Past_2
Heath 1980a dwu	Pres/Fut	Fut/Imp	Past	Past Remote
Morphy 1983 (Djapu)	Unmarked	Potential	Perfective	Past Non-indicative

Table 4.2. Summary of metalinguistic descriptors deployed by a number of grammarians for the four inflectional classes in a number of Dhuwal/Dhuwala varities, adapted from Wilkinson (2012:336).
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4.2.1 The Primary inflection

The 'primary' inflection (**I**), cognate with inflections in other Yolŋu languages which have been described as "unmarked" or "base", surfaces in predications about the present, past and future. Here I provide examples of **I**-inflected clauses receiving each of these temporal interpretations.

ow for both of these (and i uspect all sentences in this ssection) context ought to e modulable s.t. a on-present reading is vailable. This an/should/will be tested in he field

(154) *Present-reference encoded with **I***

[3] Wilkinson appears to identify 14 distinct inflectional patterns in addition to a "non-inflecting" class (1991: 307).

a. *Ŋunhi-y ŋunhi ḏirramu* ***nhina*** *ga*
ENDO-ERG TEXD man sit.**I** IPFV.**I**

'There that man is sitting.' (Tchekhoff and Zorc 1983:856)

b. *Ŋarra ga* ***l̪uka*** *gapu (dhiyaŋu bala)*
1S IPFV.**I** consume.**I** water ENDO.ERG then

'I'm drinking water at the moment.' [DhG 20190405]

The sentences given in (154) show the compatibility between present temporal reference and the **I** inflection: in both cases, the event described by the predicate (*nhina* 'sit.**I**' and *marrtji* 'go.**I**') — in both cases modified by the aspectual auxiliary *ga* — is understood as being contemporaneous with speech time.

(155) *Past-reference encoded with **I***

a. *ga* ***ŋayatham*** *ŋunha baṉ'thula-wuy ŋayambalk*
and reach.**I** DIST PLACE-ASSOC place

'And (then we) reached the place (associated with) Baṉthula.'
(Wilkinson 2012:461)

b. *ḏirramu-wal yothu-wal bäpa-'mirriŋu-y rrupiya barpuru djuy'yu-**n***
man-OBL kid-OBL father-PROP-ERG money yesterday send.**I**
märr barpuru ga barpuru ***buna****-ny dhiyal-nydja*
somewhat yesterday and yesterday arrive.**I**-PROM PROX.ERG-PROM

'The father sent money to the boy recently and it arrived here yesterday'
(Wilkinson 2012:343)

In addition to those present-referring sentences in (154), the data in (155) show compatibility between **I** and past time reference. For both examples, the events described by the predicates (*e.g.*, the seeing event described by *nhäma* in (a)) *precede* speech time. Similarly, the two past events in (b) both receive **I** inflection. The instantiation times of both of these events are restricted by the temporal frame adverb *barpuru* ≈ 'yesterday.

Futher, the examples in (156) above, show the compatibility of **I**-inflected verb forms and FUTURE temporal reference.

(156) *Future-reference encoded with **I***

a. *yalala ŋarra dhu nhokal lakara-**m***
later 1S FUT 2S.OBL tell-**I**

'Later (today) I'll tell you.' (Wilkinson 2012:373)

b. *dhiyaŋ bala walal dhu* ***buna****, yalala*
now 3P FUT arrive.**I** later

'They are coming later today.' (Wilkinson 2012:256)

c. Deontic force with *dhu*+**I** (see §**??**)

*Way! Nhe dhu gurruka-**m** helmet! Rom ga **waŋa**.*
Hey! 2s FUT wear-**I** *helmet* law IPFV.**I** say.**I**

'Oy! You wear a helmet! The law says so! [AW 20170730]

In both sentences, the event described by the predicate is understood to obtain in the future of speech time (modulo additional constraints on imminence/immediacy described below). In these sentences the presence of FUT marker *dhu* is apparently obligatory in order to establish future reference.

4.2.2 The Secondary inflection

Like **I**, the Secondary inflection (**II**) has a range of uses. It is notably obligatory when predicating of future times beyond the current day and is the main strategy for forming imperative sentences.

(157) *Future-reference encoded with **II***

a. Co-occurring with *dhu* 'FUT'

*yalala-ŋu-mirri-y ŋula nhätha ŋarra dhu nhokal lakara-**ŋ***
later-*ŋu*-PROP-ERG sometime 1s FUT 2s-OBL tell-**II**

'I'll tell you sometime later on' (Wilkinson 2012:346)

b. Infelicity of **I** with non-today future

*Barpuru goḏarr ŋarra dhu nhä(-**ŋu**/*-**ma**)*
funeral tomorrow 1s FUT see(-**II**/*-**I**)

'I'll see the funeral tomorrow' [AW 20180730]

The two sentences in (157) show how **II** is used in concert with the particle *dhu* to establish future temporal reference. A notable contrast between (156a) and (157a) is the apparently obligatory retrieval of a TODAY-reference time for **I**-inflected futures, as against a (probable) BEYOND-TODAY-reference time for **II**-inflected futures.[6] Effectively, this distinction seems to be one place where the grammar of Dhuwal(a) grammaticalises "temporal remoteness" (Comrie (1985), Dahl (1985) referred to elsewhere in the literature as "metrical tense" e.g. Chung and Timberlake 1985:204).[7]

(158) shows the compatibility of **II** with a (future-oriented) possibility reading. Modal particles including *balaŋ(u), ŋuli* and *bäynha* are responsible for the 'weakening' or 'downtowning' of the speaker's commitment to the prejacent proposition.

