§??
§
YOLDU
MATHA
??
i.e.
see
also
cyclic tense asymmetric negation
FIRST
pos.prs
pos.vp
THIRD
dis-
con-
tin-
u-
ous
CYCLIC
TENSE

Temporal reference and verbal inflection in Western Dhuwal (djr)

FUTURE
-ŋu
FUT
ACC

PRESENT
-ma
IPFV.I
ACC

SAME DAY PAST
-ŋal
ACC

PRE-TODAY PAST
-ma
ACC
bäyŋu
e.g.
pos.fut
e.g.
incompatible
ASYM-
ME-
TRY

Negation interacting with temporal reference in Western Dhuwal (djr)

FUTURE
-ŋu
NEG

PRESENT
-ŋu
NEG

SAME-DAY PAST
-nha
NEG
ACC

PRE-TODAY PAST
ŋu
NEG
ACC
??
viz.
CYCLIC AND MET-RI-CAL TENSE NEG-A-TIVE ASYM-

$\mathcal{C}$

?
??
$\hat{e}.g.$
$\mathcal{L}_1$
$\mathcal{L}_2$

3
$[w,t]_{\text{FUT}}\ p =$
$\{1 \leftrightarrow \forall w'\big[w' \approx_t w \rightarrow \exists t'[t \prec t' \wedge p(w')(t')]\big] 0 \leftrightarrow \forall w'\big[w' \approx_t w \rightarrow t'[t \prec t' \wedge p(w')(t')]\big] undefinedotherwise$
FUT
p
t'
w
t
p

$\cap \approx_t$
w
w
t
w
t
meta-
phys-
i-
cal
con-
ver-
sa-
tional
back-
ground
§**??**

??
bam-
bai
REAL
NON-
REAL
$\cap \approx_i$
i
i

PAST
PRESENT
FU-
TURE
PAST
PO-
TEN-
TIAL
??

??

note: Andrea Simms strongly suggests more exposition of the formal paradigm

Gu-papuyŋu

Class	*Example*				
	$\emptyset_i$ *marrtji*	*marrtji*	*marrtji*	*marrtji**n(a)***	*marrtji**nya***
$\emptyset_a$	*luka*	*luk**a***	*luk**i***	**n(a)**	**nha**
	$\emptyset_{rr}$ *wandirr(i)*	*wandi**rr(i)***	*wandi*	*wandi**n(a)***	*wandi**nya***
	N *lupthun*	*luphtu**n***	*lupthu**rr(u)***	*lupthu**rr(una)***	*lupthu**na***
	N$_L$ *gurrupan*	*gurrup**an***	**l(u)**	**ra**	**na**
	D *nhäma*	*nhä**ma***	*nhä**ŋu***	*nhä**ŋal(a)***	*nhä**nha***

??

e.g.[10]

Imperative force with II

13

a prior dry season

REMOTE PAST

sc.

cyclic time reference ??

cf. §**??** DIS-CON-TIN-U-OUS. **??**

17
ga
PRESENT
PER-
FEC-
TIVE
ff
LEX-
I-
CAL
CON-
STRAINT
Ak-
tion-
sart

WD

e.g.
nhäma
dharaŋan
guyaŋa
events
nhäma
ACHIEVE-
MENT
HAP-
PEN-
ING

cates.[20]

So far in this section, we have seen evidence of an organising principle in W. Dhuwal(a) where all verbal (inflecting) predicates lexically encode eventive (dynamic) situations which are temporally bound (*i.e.*, have endpoints). This principle is formulated in ().

verbal stems as inherently eventive in

re-
fer-
ring
to
a
presently-
holding
state.

Modelling
pred-
i-
ca-

‘caus’[21]
—
de-
rives
in-
flect-
ing
ver-
bal
pred-
i-
cates
with
ac-
cord-
ingly
event-
tive
se-
man-

tics.[22] Wilkinson1991 demonstrates the paradigmatic relation between these predicates. A number of examples of these verbal derivations are given in Table **??** below (predominantly from Wilkinson's description) and formal proposals for the contributions of a number of these operators are given in () be-

low.[23]

ii.