[6]Wilkinson (2012:347) gives an example of a speaker using a *dhu*-**II** structure in the context of a narrative she is telling, signalling that she 'will (return to the time of the old people).' Wilkinson takes this as evidence of an association between **II** and the irrealis. This generalisation is pursued in detail in this chapter.

[7]Although Heath (1980a:39) suggests of the **II** future in Dhuwal Proper (his FUT/IMP) that this form encodes a type of "normative nuance" (a clear extention of imperative flavour into future assertions.)

(158) a. *Ŋarra ŋuli **bäynha** dhiŋgu-**ŋ** ŋawulul-yu*
1S HYP MOD die-**II** smoke-ERG

'I might die from the smoke.' (Buchanan 1978:164)

b. *ŋayi bala **balaŋu** bukthu-**rru***
3S MVTAWY IRR break-**II**

'It (the recorder) might break.' [DG 20190417]

II is additionally used to encode imperative clauses (159). Shown in (159b), negative imperatives (probibitives) are treated identically.[8]

(159) *Imperative force with **II***

a. *wäy! gurtha ŋunha, nhawi, ḏutji män-**ŋu**, bakmara-**ŋu***
hey! fire(wood) DIST what's.it firesticks get-**II** break-**II**

'Hey! Get that firewood, what's it, those firesticks, and break them.'
(van der Wal 1992:114)

b. *yaka walala-ŋ buku-bakamara-**ŋ***
NEG 3p-DAT head-break-**II**

'Don't answer them!' (Wilkinson 2012:360)

c. *nhä-**ŋu** nhanŋu dhurrwara!*
look-**II** 2S.DAT door

'Look at her mouth!' [AW 20180731]

4.2.3 The Tertiary inflection

The Tertiary inflection (**III**) is generally associated with predications about the PAST. An important caveat, however, is that this inflection is infelicitous when describing RECENT events instantiated BEFORE THE CURRENT DAY. The examples in (160) below show the compatibility between **III** and a reference time that is 'earlier today.'

how the compatibility of **III** with IPFV by adding some examples with *gana*. Perhaps a minimal pair, though this might be better placed below.)

(160) *TODAY PAST and the **III** inflection*

a. *Gäthur ŋayi **marrtjin** räli Galiwin'ku-ŋur*
today 3S go.**III** hither PLACE-ABL

'[Earlier] today he came from Galiwin'ku.' (Buchanan 1978:150)

b. *Bili ŋayi **marrtjin** dhipuŋur natha-ŋur nyan'thuna-ŋur*
COMPL 3S go.**III** PROX.ABL food-ABL eat.**IV**-ABL

'He has already gone from having lunch here.' (Buchanan 1978:150)

[8] Although, as discussed in Ch. 3 (see also Phillips ms. 'Negation (in Australian Languages)') the use of privative-marked nominals is another common, more "indirect" strategy.

c. Infelicity of **III** with RECENT PAST

barpuru *ŋarra* *nhä**(-ma/*-ŋala)*** *ḏetuŋ*
yesterday 1s see**(-I/#-III)** buffalo

'I saw a buffalo yesterday.' [MD 20180802]

d. Infelctity of **I** with TODAY PAST

gathura *ŋarra* *nhä**(#-ma/-ŋala)*** *ḏetuŋ* *dhukarra-ŋura*
today 1s see**#-I/III** buffalo road-LOC

'I saw a buffalo down the road today' [MD 20180802]

otentially look for a ref for
is or provide data that
akes this unambiguous...

(160a) shows the compatibility between temporal frame adverbial (TFA) *gäthur(a)* 'today' and **III** in `djr`, which leads to an temporal interpretation of 'earlier today.'[9] However even in the absence of a TFA, the event described in (b) is interpreted as having been instantiated EARLIER.TODAY/in the immediate past of speech time. Nonetheless, as the data in (161) show **III** cannot be properly described as a 'hodiernal past.'

(161) *REMOTE PAST and the **III** inflection*

a. *nhä* *nho-kiyin-gal* *wäwa-'mirriŋu-y* *warkthu-rr* *ŋäthil* *rarrandharr-yu*
what 2S-EMPH-OBL bro-PROP-ERG work-**III** before dry season-ERG

'What did your brother do last summer?' (Wilkinson 2012:343)

b. CONTEXT. The speaker is describing a locality as it was in her youth.

märrma' *ga-**n*** *malwan-dja* *dhärra-**n*** *yindi* *maṇḏa-ny*
two IPFV-**III** hibiscus-PROM stand-**III** big 3d-PROM

'Two big hibiscus flowers were (growing).' (Wilkinson 2012:339)

c. CONTEXT. A man is telling a story from long ago . His friend's dog has spotted a water goanna.

...ŋunhi *wurkaḏi-y* *nhä-ŋal-na* *ŋinya* *dharpa-lil-a* *ŋal'yu-na* *nhäwi*
ENDO NAME-ERG see-**III** 3S.ACC tree-ALL-SEQ ascend-**III** whatsit
wan'kawu-ya
water.goanna-ANA

'*Wukaḏi* watched it scramble up into a tree, the water goanna.'
(Heath 1980a:193)

ay be easier just to get a
milar non-interrogative
ntence to do what 161b
oes

Unlike the HODIERNAL temporal interpretations that the sentences in (160) receive, the two sentences in (161) are evaluated to obtain in the 'REMOTE PAST.' In (161a), the instantiation time of the predicate is restricted by two frame adverbials: *ŋäthil(i)*, which picks out a time 'in the distant past; prior to/earlier than (some other time)' (Wilkinson 2012:158) and *rarrandharryu* 'dry season':[10] The cooccurrence of these expressions restricts the predicate being questioned to *a prior dry season*. Conversely, the declarative sentence in (161b)

[9]Note however that the reckoning of TFA *gäthur(a)* differs to that of English and other familiar languages as shown in (`[neg-pst.munha]`), where *gäthur munhawa* 'today nighttime' is interpreted as "last night" and still triggers **III** marking on the verb.

[10]The suffix *-Thu* (*-yu* as a postsonorant allomorph), glossed here as ERG is used to mark ergative NPs as well as instrumental (INSTR) NPs and to form TFAs out of nominals TEMP.

requires no adverbial specification. A REMOTE PAST interpretation arises as a result of the **III** inflection alone, which is precised pragmatically by the discourse context (*sc.* a narrative that the speaker is telling about her childhood.) (b) will be able to retrieve a same-day past interpretation as well, with sufficient contextual support.

The ostensible 'discontinuity' of the times that predicates receiving **I** and **III** inflection can refer to has been described in preceding literature as **CYCLIC TIME REFERENCE** (Comrie 1983:88). In her treatment of Burarra [bvr], Glasgow (1964) draws a distinction between 'tense' and 'frame of reference' ('timescale' for Green 1987:48). The interaction between these is, in effect, taken to give rise to a reference interval. This analysis has been adopted and developed by others working on Maningrida languages (Eather (2011:165) for Nakkara [nck], Green (1995) for Gurr-goni [gge] and McKay (2000) for Ndjébanna [djj].) The interpretation of interacting "tense" morphology and reference frames is schematised in Table 4.3.

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

Table 4.3. 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.)

4.2.4 The Quaternary inflection

The Quartenary inflection (**IV**) has a broad range of uses in Dhuwal(a) varieties that correspond in part to categories described in Australian languages including *past potentialis* (Heath 1980b), *past counterfactual* McKay (2011), *[past] irrealis* (Austin 1998:159) *etc.* It co-occurs with modal auxiliaries (especially *ŋuli* 'HAB' and *balaŋ(u)* 'IRR') in order to describe past habituals (162) and hypothetical/counterfactual descriptions as in (163).

(162) a. *Ñayi* ***ŋuli*** *märra-**nha*** *ŋunhi* *meṉḏuŋ-nha*
3s HAB get-**IV** ENDO snail-ACC

'She would (used to) get (collect) snails' (Buchanan 1978:147)

b. *...ŋorra-**nha*** *walal* ***ŋuli*** *marrtji-**nya*** *ŋunhi-li-yi,* *galku-**na*** *walal* ***ŋuli***
lie-**IV** 3p HAB go-**IV** TEXD-LOC-ANA wait-**IV** 3p HAB
*ga-**nha*** *gapuw* *wirwiryu-**na**+ra-w*
IPFV-**IV** water-DAT turn-NMLZR-DAT

'They would be lying there, they would be waiting for the water to stir.'
(DB Djon 5:4)

c. *waṯuy* ***balaŋu*** *l̠uka-**nha*** *chocolate*
dog.ERG IRR eat-**IV** chocolate

'The dog could've/must've eaten the chocolate.' [DG 20190413]

(163) a. CONTEXT. Speaker had a toothache.

barpuru *balaŋ* *ŋarra* *bala* *dentist-kal* *marrtji-**nya*** *dhiyak*
yesterday IRR 1S MVTAWY dentist-OBL go-**IV** PROX-DAT

'Yesterday I should have gone to the dentist for a filling'
(Wilkinson 2012:353)

b. *Yaka* *balaŋ* *nhe* *marrtji-**nya*** *Darwin-lil*
NEG IRR 2S go.**IV** Darwin-ALL

'You should not go to Darwin.' (Buchanan 1978:164)

These data demonstrate the relationship between the **IV** inflection and combinations of past temporal reference and various modal and aspectual operators.