-THi $_{\langle\langle\varepsilon_s,t\rangle,\langle\varepsilon_\epsilon,t\rangle\rangle}$ = $\lambda P^s.\lambda e[\text{BECOME}(P^s)(e)]$

-THi 'inch' is a situation operator which takes a property of states $P^s \subseteq \mathcal{E}$ and returns the set of events BECOME $P^s \subseteq \mathcal{E}_\epsilon$. A semantics for -*ku*~-THa 'transitiviser'

-THu$_{\langle\langle\varepsilon_s,t\rangle,\langle e,\langle\varepsilon_e,t\rangle\rangle\rangle}$ = $\lambda y\lambda P^s.\exists e[\text{CAUSE}(y, \text{BECOME}(P^s)(e))]$

-THu 'tr' is a situation operator which takes a property of states P^s and returns

eat.I
prox.erg
mvtawy
morn-
ing//
‘I
ate
some
crab
last
night
and
this
morn-
ing
brought
some
back
for
Dad
so
that
he
can
eat
(some).’[DB 20190416]//

Ultimately,
we
can
think
of
the
tem-
po-
ral
in-
ter-
val
(*i.e.*,
range
of
pos-
si-
ble

[49]Cover2010).[25]

A consequence of an analysis of this type would be that, past-referring utterances with I-morphology must be understood "not [as locating] a situation at some definite point in the past, but only to offer it as relevant to the current situation", a semantic domain traditionally as-

re-
la-
tion
be-
tween
a
contextually-
provided
ref-
er-
ence
time
and
the
time
of
speech),
we
are
left
with
dis-
junc-
tive
lex-
i-
cal
en-
tries
for
each
of
I
and
III,
sug-
gested
be-
low
in
().
poly-
tns**A
pol-
y-
semy
treat-
ment
of
the
tem-
po-
ral
con-
tri-
bu-
tion
of
I
and
III
(to
be
re-
jected)**disjunct
$\mathbf{I}^{c} =$
$\lambda P.\exists t'\,\{\, t \in$
$today' \leftrightarrow$
$t \succeq$
$t*$
$.\, P(t')$ [NONPAST]
$t \prec$
$today' \leftrightarrow$
$\mu(t, t*) <$
$s_c.\, P(t')$ [RECENT PAST]
I
as-

grammaticalised in WD.

The translation of the Glaswegian semantics for tense systems of this type given in (polytns), then, appears to be descriptively sound. It is, however, undermotivated and inadequate insofar as it makes

([*e.g.*,][]Cable2013,Klecha2016,Hayashi2015.)[28]
That is, grammars that pay attention to temporal distinctions that are *more fine-grained*.

As an example, Gikũyũ ([kik] Bantu: Central Kenya) is described as having a system of 'temporal remoteness morphemes' (trms): four for the past and two for the future. For Cable2013, a trm is taken to constrain the instantia-

in human experience, indexing "restrictions of human memory, lifespan, or cultural elements such as myths" [544]Botne2012.

While this explanation is compatible with III's remote past functions, as described, this inflection is also felicitous with hodiernal (including immediate) past reference.

Cyclicity —

verbal predicates (stems) as properties of events — that is, they'll be taken to denote expressions of type $\langle \varepsilon, \langle s, t \rangle \rangle$. These are then taken to be the input of aspectual operators, which existentially bind the event variable, outputting a proposition (a characteristic function of indices.) Denotations for as-

i.[31]

A maximally underspecified lexical entry for I is given in () below. Here, I is taken simply to realise an INSTANTIATION relation between its prejacent — a set of indices related to the event's runtime — and a

tor.)[32]

NONFINAL INSTANTIATION is a subcase of the PROPERTY INSTANTIATION relation which holds only if the P-event **does not overlap** with the end of the reference interval i. This relation is defined in (nfi.def) and schematised in figure **??**.

time.[33] From this, we can simply derive the incompatibility of III with PRESENT-referring event descriptions: all nonfinal subintervals of $(today, i*]$ forcibly exclude $i*$.I can prove this as a theorem of $\mathcal{L}$ if necessary but it's pretty intuitive right? As a result, $\textsc{NfInst}(P, [today, i*), j)$ yields the TODAY PAST distribution for III.