4.2.5 Summary

As mentioned above, a number of authors have eschewed assigning a metalinguistic label to the four inflectional categories that are realised on Western Dhuwal verbs. This due to the data's apparent resistance to an analysis where each marker realises some unified semantic category (*i.e.*, PAST, PRESENT etc.) Wilkinson's diagramatic representation of the relevant semantic categories and how they are partitioned by the inflectional system is repreoduced as Figure 4.5.

Ultimately, a consequence of this distribution gives rise to a phenomenon which Comrie (1985:83) refers to as "cyclic tense" : where a given verbal inflectional category appears to be licensed by "discontinuous intervals." These licensing intervals are schematised in Figure 4.6. On the basis of these data, a formalisation of the observations made by Glasgow 1964 *et seq.* (those summarised in Table 4.3) can be represented as (164) below, where the domains of each of these inflections are discontinuous intervals.[11] *today* : $\mathcal{I} \rightarrow \wp(\mathcal{I})$ is that function which returns the interval spanning from the beginning until the end of the day of utterance.[12]

(164) **A polysemy treatment of the temporal contribution of I and III**

a. $[\![\textbf{ I }]\!]^c = \lambda t : \begin{cases} t \in today \leftrightarrow t \succeq t* & .t \quad \text{[NONPAST]} \\ t \prec today \leftrightarrow \mu(t, t*) < s_c & .t \quad \text{[RECENT PAST]} \end{cases}$

I enforces a presupposition that:
EITHER the reference time t doesn't precede speech time $t*$,
OR if t PRECEDES $today$, then the temporal distance by which t precedes $t*$ is ***below*** *some contextually provided standard* s_c

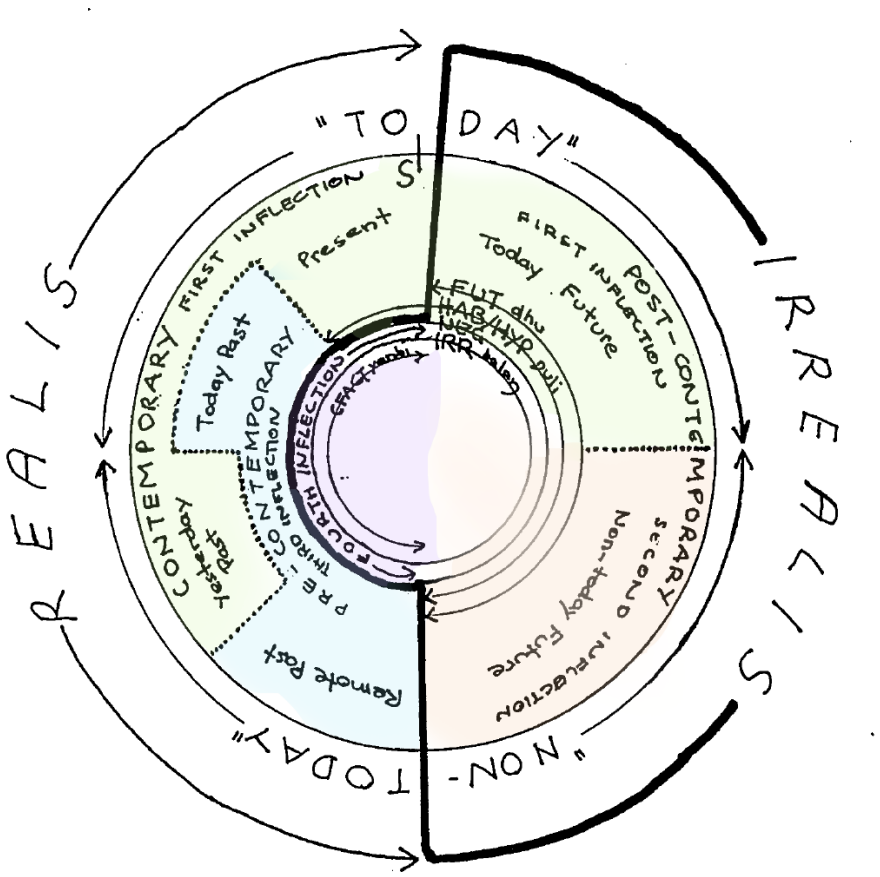
b. $[\![\textbf{III}]\!]^c = \lambda t : \begin{cases} t \in today \leftrightarrow t \prec t* & .t \quad \text{[TODAY PAST]} \\ t \prec today \leftrightarrow \mu(t, t*) > s_c & .t \quad \text{[REMOTE PAST]} \end{cases}$

III enforces a presupposition that:
EITHER the reference time t falls within $today$, in which case it precedes speechtime

[11] NOTE that the disjunctive semantics given in (164) is not intended to represent a proper treatment of these inflectional categories in Djambarrpuyŋu. This is a topic of current and ongoing work which is sadly out of the scope of the current dissertation.

[12] The basics of this treatment of temporal metricality (or "remoteness") converge to some degree with Cable's 2013 proposal for Gikũyũ tense and Klecha and Bochnak on Luganda tense.

Figure 4.5. Melanie Wilkinson's (2012:326) schematisation of the complex semantic space associated with each of the four inflectional categories in Djambarrpuyŋu. My colourisation.



$t*$,

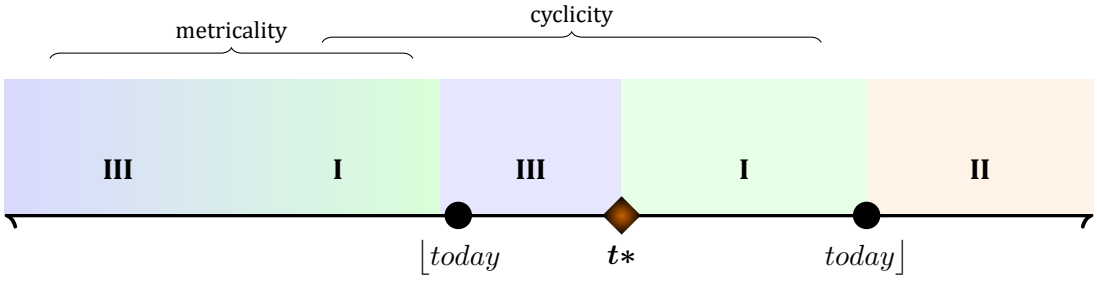
OR if t PRECEDES $today$, the temporal distance by which t precedes $t*$ is ***above*** *some contextually provided standard* s_c

Meanwhile, as demonstrated above, **II** and **IV** both appear to co-occur with modal particles. Predications about the future (beyond the day of utterance $today$) obligatorily occur with *dhu* 'FUT' and receive **II** inflection. As shown in §4.2.2, however, *dhu*+**II** can also receive a range of modal necessity readings; suggesting a treatment of *dhu* as a circumstantial modal.[13]

So far, we have only considered "positive" clauses. In the section that follows we see how the picture of WD inflection we have developed here complexifies significantly under negation.

[13]In view of the range of readings available to *dhu*, van der Wal (1992:110) glosses this particle as MOD.

Figure 4.6. Past-time temporal expression in the Yolŋu Matha varieties of Central Arnhem, demonstrating two descriptive phenomena: (a) cyclicity — the interspersion/discontinuity of **I** and **III** forms and (b) metricality — the (subjective) division of the past domain between these two forms.
$\lfloor today \rfloor$ indicates the boundaries of the day of utterance. $t*$ is utterance time.



4.3 Sentential negation: *yaka* & *bäyŋu*

Discussed in Ch. 3.4, Djambarrpuyŋu has two negative particles, *yaka* and *bäyŋu*, both of which are deployed for standard negation (*i.e.* those particles whose effect is to reverse the truth value of a given proposition.) The primary distributional distinction between these is that only *yaka* is used to generate negative imperatives (prohibitives) whereas only *bäyŋu* is found in negative existential/quantificational contexts. Both of these sentential negators, however, interact with verbal inflection.

Descriptively, as shown in the data in (165-166), negation appears to trigger a "switch" from the 'realis-aligned inflections' (**I** and **III**) to their 'irrealis counterparts', (**II** and **IV**) which otherwise turn up predominantly in hypothetical or counterfactual contexts. Effectively, this evinces a reality status-based distinction that is neutralised in negated sentences (see also Wilkinson 2012:356) for Western Dhuwal(a). This is schematised below in Table 4.4.

	POLARITY	
	−NEG	+NEG
	I **II**	**II**
	III **IV**	**IV**

Table 4.4. Neutralisation of **I** and **III** inflections under negation.

The following examples in (165) show how sentences that receive **I**-marking in positive sentences — encoding temporal reference to the present or recent past — instead receive **II**-marking under the scope of negation. Each example contains a predications about the present or about the recent past, each receiving **II**-marking under negation. (a-b) presents a near-minimal pair, where a predicate with present reference "switches" inflection from **I** to **II** under negation.s

(165) *Exponence of present and recent past reference as **II** under negation*

a. *Nhaltja-**n** **ga** limurru-ŋgu-ny rom waŋ-**a**?*
do.how-**I** IPFV.**I** 1p.INCL-DAT-PROM law say-**I**

'What does our law say?' (DB Luk 14.3)

b. ***yaka** **gi** **biyak** rom waŋ-**i***
NEG IPFV.**II** do.thusly.**II** law say-**II**