The NON-TO-

$\forall k[ki_c\wedge$
$k \prec$
$j \rightarrow$
$\textsc{Inst}(P, \{i_c-$
$k\})]]$
$\exists j\left[j_{\textsc{fin}} \sqsubseteq i \wedge\right.$
$\left.\textsc{Inst}(P, j)\right]$
I
realises property instantiation but, via competition with the more specific form–III– its use is conventionally restricted to the relative complement of III's domain ***(i)***. That is, the relative complement of NONFINAL INSTANTIATION ***(ii)***. Therefore I is fe-

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 §??, however, *dhu*+II can also receive a range of modal necessity readings; suggesting a treat-

(neg-pres) 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 nega-

to lexicalise strictly **root** (non-epistemic) modalities [contra][123]VanderWal1992.

This section begins with a brief review of the "branching time framework" before providing an overview of the semantics of WD modal particles and forming a set of generalisations over the distribution of inflections II and IV in WD.

The branch-

‘Aunty
will
be
sit-
ting
on
the
beach
to-
mor-
row.’[AW 20190409]//limurru
dhu
l̪uk-
a
may-
pal
yalala
milmitjpa//
1d.EXCL
FUT
consume-
I
shell-
fish
later
evening//
‘We’re
hav-
ing
shell-
fish
this
evening.’[DG 20190417]//
dhu
‘fut’
and
other
flavours
of
modal
ne-
ces-
sitydhu-
nec
Way!
Nhe
dhu
gurruk-
ama
djoŋgu’!//
Hey!
2s
fut
carry-
I
hat//
‘Hey!
You
must
wear
a
hel-
met!’[DG 20190405]//dja-
mar-
rku̪li
dhu
yaka
wur-
raŋat-
jarra’**y-**
irr//
chil-
dren
fut
neg
cruel.inch-
I//

IV-
inflectionbalaŋ-
iv
nhe
bal-
aŋu
malkthu-
nha//
2s
irr
accompany-
IV//
‘you
should/would
have
gone
with
(him).’[DG 20190413]//
ŋarra
gana
guyaŋa-
na
watuy
bal-
aŋu
luka-
nha
choco-
late//
1s
ipfv.III
think-
III
dog.erg
irr
eat-
IV
choco-
late//
‘I’d
thought
the
dog
might/would
eat
the
choco-
late.’[DG 20190413]//
ŋarra-
nha
bal-
aŋu
luku
walala
mitthu-
na...
yurru
ŋarra
manymak-
thirri//
1s-
acc
irr
foot
3p
cut-
IV
but
1s
good-
inch.I//
‘They
would
have
am-
pu-
tated

Conversely, the concept of REALITY STATUS and the *realis/irrealis* distinction has also been roundly criticised by a number of authors, predominantly due the fact that few languages appear to grammaticalise the realis/irrealis contrast as a "binary morphological distinction" as well as the apparent heterogeneity

Palmer2001.[42]
[§
2.2]Port-
ner2018a
iden-
ti-
fies
two
broad
sets
of
in-
tu-
itions
about
the
se-
man-
tics
of
ver-
bal
mood
(pre-
dom-
i-
nantly
on
the
ba-
sis
of
the
INDICATIVE-
SUBJUNCTIVE
con-
trast
in
a
num-
ber
of
Eu-
ro-
pean
lan-
guages)
which
have
driven
an-
a-
lytic
work:
anal-
y-
ses
that
hinge
on
the
se-
man-
tics
of
**com-
par-
i-
son**
ver-
sus
**truth
in
a
des-
ig-
nated**

main.[43] On the basis of this generalisation, Gian2016 (2016), Giannakidou2020) a.o. take the subjunctive to indicate "non-veridicality" with respect to a proposition — that is, it indicates that there exists at least one world in a given set of worlds in which that proposition is not true (schematised in .)

clause[44]