'That's not how the law is/what the law says.' (Wilkinson 2012:357)

c. ***bäyŋu** ŋarra **gi** nhä-**ŋu***
NEGQ 1S IPFV.**II** see-**II**

'I can't see (it).'
COMMENT. 'I didn't see (it) (yesterday)' also available. [AW 2018030]

d. *Ŋarra gi bäyŋu maḻŋ'mara-**ŋu** waṯu (ŋarraku). Bili ŋayi ga nhin-**a***
1S IPFV.II NEG appear.CAUS-**II** dog 1S.DAT CPLV 3S IPFV sit.**I**
wäŋaŋura
house.LOC

'I can't find my dog. It lives in the house.' [DG 20190417]

e. *Ŋarra ga djäl-thi-rri giritjirrinyarawu, yurru ŋarra bäyŋu-nha*
1S IPFV.**I** want-VBLZR-**I** dance.NMLZR-DAT but 1S NEG-SEQ
girritji
dance-**II**

'I was wanting to dance (at the *buŋguḻ* yesterday) but I didn't dance (because I'd hurt my leg yesterday.)' [DG 20190417]

Similarly, in contexts where the temporal reference of the event description predicts that the verb will receive **III**-inflection — that is the same-day or the remote past — , when under the scope of a negative particle (*yaka/bäyŋu*), the verb instead receives **IV**-inflection. This is shown by the data in (166), where (a-b) represents a minimal pair, negative marking triggering the "switch" from **III** to **IV** inflection. (c) shows the negation of an immediate past event licensing **IV** inflection, (d) shows how a negated, **IV**-inflected predicate can be embedded under a propositional attitude predicate to encode a false belief, and (e) an example of a negated description of the remote past receives **IV** inflection.

(166) *Exponence of TODAY PAST and REMOTE PAST reference as **IV** under negation*

a. *gathur munhagumirr ŋarra nhä-**ŋal** warrakan*
today morning 1S see-**III** bird

'I saw a bird this morning' [FW 20180802]

b. *gathur munhagumirr **bäyŋu** ŋarra nhä-**nha** warrakan*
today morning **NEGQ** 1S see-**IV** bird

'I didn't see a bird this morning' [FW 20180802]

c. **CONTEXT**. Speaker has dropped a coin.

Way! ***Bäyŋu*** *ŋarra nhä-**nha**?*
Hey! **NEGQ** 1s see-**IV**

'Ah! Did you see (it)?' [AW 20180830]

d. **CONTEXT.** I'm at work explaining to my coworker why my *galay* is angry at me.

Ŋarraku miyalk maḏakarritj-thi-na bili ŋayi ga guyaŋa ŋarra
1s.DAT wife anger-INCH-**III** CPLV 3s IPFV.**I** think.**I**[15] 1s
*ga-**nha** bäyŋu djäma*
IPFV-**IV** NEG work

'My wife got angry because she thought I wasn't working today.'
[DG 20190417]

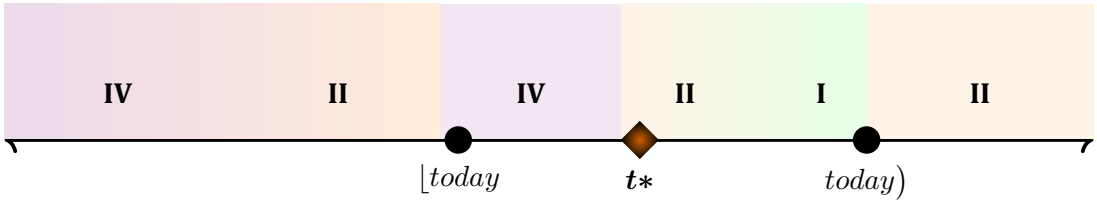
e. **CONTEXT.** The speaker grew up in the desert.

bäyŋu *ŋarra ŋuli ganha nhä-**nha** (waltjaṉ) ŋunhi ŋarra yothu yän*
NEG 1s HAB IPFV see.**IV** rain ENDO 1s child just

'When I was young, I hadn't seen [rain]/never saw [rain].' [AW 20190501]

The data in (165-166), demonstrate the interaction between temporal reference and negative polarity in WD, consistent with Miestamo's A/NONREAL class — the distinction between *realized* and *nonrealized* states of affairs is neutralised is negative contexts in WD. We can then provide a modified version of Figure 4.6 to give the parallel diagram in Figure 4.7. The differences between these two diagrams schematise the effects of negation on the licensing of particular WD inflectional categories.

Figure 4.7. Apparent interactions between temporal relations and reality status in Djambarrpuyŋu: cyclicty and metricality under negation.



Note additionally the surprising occurrence of a **I**-marked interval in Fig 4.7. Predications about the SAME-DAY FUTURE — which receive **I**-marking in positive sentences — appear to be "immune" to the neutralising effects of negation, exemplified by data including 167. We return to a discussion of this fact §**??**.