Subjunctivity

The discussion above draws on the literature on VERBAL MOOD, an enterprise which attempts to capture intuitions about the meaning contrasts between the INDICATIVE and SUBJUNCTIVE categories of (almost exclusively)[45] European languages. In his comparison of IRREALIS and SUB-

ter.[46] This approach effectively formalises (some) ideas about the illocutionary force and sets of norms that apply to assertoric speech acts ([e.g.][]Williamson1996,Brandom1983 a.o.) by postulating a covert doxastic modal which is anchored by the actual world $i*$. $\sim_\alpha$ is a doxastic accessibility relation anchored to some individual

pred-
i-
ca-
tions
are
as-
sertable..
Conditionals:
not
sure
where
these
are
from
vi-
o-
let[**sbjv**]**wäniya**
ŋay
ŋun-
bal-
aya
bulu,
ŋayi
guyupiya//
go.IV
3s
that way
again
3s
die.IV//
'If
he
had
gone
that
way,
he
would've
died'//ochre[**cond**]**wäni**
ŋay
ŋun-
bal-
aya
bulu,
ŋayi
guyupi//
go.II
3s
that way
again
3s
die.II//
'If
he
goes
that
way,
he'll
die'//
The
pro-
posal
in
ac-
tion
maku
ŋarra
dhu
gi
nhäŋu
mukulnha//
epist
1s
fut
ipfv.
see.
aunt.acc//

situating the reference index in the COUNTERFACTUAL domain.

*A wrinkle

While much of this analysis emphasises distributional similarities between negative operators in WD and the modal particles *dhu, balaŋ(u)…* in view of assimilating the former into a "modal operator"

ness
built
into
the
se-
man-
tics
for
and
.
These
in-
flec-
tions
are
gen-
er-
ally
oblig-
a-
tory
in
ir-
re-
alis
con-
texts
(as
trig-
gered
by
modal
(incl.
neg-
a-
tive)
op-
er-
a-
tors)
in
view
of
gen-
eral
prag-
matic
prin-
ci-
ples
(*viz.*
Max-
i-
mize
Pre-
sup-
po-
si-
tion.[50])
The
anal-
y-
sis
of
the
same-
day
fu-
ture,
then,
is
based
on
the
hy-
poth-
e-

WD.[51] Additionally, Melanie Wilkinson observes that these effects appear to be variable in the Djambarrpuyŋu varieties spoken further east in Galiwin'ku (Elcho Island) and aren't manifested in *Miwatj* varieties more generally ([431, 359*ff*]Wilkinson1991; *pers. comm.*) These phenomena *are*, however, exhibited in the westernmost Yolŋu varieties

nhä-
wala
ŋarra
yothu'thaŋ'dja
mukulnhaya//
see-
pst
1s
child-
temp-
prom
aunt-
acc-
prom//
'When
I
was
young
I
saw/would
see
my
aunt.'[AL 20190522]//
Heath
also
in-
di-
cates
that
that
Rithar-
rŋu's
FU-
TURE
(cog-
nate
with
)
and
PAST
PO-
TEN-
TIAL
(no
WD
cog-
nate:
)[52]
cat-
e-
gories
ap-
pear
to
be
vari-
able
in
terms
of
modal
force.
This
is
in-
di-
cated
by
the
ex-
am-
ples
in
(Heath's
trans-
la-
tions,

observation is found in the fact that the neutralisation of mood distinctions in negated clauses is a phenomenon that is attested in a number of the non-Pama-Nyungan languages of northern Australia (Arnhem Land in particular).[53] Similarly, with the exception of the Maningrida family (Burarra, Gunnarpta Gurrgoni, Nakkara,

lier.[54] The absence of these features in other Pama-Nyungan (genetically related) languages suggests that this paraidgm reorganisation in the western varieties is a function of this stable contact with their Maningrida/Burarran neigh-

bours.[55,56]

A potential hypothesis underpinning this change is that, with the advent of cyclic temporal reference, — the erstwhile PRESENT tense — comes to fail to reliably encode a distinction between past and present temporal reference. Consequently, there is a greater reliance on other lexical material

a
num-
ber
of
gen-
er-
al-
i-
sa-
tions
which
he
takes
to
be
“cor-
re-
lat-
able”
with
mood
promi-
nence,
in-
clud-
ing
the
gram-
mat-
i-
cal-
i-
sa-
tion
of
tem-
po-
ral
re-
mote-
ness[57]
and
the
de-
vel-
op-
ment
of
a
fu-
ture/nonfuture
tense
dis-
tinc-

tion:[58] features exhibited (to varying degrees) in WD.