(167) a. *Ŋunhi ŋarra dhu bäyŋu l̲uk-**a**, ŋarra dhu rirrikthu-**n***
HYP 1s FUT NEG consume-**I** 1s FUT sick-INCH-**I**

'If I don't drink (water) (soon), I'll get sick.' [AW 20190409]

b. *yaka ŋarra dhu l̲uplupthu-**n** bili bäru ŋuli ga l̲uk-**a** yolŋu'yulŋu*
NEG 1s FUT swim-**I** CPLV crocoodile HAB IPFV.**I** eat-**I** people

'I'm not going to swim; crocodiles eat people.' [AW 20190428]

4.4 The realm of the nonrealized

So far we have seen that predicates which receive **II**- and **IV**-inflection co-occur with some operator that encodes some flavour of irrealis-associated meaning — what Palmer (2001:145) labels a "joint marking system." For **II**, these are predominantly represented by *dhu* 'FUT' and *balaŋ(u)* 'IRR' in addition to clauses with imperative syntax. **IV** tends to co-occur with *balaŋ* 'IRR' in addition to *ŋuli* 'HAB'.[16] Here, we provide an overview of the semantics of these particles and form generalisations over the distribution of **II** and **IV** in WD.

4.4.1 Semantics of modal particles

Shown in §4.2.2, *dhu* 'FUT' occurs in sentences with future temporal reference (168). Relatedly, the data in (169) show that *dhu* appears to also be compatible with other circumstantial modalities; in a deontic (a), bouletic (b) and teleological (c) context. In all these contexts, we can model *dhu* as universally quantifying over a (subset of) a circumstantial modal base.

(168) ***dhu* 'FUT' encoding future tense with I- and II-inflections**

a. *barpuru goḏarr ŋarra* ***dhu*** *nhä-****ŋu***
funeral tomorrow 1s FUT see-**II**

'I'll watch the funeral tomorrow.'

b. *mukul* ***dhu gi*** *nhin-****i*** *raŋi-ŋur goḏarr*
aunt **FUT** IPFV.**II** sit-**II** beach-LOC tomorrow

'Aunty will be sitting on the beach tomorrow.' [AW 20190409]

c. *limurru* ***dhu*** *l̪uk-****a*** *maypal yalala milmitjpa*
1d.EXCL FUT consume-**I** shellfish later evening

'We're having shellfish this evening.' [DG 20190417]

(169) ***dhu* 'FUT' and other flavours of modal necessity**

a. *Way! Nhe* ***dhu*** *gurruk-****ama*** *djoŋgu'!*
Hey! 2s FUT carry-**I** hat

'Hey! You must wear a helmet!' [DG 20190405]

b. *djamarrku̯li* ***dhu*** *yaka wurraŋatjarra'****yirr***
children FUT NEG cruel.INCH-**I**

'The children mustn't be disobedient.' [AW 20190429]

c. *ŋarra* ***dhu*** *plane-dhu marrtji, bili mutika-miriw*
1s FUT plane-ERG go CPLV car-PRIV

'I'll have to go by plane because I don't have a car.' [AW 20190429]

[16] I adopt the (metalinguistic) labels FUT and IRR as glosses for *dhu* and *balaŋ(u)* following Wilkinson (2012). As we will see, these descriptions aren't necessarily completely adequate, but will be sufficient for current purposes.

On the basis of this range of usage, we might adopt the following lexical entry for *dhu*, treating this particle as a modal expression and adapting the meaning of *will* provided in Condoravdi (2002, 2003). The function BEST selects the best worlds in a circumstantial modal base, according to a set o of: • speaker expectations (in the case of FUTURE uses), • relevant rules & regulations (in the case of *deontic* uses), • relevant wants (in the case of *bouletic* uses) or • in view of achieving relevant ends (in the case of *teleological* uses) *etc.* We lexically specify the modal base on account of the apparent incompatibility between WD modal particles and epistemic conversational backgrounds (e.g. Kratzer 2012, Peterson 2010 a.o.).

(170) $[\![\textit{dhu}]\!] = \lambda o \lambda P \lambda w \lambda t. \forall w' \big[w' \in \underset{o}{\text{BEST}}\big(\cap \text{CIRC}(w), t\big) \wedge \text{INST}\big(P, w', [t, \infty)\big)\big]$
dhu P, uttered in some reference world/at some reference time, asserts that – in all of the best worlds w'(according to some ordering source $o(w)$) – the property P is instantiated in the future of reference time in those worlds w'.[17]

it seems that M16,R+M18 treat the circ. mb as a presupposition: i.e. relevant modals are defined iff f is circ.

In addition to *dhu*, WD deploys a number of other modal particles: *balaŋ(u)* 'IRR' the most frequently occurring among them. *balaŋ(u)* occurs with verbal predicates categorically inflected for either **II** (shown in 171) or **IV** (shown in 172).

The distinction in interpretation between these two sets of data is the *temporal interpretation* of the modal. In all cases *balaŋ(u)* appears to trigger existential quantification over a circumstantial modal base, although whereas **II**-marking induces a future interpretation of the predicate, **IV**-marking induces a past possibility (including counterfactual) reading.

(171) ***balaŋ(u)* 'IRR' and II-inflection**

a. *ŋarra* ***balaŋu*** *(bäynha)* *dhiŋg-**uŋu*** *nawalulyu*
1s **IRR** (MOD) die-**II** smoke.ERG

'I could die from the smoke.' [DG 20190405]

b. *ŋarra* ***balaŋu*** *l̪uk-**i*** *gapu,* *ŋanydja* *monuk* *ŋayi* *gapu*
1s **IRR** consume.**II** water but saline 3s water

'I would drink some water but this water's salty.' [DG 20190405]

c. *ŋarra* *ŋuli* *ga* *bitjan* *bili* *warguyun* *ŋunhi* *recorder* ***balaŋu*** *bakthu-**rru***
1s HAB IPFV.**I** thus.**I** CPLV worry.**I** ENDO recorder **IRR** break-**II**

'I'm always worried that the recorder will/could break.' [DG 20190417]

(172) ***balaŋ(u)* 'IRR' and IV-inflection**

a. *nhe* ***balaŋu*** *malkthu-**nha***
2s **IRR** accompany-**IV**

'you should/would have gone with (him).' [DG 20190413]

[17] The relation "INSTantiation" (also given as AT) is taken to hold between a property of events, a time, and a world when there is some event of a given type that is contained within that time:

$$\text{INST}(P, w, t) = \exists e[P(e) \wedge \tau(e, w) \sqsubseteq t]$$

See also Condoravdi (2003), Condoravdi and Deo (2014).

b. *ŋarra gana guyaŋa-na waṯuy* ***balaŋu*** *l̪uka-**nha** chocolate*
1s IPFV.**III** think-**III** dog.ERG **IRR** eat-**IV** chocolate

'I'd thought the dog might/would eat the chocolate.' [DG 20190413]

c. *ŋarra-nha **balaŋu** l̪uku walala mitthu-**na**... yurru ŋarra manymak-thirri*
1s-ACC **IRR** foot 3p cut-**IV** but 1s good-INCH.**I**

'They would have amputated my foot, but I got better.' [DG 20190417]

I actually don't currently have anyway f specifying that *dhu* is necessarily assumes pres-persp & future-orientn unlike *balaŋ*. There's this right edge thing in the instantiation interval acc. C02 which apparently is constrained by past ense, i'm not sure how or whether this needs representing. there's also the nonactuality mplicature that comes out at the end of the paper which maybe ould do the nec. work?

On the basis of these data then, we propose a lexical entry for *balaŋ(u)* as in (173) below. *balaŋ(u)* is taken to differ from *dhu* in terms of the "force" of the modal quantification it realises, in addition to its lability with respect to instantiation time.

(173) $[\![\textit{balaŋ(u)}]\!] = \lambda o \lambda P \lambda w \lambda t. \exists w' \big[w' \in \underset{o}{\text{BEST}}\big(\cap \text{CIRC}(w), t\big) \wedge \text{INST}\big(P, w', (t, \infty)\big)\big]$

The distinction between the temporal interpretations in **II**- and **IV**-inflected clauses then in effect reflects the distinction drawn by Condoravdi (2002) between *present* and *past* TEMPORAL PERSPECTIVE respectively. For Condoravdi (2002:62*ff*), temporal persepctive is the time at which some modal claim is calculated. A counterfactual predication like (c), for example, communicates that 'we are now located in a world whose past included the (unactualized) possibility of a foot amputation.

(174) *balaŋu* on a counterfactual reading (past temporal perspective)

*ŋarra-nha **balaŋu** l̪uku walala mitthu-**na***
1s-ACC **IRR** foot 3p cut-**IV**

'They would have amputated my foot.' [DG 20190417]

$[\![172c)]\!]^{w,t}$ iff $\exists w', t', t''\big[t' \prec t \wedge \in \text{MB}(w, t') \wedge t' \prec t'' \wedge [\![172c]\!]^{w', t''}\big]$
That is, at an evaluation index, the proposition is true if, in the past of that index, there was some future index at which the proposition is true.

4.4.2 Semantics of the "NONREALISED" inflections

Elliott (2000), defending a semantic domain of REALITY STATUS which she distinguished from MOOD and MODALITY, identifies a set of "frequent targets for irrealis marking." For Elliott, IRREALIS referring to "imagined or hypothetical" eventualities outside of the realm of "observable facts" about the world (67). She claims IRREALIS marking is licensed in a n

(175) **Elliott's *semantic contexts for the irrealis* (2001: 70)**

i. potential events
ii. conditionals
iii. modalised sentences
iv. imperatives
v. negation

vi. habituals

vii. interrogatives

In view of the co-occurrence constraints between the "irrealis inflections" **II** and **IV** and modal expressions (*e.g. dhu* and *balaŋ(u)*) in WD we can build in a nonfactivity presupposition to the inflections.

(176) $[\![\text{INFL}_{\text{nonreal}}]\!]$: