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Lend me your verbs: Verb borrowing between Jingulu and Mudburra

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ABSTRACT

We discuss two unrelated languages, Jingulu (Mirndi, non-Pama-Nyungan) and Mudburra (Ngumpin-Yapa, Pama-Nyungan), which have been in contact for 200–500 years. The language contact situation is unusual cross-linguistically due to the high number of shared nouns, tending to an almost shared noun lexicon. Even more unusually, this lexicon was formed by borrowing in both directions at a relatively equal rate. The aim of this paper is to extend the bidirectional noun borrowing results to the verbal systems of Jingulu and Mudburra to determine whether a similarly high rate of borrowing occurred, and if so, whether it was similarly bidirectional. The high degree of shared Jingulu–Mudburra verb forms was first observed by Pensalfini who claimed that Jingulu and Mudburra lexical verbs are almost entirely cognate across these two languages. This paper aims to quantify the degree of shared verb forms and determine the direction of borrowing between Mudburra and Jingulu. We first establish shared forms and then determine the origins of the forms based on a comparative database of verbs from geographic and phylogenetic neighbours (Wambaya, Gurindji and Jaminjung).

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Jingulu; Mudburra; borrowing; verbs; Australian languages

1. Introduction

In this paper, we discuss verb borrowings between two languages: Jingulu, which is a non-Pama-Nyungan language of the Mirndi family, and Mudburra, which is a Pama-Nyungan of the Ngumpin-Yapa subgroup. These languages are spoken in the Elliott region of the Northern Territory (Australia) and came into contact 200–500 years ago (Black 2007; Meakins & Pensalfini 2020; Pensalfini 2001). The language contact situation is highly unusual cross-linguistically. Not only do Jingulu and Mudburra share 65% of their nouns, but their noun lexicon is the result of relatively balanced bidirectional borrowing (Meakins & Pensalfini 2020; Pensalfini & Meakins 2019). Despite this large shared vocabulary, both languages have retained their individual grammar systems, leading Meakins & Pensalfini (2020) to dub this new type of situation “lexical convergence”, claiming that Jingulu–Mudburra bilingual speakers have one lexicon (largely), but two grammars in operation. This situation is the opposite to a “converted language”, which consists of a shared grammar and distinct lexicons (Bakker 2003; Ross 2006).

We follow Meakins & Pensalfini's (2020) methods by firstly establishing shared forms and then comparing them to other geographic and linguistic neighbours to ascertain direction of borrowing. We created a database of 452 entries where there are attested forms for both Jingulu and Mudburra. 182 Jingulu verbs (39.7%) appeared in Mudburra (§3). To determine whether a shared verb form originates in Jingulu or Mudburra, two other Mirndi languages, Jaminjung and Wambaya, and one other Ngumpin language, Gurindji, were considered, as well as some frozen morphology (§4). This approach revealed that 33% of these shared forms were borrowed from Mudburra to Jingulu, and 18% from Jingulu to Mudburra. (The direction of borrowing for the remaining 48.7% of shared forms could not be established.)

The rate of verb borrowing is higher than with other languages around the world, where the average of over 41 languages in the Leipzig Loanwords Project is 14% (Tadmor 2009: 61). The bidirectionality of the borrowings also sets this situation apart. Interestingly another case of unusual verb borrowings comes from another pair of Ngumpin and Mirndi languages: Gurindji (Ngumpin) has borrowed 48.8% of its nouns and 49.7% of its verbs. Moreover 50% of these verb borrowings originate in the Mirndi language Jaminjung (McConvell 2009: 795) (§5). In §6, we argue that the uninflected nature of many verbs in these northern Australian languages and the typological match between verb structures makes them particularly susceptible to borrowing.

2. Background to Jingulu and Mudburra borrowing and verbs

Jingulu is a language from the Mirndi family, spoken by the Jingili people residing in and around Elliott (Northern Territory, Australia). It is related to Wambaya and Jaminjung, and also neighbours Wambaya, but not Jaminjung, which is spoken in the Timber Creek area, some 800 kms to the north-west (see Figure 1). At some point around 200–500 years ago, the western neighbours of the Jingili people – the Mudburra people – migrated and settled amongst the Jingili people in what is now the Elliott region (Pensalfini & Meakins 2019: 447).¹ This was the beginning of a lasting union between the two groups. The Mudburra language is a member of the Ngumpin-Yapa subgroup of the Pama-Nyungan family. As Jingulu and Mudburra people intermarried and co-existed with each other (and to a lesser extent with Warlmanpa and Wambaya people to the south, and to an even lesser extent with Warumungu people further south), high levels of sustained bilingualism ensued, followed by high levels of lexical borrowing with little grammatical interference (Meakins & Pensalfini 2020). As a result, a dialect split occurred with Eastern Mudburra, now located around Elliott and Marlinja, and Western Mudburra, in the Top Springs region (Green et al. 2019: 1). Nowadays very few people who live around Elliott describe themselves as solely Jingili or solely Mudburra, instead either using the label 'Mudburra-Jingili' or referring to themselves as 'Kuwarrangu', a mixed cultural group (Pensalfini 2003: 7). Since the colonization of the area in the late 1800s, Kriol and English have been added to the mix, but will not be discussed in this paper.

¹Mudburra and Jingulu people talk about how Mudburra people came to the region, but the timing of and reason for this event are largely unknown. Because cognate forms in the two languages are largely identical with no phonological processes, etc. required to establish cognacy, we surmise that the timing must have been relatively recent.

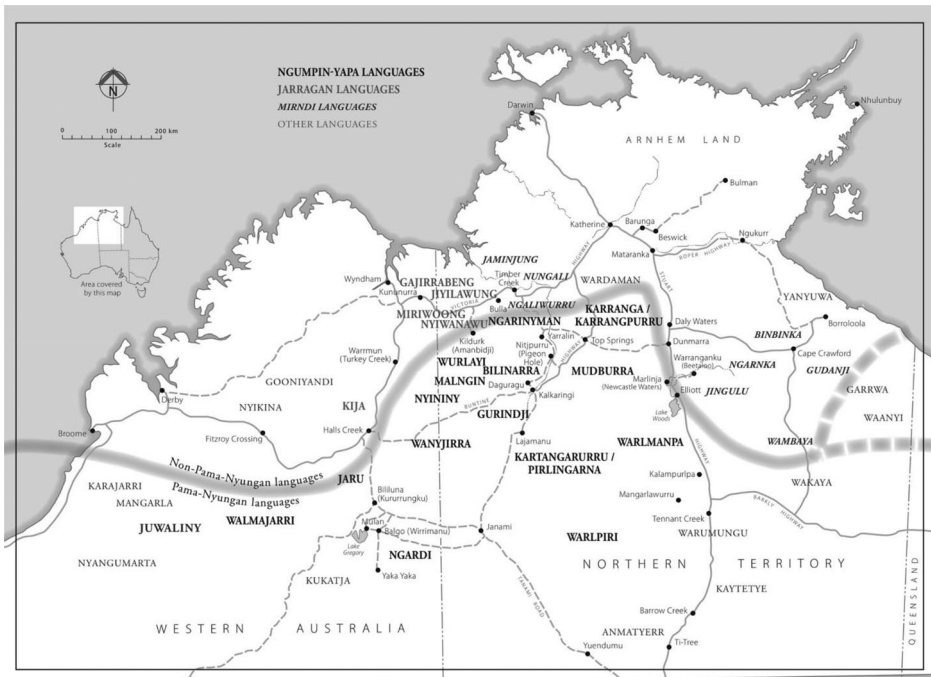


Figure 1 Ngumpin-Yapa and Mirndi languages, and surrounding unrelated languages (Meakins & Pensalfini, 2020: map drawn by Brenda Thornley 2017)

As Jingulu and Mudburra belong to separate language families, shared forms are due to borrowing rather than cognacy – with the exception of any potential proto-Australian forms.² The high degree of shared Jingulu–Mudburra verb forms was first observed by Pensalfini (2001: 391) who claimed that Jingulu and Mudburra lexical verbs are “almost entirely cognate across these two languages”.³ Using a 200-item wordlist containing both nouns and verbs, Pensalfini (2001: 393–394) found that Jingulu shares 40–71% of vocabulary with Mudburra, compared with only 21–34% with its closest phylogenetic and geographic neighbour, Wambaya.⁴ Using a larger set of 871 nouns, Pensalfini & Meakins (2019: 445) show that 65% of nouns are shared between both languages. Moreover, they establish that 32% of the shared nouns are borrowed from Mudburra to Jingulu, and 24% are borrowed from Jingulu to Mudburra. They determine direction of borrowing by comparing the 871 nouns with corresponding nouns from a number of related and neighbouring languages. The direction of borrowing was determined by whether the shared form is also found in another Ngumpin language or another Mirndi language.

²Note that the existence of proto-Australian is highly controversial (Koch 2014), but see a recent paper arguing for its existence (Harvey & Mailhammer 2017).

³Pensalfini was not using the word ‘cognate’ in the sense of ‘having a common genetic ancestor’ as used in Historical Linguistics, but (arguably inaccurately) as indicating that the forms came from one source while being agnostic as to whether that source was inheritance or borrowing.

⁴Black (2007: 67) finds that Jingulu shares 40–43% of a sample of basic nouns with Mudburra, based on a set of 114 Jingulu vocabulary items recorded by Chadwick (1975). This number is probably lower because Black attempts to separate established Mudburra borrowings from more recent language obsolescence effects.

In this paper, we turn our attention to Jingulu and Mudburra verbs to determine whether a similarly high rate of borrowing has occurred, and if so, whether it is similarly bidirectional. We extend the methods developed for the comparative noun dataset to a similar dataset of verbs in order to quantify the degree of shared verb forms between Jingulu and Mudburra and determine the direction of borrowing. We begin by discussing the structure and types of verbs in both languages, which are expressed in complex predicate structures in both Jingulu and Mudburra. Complex predicates are an areal feature of northern Australia and are found in Mirndi languages and Ngumpin-Yapa languages (Laughren 2010; McGregor 2002; Schultze-Berndt 2003). We argue in §5 that this shared structure has facilitated the borrowing of verb forms between the languages.

2.1 Jingulu verb structures

Complex predicates in Jingulu consist of several lexical elements: light verbs, coverbs, preverbs, plus adverbs. Firstly, ‘light verbs’ are verbal heads and the final element in verbal words (Pensalfini 2003: 58). Light verbs are the only obligatory morpheme in the verb, marking tense–aspect–mood (TAM) information, as well as motion. These verbs are called ‘light’ because they are both semantically bleached and phonologically bound. In fact, only three series exist: ‘go’ (motion away), ‘come’ (motion towards) and ‘do/be’ (motion neutral), constituting the smallest inflecting verb inventory of any of the north Australian languages with complex predicates (Schultze-Berndt 2003). Each series shows suppletion for tense, while a single set of habitual and irrealis forms covers all three sets. An example of each light verb is given in (1)–(3), which also show the person and number agreement prefixed to the light verb.⁵

- (1) Nga-**rruku** idajku.
1sg-went yesterday
‘I went (there) yesterday.’ (Pensalfini 2003: 59)
- (2) Ya-**miki** murdika-mbili.
3sg-came car-LOC
‘He came (here) in a car.’ (Pensalfini 2003: 59)
- (3) Kara-mbili nga-**ju**.
fog-LOC 1sg-do
‘I’m in the fog.’ (Pensalfini 2001: 388)

The coverb is uninflected and contributes semantic information to the bipartite verb. It is generally prefixed to the light verb (or agreement, if it is present), as for the example in (4). On rare occasions, it can be separated from the light verb, as shown in (5). Note that vowel harmony processes, triggered by the following bound subject pronoun, apply to the coverb in (4), changing underlying occurrences of [a] to [i]; this does not happen when the coverb does not serve as a prefix, as in (5). Coverbs can also be nominalized, as demonstrated in (6), which shows *jarrkaj* ‘run’ as both a coverb and a nominalized form. The uninflected nature of the coverb and the clear morphological boundary between the

⁵Glossing abbreviations: AUX=auxiliary, ABL=ablative, AWY=away, DECL=declarative, DIS=discourse, DIST=distal, dl=dual, EX=exclusive, FOC=focus, IMP=imperative, IPFV=imperfective, Inc=inclusive, LIG=ligature, LOC=locative case, n=neuter gender, NEG=negative, NMLZ=nominalizer, NOM=nominative case, NS=non-subject, pl=plural, poss=possessive, POT=potential, PROX=proximal, PRS=present, RSTR=restricted, SJB=subject, SBJV=subjunctive, sg=singular, TOP=topic, TWD=towards, 1=first person, 2=second person, 3=third person.

coverb and the light verb will become relevant to the discussion about the borrowability of different elements of the verb in §5.

- (4) Mindiyila **imbiyi**-mindi-ju Jingulu.
1dl.Inc.NOM speak-1dl.Inc-do Jingulu
'We two are speaking Jingulu.'
- (5) **Ambaya** ngaya nga-nu Warranganku-mbili.
speak 1sg.NOM 1sg.Inc-do Beetaloo-LOC
'I spoke about Beetaloo.' (Pensalfini 2003: 61)
- (6) Ngini-rni murdika angkurla **jarrkaja**-ju kiwirra, angkurla **jarrkaj**-ajkal-u.
DEM(n)-FOC car NEG run-do none NEG run-NMLZ-n
'That car doesn't run at all, it's not a goer.' (Pensalfini 2003: 72)

The complex predicate can then be supplemented with further verbal elements which are not morphologically bound to the verbal word, but also contribute to the semantics of the complex predicate. Preverbs are uninflected words which precede coverbs, as in (7) (Pensalfini 2003: 64, 66). Adverbs can appear anywhere in the clause and do not receive inflectional or derivational suffixes of any kind (Pensalfini 2003: 65–68). An example is given in (8).

- (7) Ngirri-rni darrangku dij bila-nga-nu.
this(n)-FOC branch snap be.located-1sg-did
'I snapped this branch.' (Pensalfini 2003: 66)
- (8) Wawa jungkali ngindaniki ya-ju.
child afar this(m) 3sg-do
'The boy is far away.' (Pensalfini 2003: 66)

2.2 Mudburra verb structures

Mudburra also has a complex predicate, in this case consisting of an inflecting verb and a coverb. The inflecting verbs are obligatory (a minimal clause consists of an inflecting verb and bound pronouns) and the coverbs are non-obligatory uninflected words which provide additional semantics to the clause. Mudburra has 40 inflecting verbs, which have TAM and associated motion suffixes. Inflecting verbs also exhibit leftwards prefixal or infixal reduplication which encodes additional aspectual information. The complex predicate template is given in (9). An example is given in (10) where the inflecting verb *kang* 'take' bears a subjunctive tense/mood suffix, infixal reduplication encoding imperfective aspect, and a 'towards' associated motion suffix. On its left is the coverb *jilij* 'ask', which provides the main semantics of the complex predicate. For simplicity's sake, we do not fully segment the inflecting verb in the rest of this paper.

- (9) (COVERB) (ASPECT~) VERB STEM – TENSE/MOOD (–ASSOCIATED MOTION) (COVERB)
- (10) Ngayu ba=yi jilij **ka**<ngka-ji>~**ng**-kala-rni.
1 DECL=1sg.NS ask <IPFV-LIG>~take-SBJV-TWD
'He should have kept coming and asking me.' (Osgarby 2018: 20)

Coverbs in Mudburra are similar to preverbs in Jingulu in that they are separate, uninflected words, which enrich the semantics of the complex predicate. In (11), *manyan* 'lie down' combines with *kayini* 'be' to give more information about posture and state to

mean ‘sleep’ (or ‘lie’ in other contexts). It can combine with other inflecting verbs which change its meaning or valency. For example, in (12), it combines with *kurnini* ‘throw’ to add an object to the clause, i.e. ‘lie something down’ (transitive) vs ‘lie’ (intransitive). The separability of coverbs is further demonstrated in (13) where *manyan* constitutes a non-finite subordinate clause with the ablative case-marker indicating the event expressed in the subordinate clause occurred before that of the main clause.

- (11) Nyangkajingka kuya=rni bingki, nginya=ma=rna **manyan** kayini.
 see.IMPV.IMP thus=RSTRcountry this=TOP=1sg.S sleep be.PRS
 ‘Have a look at the country, while I have a sleep.’ (Osgarby 2018: 83)
- (12) Ba=rna **manyan** kuyarru kanju.
 AUX=1sg.S lie throw.POT.AWY inside
 ‘I will go and lie it (the child) down inside (to sleep).’ (Osgarby 2018: 62)
- (13) Jalya dumanjimarnini, **manyan**-ngurlu=ma.
 now rise.IMPV.PRS sleep-ABL=TOP
 ‘He is getting up from sleeping now.’ (Osgarby 2018: 86)

Other coverbs, sometimes termed ‘tight nexus coverbs’ in the Ngumpin-Yapa literature, are much more restricted and can only combine with a single inflecting verb and are only found immediately preceding the inflecting verb (with bound pronouns and discourse clitics the only elements allowed to intervene) (Osgarby 2018: 22). Mudburra also has adverbs which are difficult to distinguish from coverbs and nominals, but do not form subordinate clauses (unlike coverbs) and do not express argument relations (unlike nominals). They also contribute further semantics to the complex predicate.

Because some of the verb terminology is the same, but refers to different parts of the complex predicates in Jingulu and Mudburra, Table 1 is provided to show the parallels between Jingulu and Mudburra verbal elements in terms of nexus and inflection.

3. Determining shared verb forms in Jingulu and Mudburra

The database of verbal elements used for this investigation contains 452 entries, which have both a Jingulu and Mudburra entry. Some 182 (39.7%) of these forms are shared. Shared verbs are often entirely identical in both form and semantics, or show differences which can be explained through the language’s phonological processes, derivational morphology or semantic shift. Examples of exact matches in terms of form, semantics and word class are given in Table 2.

Other forms do not match exactly in terms of phonology. We pay no heed to retroflexion, which is marginal in both languages, or word initial glides, which are variable in both languages. Consonants at the ends of verbs are also often not very salient, with the place and manner of articulation often difficult to determine. In these cases, there is often variation between different speakers or even within the speech of individual speakers. See Table 3 for some examples.

Other phonological differences require some more explanation. As Table 4 shows, consonant-final forms in Jingulu may correspond to either consonant- or vowel- final forms in Mudburra. The forms for ‘walk’ and ‘swell’ differ along lines that are reminiscent of Jingulu vowel harmony, with the marked harmonized variants appearing in the Mudburra form.

Table 1 Verb types in Jingulu and Mudburra according to degree of boundness

	Freest	↔	Most tightly	Bound
Jingulu	Adverb	Preverb	Coverb	Light verb
Mudburra	Adverb	Loose nexus coverb	Tight nexus coverb	Inflecting verb

Table 2 Examples of exact matches between Jingulu and Mudburra

English gloss	Jingulu	Mudburra
all together	warrb	warrb
lie down	manyan	manyan
previously	larrba	larrba
lift	wird	wird

Table 3 Shared forms in Jingulu and Mudburra with marginal phonological differences

English gloss	Jingulu	Mudburra
accidentally	(w) abunda	w aburnda
open, switch on, unwrap, uncover	(w) alk	w arlk
drag	(y) irriburd	y irribud
downward	jardurr	jardul
kneel	j id	j irr
break	k ij	k ird
spank	w irdik	w idid

Table 4 Shared forms in Jingulu and Mudburra with significant phonological differences

English gloss	Jingulu	Mudburra
women dancing	jujurrk-	jujurki
swim along	kalyarrum-	kalyarrumi
tie	(y) ibij-	d ibid
dent, squash	jambilk	jamburk
swallow, pour	kunjkuw-	kunyki
stretch, straighten	(w) ulyulyu mil-	w ilyiwilyi
walk	(w) anym-	winymi
swell	lungbarr-	lungbirri
vomit	kakarr-	kakarra
rear up head	mardkarr-	mardkarra

Yet the forms for ‘vomit’ and ‘rear up head’ show that this is not consistent, or we would expect the Mudburra forms to be *kikirri* and *mirdkirri*.

Other shared forms only differ in terms of morphology. As Table 5 shows, in some cases, Mudburra has a nominalized form using *-bari* or *-ngarna*, but no documented equivalent coverb which the nominalized form has derived from. It is likely that the coverb did exist, but is no longer used; or perhaps exists, but is undocumented. In other cases, the Mudburra equivalent has a frozen Mudburra continuative suffix *-warra* or *-karra*. Other endings do not appear to be of Mudburra origin, but originate in Jingulu coverbs, as shown in *warrkuji* ‘scratch’ and *kardkumili* ‘strangle’, providing clues to the direction of borrowing.

The additional [yi] on the Mudburra form for ‘understand’ might be the result of borrowing the Jingulu form attached to the motion-neutral future tense light verb *-yi* (*jang-kijbiyi* is a legitimate Jingulu word meaning ‘she or he will (come to) understand’). While

Table 5 Shared forms in Jingulu and Mudburra with morphological differences

English gloss	Jingulu	english gloss	Mudburra
trap, jam	mad baj- (pv + cv)	tight	mad bari (n)
soften	mamam (pv)	soft	manman bari (n)
close	kajub (adv)	close by	kajub ari (n)
lazy	dangbarr- (cv), dangbarra (pv)	lazy person	dangbarr angarna (n)
flow	larlarl- (cv)	flow	lurlul warra (cv)
scratch	(w)arr kuj- (pv + cv)	scratch	warr kuji (cv)
strangle	kardku mil- (pv + cv)	strangle	kardk umili (cv)
understand	jangkijb- (cv)	understand	jangkij iyi (cv)

Table 6 Shared forms in Jingulu and Mudburra which differ only in a consonant ending

English gloss	Jingulu	Mudburra
bail	larlubaj-	larlub
wash, rub	wulukaj-	wuluk
send	burdb-	bud
dry out, extinguish	jibijb-	jibij
flatten out leaves for a bed	jalyum-	jalyu
pack up	jurlujurlum-	juluj

Table 7 Shared forms in Jingulu and Mudburra with unclear frozen morphology

English gloss	Jingulu	Mudburra
today, now	jaly angku	jalya
until dawn	kardarr ukuji	kardarru
cross	karl wadaj bil-	kal
breathe	ngard juw -	ngard
want	ngurr kuw -	ngurr kiyi
sneak away	(w)ul kuj -	wurdkurdkuli

the borrowing of full verbal words from Jingulu is the exception, this is not the only case (see also *duw(a)* in Table 8).

Other frozen morphology can be seen on some Jingulu verb forms which have an additional consonant at the end compared to the Mudburra form. Many of these endings can be attributed to old verb forms which have become fused to the stem. Some examples are given in Table 6. Trueman (2006) undertook a detailed study of consonant-final coverbs in Jingulu, and identified final /m/, /y/ and /k/ on many Jingulu coverbs as remnants of historical morphemes, possibly verbalizers, verb classifiers or auxiliaries. Root-final /b/ and /j/ may also be the remnants of historical morphemes, although the case for these is weaker.

Other differences in shared verb forms probably relate to other frozen morphology, but we are unable to offer analyses of the origins of the forms (see Table 7). The difference in forms for 'now' could be explained as allative suffixation, which often marks location in time, except that the Jingulu allative is *-ngka*, not *-ngku*. The Jingulu forms for 'breathe', 'until dawn' and 'sneak away' could be explained as fusion with the (synchronously attested) generic coverbs *juw-* ('motion, movement') and *kuj-* ('through, go through').

Some of the shared cognates involve forms from different word classes. Examples of noun and verb matches were given in Table 5. Two shared verb forms involve an inflecting

Table 8 Shared forms in Jingulu and Mudburra with different word classes

English gloss	Jingulu	Mudburra
dig with an implement	langa nungk- (pv + cv)	langanini (iv)
leave behind	ngardb- (cv)	ngardanganini (iv)

Table 9 Shared forms in Jingulu and Mudburra with semantic differences

English gloss	Jingulu	english gloss	Mudburra
tease, annoy, provoke	kijikijib-, kijikum-	tickle	kijikijik
close eyes	kamamurri	blind	kamamurru
hooked up on a spear	jaling	get on, put on	jalingak
slither	nyurrun bak-, nyurrunbi	shed skin of snake	nyurru
first	mimi	maternal grandfather	mimi
think	lang-	ear	langa

verb from Mudburra – *langanini* ‘dig’ and *ngardanganini* ‘leave behind’ (Table 8).⁶ These are the only examples in the database where an inflecting verb has a cognate in the other language.

Finally, some verbs match in form, but differ in semantics. Various examples of semantic shifts are given in Table 9. Nonetheless the semantic differences are related. For example, *kijikijib-* means ‘tease’ in Jingulu and *kijikijik* means ‘tickle’ in Mudburra. Clearly the action of tickling can be used to tease or annoy someone. Other connections are not that straightforward. The verb *nyurrun*, meaning ‘slither’ in Jingulu and ‘shed skin’ in Mudburra, relates to the action of snakes, both in terms of movement and shedding skin, which is done while slithering. The verb *langa* means ‘think’ in Jingulu and ‘ear’ in Mudburra, which is a well-known polysemy in Australia. The only form which is perhaps controversial is *mimi*, meaning ‘first’ in Jingulu and ‘maternal grandfather’ in Mudburra. Nonetheless, polysemies between grade verbs and adjectives, and kin terms are well established in Australia; for example the polysemy between ‘big’ and either ‘mother’ or ‘father’ is widespread.

Having established the set of 182 shared verb forms between Jingulu and Mudburra, we now turn our attention to determining the direction of borrowing.

4. Determining the direction of borrowing for shared forms

In order to determine the direction of borrowing for each form, we used the methodology we developed for nouns by comparing geographic and phylogenetic neighbours. For the verbs, we compared Jingulu and Mudburra with Wambaya (Mirndi, contiguous with Mudburra and Jingulu) (Nordlinger 1998), Gurindji (Ngumpin, contiguous with Mudburra) (Meakins et al. 2013) and Jaminjung (Mirndi, not contiguous with Mudburra or Jingulu) (Jones et al. 2011; Schultze-Berndt & Simard 2015), largely because the documentation of verbs in the other dictionaries is limited.⁷ In the case of nouns, we also compared Jingulu and Mudburra with Jaru (Ngumpin, not contiguous with Mudburra or Jingulu)

⁶The endings *-nini* and *-nganini* are Mudburra verb inflections which we are not glossing here for simplicity’s sake.

⁷Mark Harvey (per. comm.) also suggests that Jingulu and Mudburra might share a word because they had each independently acquired it from a third source. In the case of one of the forms, *dirrk* ‘tie up’ is found in both Wardaman *dirrgba* and Wagiman *dirrk* as well as Jaminjung and Gurindji. Both Jingulu and Mudburra might independently have acquired it from Wardaman. We note however that Wardaman is not contiguous with Jingulu or Mudburra, so it seems more likely that it was borrowed into Gurindji from Jaminjung, and then into Mudburra and Jingulu.

Table 10 Hypotheses based on shared forms in Jingulu, Mudburra and their closest relatives

	Jingulu MIRNDI	Mudburra NGUMPIN	Gurindji NGUMPIN	Wambaya MIRNDI	Jaminjung MIRNDI
Pattern 1 Mudburra → Jingulu	✓	✓	✓	X	-
Pattern 2 Jingulu → Mudburra	✓	✓	X	✓	-
Pattern 3 Jingulu → Mudburra	✓	✓	X	-	✓
Pattern 4 Unclear, more data required	✓	✓	✓	X	✓
Pattern 5 Unclear, more data required	✓	✓	X	X	X
Pattern 6 Unclear, more data required	✓	✓	✓	✓	✓
Pattern 7 Unclear, more data required	✓	✓	✓	✓	X

(Wrigley 1992; Deegan et al. 2010), Warlmanpa (Yapa, contiguous with Mudburra and Jingulu) (Nash 2003) and Warumungu (Pama-Nyungan isolate, contiguous with Warlmanpa and Wambaya, having had limited contact with Jingulu and none with Mudburra) (Simpson 2014) (see Figure 1). The shared verb forms and hypotheses are summarized in Table 10.⁸

It was assumed that if a form that is shared between Jingulu and Mudburra which is also present in Gurindji, but not Wambaya or Jaminjung, the direction of borrowing must be from Mudburra to Jingulu (Pattern 1). In contrast, if Jingulu and Mudburra have a matching form which is also present in Wambaya or Jaminjung but not Gurindji, the direction of borrowing must be from Jingulu to Mudburra (Patterns 2 and 3). Where the match is between Mudburra, Jingulu, Gurindji and Jaminjung, the direction of borrowing is not clear (Pattern 4). Verbs could have gone into Jingulu via Mudburra from Ngumpin, but the reverse scenario is also possible. Verbs could originally have been from Mirndi in which case the direction of borrowing is Jingulu → Mudburra and Jaminjung Gurindji. Patterns 5, 6 and 7 also shed no light on the direction of borrowing. For all of the unclear patterns, we consider other diagnoses of direction, as discussed in §4.3.

4.1 Mudburra → Jingulu (Pattern 1)

Verbs transferred from Mudburra to Jingulu can be identified when there is a corresponding form in Gurindji, but not in Wambaya. Of the 182 matches, 49 (27%) verbs followed Pattern 1, indicating a Mudburra to Jingulu borrowing direction. This pattern is exemplified in Table 11.⁹

4.2 Jingulu → Mudburra (Patterns 2 and 3)

Verbs transferred from Jingulu to Mudburra can be identified when there is a corresponding form in Wambaya or Jaminjung, but not Gurindji. Of the 182 matches, 22 (12%) verbs followed Pattern 2, and five (2.75%) followed Pattern 3, indicating a Jingulu to Mudburra borrowing direction. Examples are given in Table 12 (Pattern 2, shared with Wambaya and not Gurindji) and Table 13 (Pattern 3, shared with Jaminjung and not Gurindji).

⁸Dashes refer to the fact that the data are irrelevant to the hypothesis.

⁹Note that different Australian languages have different orthographic conventions for the stop series, however there is no voicing distinction in these languages, therefore \b, d, g\ represent the same stops as \p, t, k\.

Table 11 Examples of Pattern 1 – Mudburra to Jingulu borrowing direction – as evidenced by shared form with Gurindji

English gloss	Jingulu	Mudburra	Gurindji	Wambaya
all night, until dawn	kardarrukuji	kardarr	kartarr	baralala, ngamalarrinji, ngamalarrangga
dry out, extinguish	jibijb-	jibij	jipij	mungami, banngarrardi, durnajarri, jaji
happy (mood)	kilkil	kilkil	kilkila	marrugbi, ngunkarri
swing, tip	jalalang bil-	jalalang	jarlarlang	gurlurlardi, munkardi

Table 12 Examples of Pattern 2 – Jingulu to Mudburra borrowing direction – as evidenced by shared form with Wambaya

English gloss	Jingulu	Mudburra	Wambaya	Gurindji
be lazy	dangbarra	dangbarrangarna	dangbarra/danbarra	turrwiwi, kirlinyanung, turrwiwipkaji, pujarl
swell up	lungbarr-	lungbirri	lumbilumbi	lup, mupiji, pirnpirn, rimpu, rumpa, tuwu
happy	jingkarli	jingkarli	jinggali	kurlu, marrunyu, parlwarp, puntut, turr
hunt away	warlkum-	warlkumi	wankuma	wiyarlp, wup

Table 13 Examples of Pattern 3 – Jingulu to Mudburra borrowing direction – as evidenced by shared form with Jaminjung

English gloss	Jingulu	Mudburra	Jaminjung	Gurindji
tie up	dirrk baj-	dirrk	dirrg	mijirrk, tipit, tingkit
away, over there	diyaj	diyaj	diyalg	pakara, walawirriwirri, yirrpak
quietly, with care	marriya	marriya	miyarra	yamak, muk

4.3 Unclear borrowing direction (Patterns 4–7)

Of the 182 matches, 106 (58.2%) followed Patterns 4–7, which are shared verb forms that are not revealing in terms of determining borrowing direction. In order to try to resolve some of these cases, we looked to a more distant Ngumpin language, Jaru (§4.3.1), and examined some of the frozen verb morphology (§4.3.2). These are exemplified in Tables 14–17. Note that at this stage, we are not considering appearance of additional potentially morphemic material. We will return to these in §4.3.2 below.

4.3.1 Looking further afield to Jaru

In order to determine the borrowing trajectories for more verbs, we searched for equivalent coverbs in Jaru, which is a Ngumpin language, non-contiguous with Jingulu and Mudburra.¹⁰ As shown in Table 18, we found three additional forms shared by Jingulu, Mudburra and Jaru, suggesting a Mudburra → Jingulu direction of borrowing.

4.3.2 Frozen morphology as evidence for direction of borrowing

Frozen morphology also provides some evidence for borrowing. For example, Mudburra *warrkuji* ‘scratch’ is likely to have been borrowed as a fused form of the Jingulu preverb + coverb combination *warr kuj-*. Conversely, the Jingulu verb *markarr* ‘rear up head’ is likely to have been borrowed from Mudburra *markarra* with the continuative suffix –

¹⁰We also searched through the Warlmanpa dictionary; however, matches are inconclusive because Warlmanpa has been in contact with Mudburra and Jingulu for a long time. In this respect, it is difficult to differentiate inheritance from borrowing.

Table 14 Examples of Pattern 4 ($n = 27$, 14.8%)

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung
lift	wird	wird	wirt	gayanggami	wirr
blow	buwub	buwub	pumip	malinbunu, bardbi, burlurlandu	buwu
light	dilu	dilu	tirli (flame)	lajjarri, gunggala	dililib
prick, pierce	durrb	durrb	turp	dudiyarri, darrgulumi, jimbulu	durrb

Table 15 Examples of Pattern 5 ($n = 67$, 37%)

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung
stick out	wurd	wurd	jik, pit	giwannga, warladi	tharmarrb, barnang, thabba
slip over	barany	barany	kuriny	wurdujuju, garlarli, damanyimi	bilili, burdbaj, jaraj, yirrirri, jarajban, jurug
Buried, covered	lakud	lakurd	yurrurt, jipij	guliyarri, jaji	mirrb, mujud, murl
Lie down, sleep	manyany	manyany	makin	ganbalaga, jagina, juruwala, dudu, gulugbi	mugurn

Table 16 Examples of Pattern 6 ($n = 9$, 5%)

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung
open, switch on	walk	warlk		warlp, walp	walg
pull, drag	wurr	wurr, wurruji, wuruburdkarra		wurr, wurrngbi, wurrudbanyi, wurrudbanyi, wurrudbi	wirr
suck, kiss	bunybuny-	bunybunyi		puny, bungbungbi	buny

Table 17 Examples of Pattern 7 ($n = 3$, 1.65%)

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung
angry, mad, hate	jirdad	jirdad	jirtart	jirdalyi	wananarra, wirrij
warm	ngarra, ngarrabi-	ngarrab	ngarrap	ngarrangarra	bundurrwari
twice	kujkarrijanama	kujarra	kujarrawurt	gujarra	jirramug

Table 18 Determining Mudburra → Jingulu borrowing direction through shared forms with Jaru

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung	Jaru
blow	buwub	buwub	pumip	malinbunu, bardbi, burlurlandu	buwu	buwu
lie, sleep	manyany	manyany	makin, warnan	ganbalaga, jagina, juruwala, dudu, gulugbi	mugurn	manyany
hooked up, spear	jalng	jalngak	jalk	dalyagani	tha[r]lg	jalg

karra frozen. Table 19 gives examples where a word consisting of more than one morpheme in the source languages has been borrowed as a single morpheme in the target language.

As mentioned at the beginning of §3, Trueman (2006) demonstrated that many Jingulu coverb forms show evidence of a former morpheme that is synchronically unanalyzable, appearing now only as the final consonant of the monomorphemic coverbal root. Where the Jingulu form differs from the Mudburra only by the final consonant (discounting predictable phonological variations such as retroflexion, as discussed in §3), it seems

Table 19 Determining borrowing direction through frozen morphology

English gloss	Jingulu	Mudburra	Direction
scratch	(w)arr kuj-	warr kuji	J → M
strangle	kardku mil-	kardku mili	J → M
swallow, pour	kunj kuw-	kuny ki	J → M
rear up head	mard karr-	mard karra	M → J
wait worrying	dirdi karr-	didi karra	M → J
breathe	ngard juw-	ngard	M → J

likely that Jingulu borrowed the Mudburra form and added the erstwhile morpheme to it. The other logical possibility, that Mudburra borrowed the form and removed a final consonant, seems highly unlikely as there would be no phonological motivation for this reduction, nor would it apply regularly. This also suggests that Jingulu borrowed the verbal form at a time when the historical elements in question still had status as morphemes in Jingulu, and still combined productively with coverbs. In some cases, demonstrated in Table 20, the existence of the form without the final consonant in Gurindji confirms this analysis.

In other cases, however, the existence of the form in one of the Mirndi languages, but not in Gurindji suggests, by our initial criteria, that the form was borrowed from Jingulu into Mudburra, as demonstrated in Table 21.

In these cases, we would have to propose that the form in question was borrowed into Mudburra prior to the fusion of the final consonants onto the Jingulu stems. Given that the languages have been in contact for several centuries, it is likely that there were borrowings both before and after the Jingulu fusion event, which unfortunately means that we cannot use the presence or absence of these elements as independent evidence of direction of borrowing. Thus, forms of the sort in Table 22 remain unclear as to their provenance. The Jingulu form *jurlujurlum-* 'pack up' clearly involves both reduplication and suffixation of the former morpheme *m*, which could have applied to a form inherited from Mirndi or to a loan from Mudburra.

4.4 Summary of figures presented

Table 23 summarizes the data on verb borrowing directions. While we can only determine the direction for just over 50% of the data, the proportions of Mudburra → Jingulu (31.7%) and Jingulu → Mudburra (18%) reveal (i) bidirectional borrowing, but (ii) less than the

Table 20 Determining M→J borrowing direction through frozen verb morphology

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung	Direction
bail	larlubaj-	larlub	larlup	nguya, galima	laburru	M → J
wash, rub	wulukaj-	wuluk	wulyuk	darrugbi, lingba, wagardbi, garuga, nimijbi	bulugaja	M → J
Dry out, extinguish	jibijb-	jibij	jipij	mungami, banngarrardi, durnajarri, jaji	malyab (extinguish), jinku (put down)	M → J
send	burdb-	bud	yujuk, jalak	garnarnda, gugujardi	diyalg, dalag, yininy, wirnany	M → J
mix	(w)arnjirnm-, (w)arnjarnjirnm-	wanjirr	wanyjirr	ijjardi, mujumi	balgi, murruny	M → J

Table 21 Determining J→M borrowing direction through frozen verb morphology

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung	Direction
walk	(w)anym-	winyimi	kalu	banymi	galu	J → M
feed	bundurrum-	bundundurra (satiated)	kurrjarrp, tanku, jirlmi (satiated)	bundurra, bundurru, bundurrurna, bundurrijibi, bundurrumi	darnku	J → M
teach	mirrardam-	mirrarda	pinak, pinarrik, latalata (teach), lirtijlirtij	mirridimi, dirndirrinymi	yurg	J → M

Table 22 Unclear borrowing direction with Jingulu verbs containing frozen verb morphology

English gloss	Jingulu	Mudburra	Gurindji	Wambaya	Jaminjung	Direction
pack up	jurlujurlum-	juluj	juluj (carry under arm)	ngunjulu (carry on hip), lujuluju (coolamon)	jurluj	Unclear
hurt	lilingb-, lilynib-	lilinkarra	warrngun, yakayaka	yagayaga, murri(jibi)	wuthma, wunhma, wunyma, yarri, yakkarayib, balbalya	Unclear

Table 23 Summary of borrowing direction

Direction of borrowing	<i>n</i>	%
Mudburra → Jingulu	60	33%
Jingulu → Mudburra	33	18%
Unclear	89	48.9%

nouns, which reflects cross-linguistic trends for nouns to be borrowed at higher rates than verbs.

5. Verb borrowing in cross-linguistic perspective

Verbs and their susceptibility to transfer have received a lot of attention in the contact literature due to their predicative function. It is widely claimed that verbs are borrowed less often than nouns (Aikhenvald & Dixon 2007; Haugen 1950; Muysken 1981; Singh 1982; Thomason & Kaufman 1988; Whitney 1881) and similar observations are made in the code-switching literature (see Matras 2009: 133 for a good summary). This claim is upheld quantitatively by the Leipzig Loanword Typology project, which is a wide-scale study of borrowing using 1,460 lexical items in 41 languages to measure transfer rates along a number of semantic and word class dimensions (Haspelmath & Tadmor 2009). This study found that nouns were by far the most borrowed word class, making up 31.2% of total loanwords, compared with 14% for verbs (Tadmor 2009: 61). Thus overall, there is a 2:1 ratio of noun vs verb borrowings in their database. In the case of Jingulu–Mudburra, the numbers are higher than this database, particularly for Mudburra to Jingulu verb borrowings: 33% of verb borrowings are from Mudburra to Jingulu and 18% are from Jingulu into Mudburra.

Where verbs are borrowed, different strategies can be found cross-linguistically (Moravcsik 1975; Muysken 2000: 184–220; Wohlgemuth 2009). A borrowed verb stem may (i)

receive native inflections directly, (ii) be derived before receiving native inflections, (iii) be combined in a light verb construction or (iv) be inserted into the recipient language clause with no modifications. To begin with, many English verbs have been borrowed into German as a bare stem and inflected like a normal German verb stem. English verbs are borrowed into the mixed verb class (not the strong or weak verb class) regardless of which class the equivalent German verb belongs in.

- (14) Der Flug wurde **gcancelt.**¹¹
 The flight become cancel-PST.PERF
 'The flight will be cancelled.'
- (15) Ich habe das Programm **gedownloadet.**
 1SG.S have the programme download-PST.PERF
 'I have downloaded the programme.'

Secondly, verbs are often integrated into a recipient language using verbalizing derivation. For example, English/Kriol verbs which are borrowed into Pitjantjatjara are treated as nouns and are derived. Intransitive English/Kriol verbs are inserted using *-ri* 'inchoative' and transitive English/Kriol verbs are inserted using the Arandic *-ila* 'transitivizer' (Langlois 2004: 141–146; per. comm. Myf Turpin), as in (16) and (17). Warlpiri uses similar strategies (Bavin & Shopen 1985: 82).

- (16) Nyitayira tjurta **witjila-ri-nga.**
 Boy PL.NOM whistle-INCHO-PST.IPFV
 'The boys all whistled.' (Langlois 2004: 143)
- (17) NAME-lu **tjiitam-ila-rnu** Utju-nya.
 NAME-ERG cheat-TR-PST NAME-ACC
 'An unnamed team cheated Utju.' (Langlois 2004: 142)

The third strategy is the use of light verb constructions to integrate loan verbs (Muysken 2000: 193–205). For example, in Bilingual Navaho, transitive English verbs require the use of a conjugated Navajo 'make' verb as an auxiliary, as shown in (18). Similar strategies are found in the north Australian non-Pama-Nyungan language, Murrinhpatha to integrate English verbs (Mansfield 2016). These are often minor use constructions which are utilized with borrowed loan verbs (Heine & Kuteva 2005).

- (18) Bi-face **clean** doo bee **áshlééh** da.
 3POSS-face clean not 3INST 1SG.make not
 'I didn't wash his face.' (Schaengold 2004: 53)

Finally, some verbs may be borrowed with no modifications. In Sranan–Dutch code-switching, Dutch verbs are inserted either as a bare form, as in (19), or as a non-finite form.

- (19) Tu Brook Benton no kan **bestaan**
 two Brook Benton NEG can exist
 'Two Brook Bentons cannot exist.' (Bolle 1994: 83, cited in Muysken 2000: 187)

¹¹These examples come from the Wikipedia *Denglisch* page <<http://de.wikipedia.org/wiki/Denglisch>>.

Coverbs are also borrowed between languages across northern Australia with no modifications. Gurindji (Ngumpin) has borrowed 50% of its verbs, with half of these originating in Jaminjung (Mirndi) (McConvell 2009: 795). Almost all of these verb borrowings are coverbs (798–799). Warndarrang and Marra share 24% of their coverbs, and Ngandi and Ritharrngu share 16% of their coverbs (Harvey 2012: 332–333).

Interestingly, this borrowing rate for Gurindji remains constant to the present day. Recent work on the incorporation of Kriol nouns and verbs into Gurindji in the creation of the mixed language Gurindji Kriol shows nouns are only borrowed at an insignificantly higher rate (1.36) than verbs (Bromham et al. 2020). The integration of Kriol verbs into the coverb slot in other north Australian languages is also common. In (20), the Kriol verb *wajim* ‘wash’ has replaced a Bardi coverb, and in (21) the Kriol verb *skretjimat* ‘digging’ has been inserted in the place where a Jaminjung coverb would be found in a monolingual clause. Hudson (1978: 55) also gives a number of examples of Kriol verbs being used in place of Walmajarri (Ngumpin) coverbs.

(20) **Wajim** i-na-ma-na.
 wash.TR 3SG-TR.PST-make-PST
 ‘S/he washed it.’ (Bower per. comm. cited in Wohlgemuth 2009: 6)

(21) Wardany-ni=ma **skretjimat** yirra-ngu, nothing.
 hand-ERG=SUBORD dig.TR.CONT 1PL.EX:3SG-get.PST no.avail
 ‘We were digging with our hands to no avail.’ (Schultze-Berndt 2007: 377)

What makes coverbs so highly susceptible to borrowing and being replaced? Meakins & O’Shannessy (2012) suggest that the perfect storm of their lack of inflection, their separability from inflecting verbs and a typological match between source and recipient languages in terms of their complex predicate structure facilitates transfer of coverbs between languages. In particular, structural congruence between the languages in contact has been considered a crucial factor in the transferability of morphemes for some time. For example, Weinreich (1974 [1953]: 31) considered the transferability of morphemes to be dependent on typological equivalences between the source and recipient languages. This idea has been reformulated in the borrowing literature, for example Thomason & Kaufman (1988: 72–74), Field (2002: 41–44) and Sebba (1998). Meakins (2010: 28) argues that, for Gurindji and Kriol, Gurindji coverbs and Kriol verbs are considered congruent due to their lack of inflection, and their separability from verbal inflectional elements – the TAM auxiliary in Kriol and the inflecting verb in Gurindji (much like the Mudburra inflecting verb, see §2.2). Examples (22) and (23), which have (serendipitously) sequential, parallel clauses, demonstrate this congruence. In (22), the matrix language – here defined as the language providing the verbal inflection – is Gurindji. The Gurindji coverb *kirkak* ‘clean’ is used in the first clause and the Kriol verb *klinim* replaces it in the second clause. Similarly, in (23), where Kriol provides the matrix, the Gurindji coverb *pirrkap* ‘make’ replaces the Kriol verb *meikim* in the second clause.

(22) **Kirkak** ngu-rnalu ma-na-na, kuya-ngku
 clean AUX-1PI.EX do-IMPF-PRS thus-ERG

 kuya-ngku na ngu-rnalu ma-na-na **klin-im**
 thus-ERG DIS AUX-1PI.EX do-IMPF-PRS clean-TR

'We clean it off like this ... Like this we clean (off the bark).' (Meakins 2010: 28: Gurindji–Kriol code-switching, Gurindji matrix language)

- (23) Maiti wi **meik-im** warlu, faya wi **pirrkap** jeya
 might 1PL.S make-TR fire fire 1PL.S make there
 'Then we might make a fire, a fire we make there.' (Meakins 2010: 28: Gurindji–Kriol code-switching, Kriol matrix language)

In the next section, we discuss the typological reasons behind the high percentage of shared verb forms in Jingulu and Mudburra. We consider modern code-switching data to illustrate the mechanisms behind the borrowing of verbs between Jingulu and Mudburra.

6. Mechanisms of verb borrowing between Mudburra and Jingulu

In this section, we consider three potential explanations for verb borrowings between Jingulu and Mudburra:

- (1) lack of inflection;
- (2) their separability from inflecting verbs; and
- (3) typological match between source and recipient languages.

6.1 Lack of inflection

The degree of inflection does seem to be relevant to whether verbs are borrowed between Jingulu and Mudburra. None of the three Jingulu light verbs, which encode TAM and motion categories and are inflected for person and number agreement, have been borrowed into Mudburra. Similarly, no Mudburra inflecting verbs or verb roots have been borrowed into Jingulu (see also Table 8). Interestingly, though, two Mudburra inflecting verbs have been created by borrowing Jingulu preverbs and/or coverbal roots into different Mudburra inflecting verb classes. None of these verbs have cognates in other Ngumpin-Yapa languages, such as Warlpiri, Warlmanpa and Gurindji (although Ngardi does have *la-* 'dig with an implement'), see Table 24.

6.2 Separability from inflecting verbs

Separability from the inflectional element seems to have little to do with whether a verbal element is borrowed or not (note that we ignore the nouns here which have become verbs). If we consider the shared forms together, there is little difference between how many Jingulu coverbal roots (30.2%) and preverbs (40.2%) are shared with Mudburra (Table 25). Recall from §2.1 that the coverbal roots are attached to the light verb and the preverbs are independent words.

In terms of Mudburra → Jingulu verb borrowings, Mudburra coverbs are borrowed into the Jingulu adverb, coverbal root and preverb slots. More Mudburra coverbs are borrowed into independent word slots, i.e. adverbs and preverbs, but nonetheless coverbal root slots are still a target (Table 26). In terms of Jingulu → Mudburra verb borrowings, Jingulu adverbs, preverbs and coverbal roots are all borrowed, but unexpectedly, the most bound of these verbs, the coverbal roots, show the highest propensity to be borrowed (Table 27).

Table 24 Mudburra inflecting verbs created through Jingulu co/preverb borrowing

English gloss	Jingulu	Mudburra
dig with an implement	langa nungk- (pv + cv)	langanini (iv)
leave behind	ngardb- (cv)	ngardanganini (iv)

Table 25 Proportion of different types of verbs shared between Jingulu and Mudburra

Type of verb (in order of separability)	Jingulu		Mudburra	
	<i>n</i>	%	<i>n</i>	%
adverb	50	27.5	10	5.5
preverb/coverb	75	41.2	143	78.6
coverbal root	55	30.2	–	–

Table 26 Mudburra → Jingulu *n*=60

Type of verb (in order of separability)	Jingulu (recipient)		Mudburra (source)	
	<i>n</i>	%	<i>n</i>	%
adverb	16	26.7%	2	3.3%
preverb/coverb	26	43.3%	48	80%
coverbal root	16	26.7%	–	–
noun	2	3.3%	10	16.7%

Table 27 Jingulu → Mudburra *n* = 37

Type of verb (in order of separability)	Jingulu (source)		Mudburra (recipient)	
	<i>n</i>	%	<i>n</i>	%
adverb	8	21.62%	2	5.41%
preverb/coverb	9	24.32%	24	64.86%
coverbal root/inflecting verb	16	43.24%	1	2.70%
noun	0	0.00%	5	13.51%
interjection	0	0.00%	1	2.70%

Clearly, morphological boundedness is not a factor in whether verbs are transferred between Mudburra and Jingulu. Nonetheless the distinctness of the morphological boundary of the verb is likely to be a factor. Even though the coverbal root is bound in Jingulu, there is a clear morphological boundary between the coverbal root and the light verb (usually separated by agreement marking). This boundary probably facilitates speakers' recognition of typological congruence between verb categories in Jingulu and Mudburra. Clearly, speakers consider adverbs, preverbs and coverbal roots in Jingulu as equivalent with adverbs and coverbs in Mudburra, no doubt largely due to their uninflected status and the clear morphological boundaries between these verbal elements and inflectional elements such as light verbs and inflecting verbs. This typological congruence is supported by contemporary code-switching data.

6.3 Typological congruence through the lens of contemporary code-switching

Contemporary code-switching data supports the hypothesis about typological congruence and the borrowability of verbs between Jingulu and Mudburra. Current code-switching practices incorporate elements of Kriol into Jingulu or Mudburra matrix clauses, where

the matrix is defined as the language of the TAM and argument agreement. In Jingulu matrix clauses, Kriol verbs are generally inserted into the preverb slot, but some examples of Kriol verbs acting as coverbal roots can also be found.¹² For example, (24) consists of two clauses. The first is a Kriol matrix clause and the second is a Jingulu matrix clause, with the division between the two indicated by a '/'. In the first clause, the Jingulu coverbal root *dirnd-* has been inserted into the Kriol verb slot, and in the second clause, the Kriol verb has replaced a Jingulu preverb. In (25), the Kriol verb *grow* has been inserted into the coverbal root slot of the verb word.¹³

(24) Yu **dirndi** garra kurrubardi / **misim** nya-ardi.
2sg shoot POSS boomerang miss 2sg-HAB
'If you throw a boomerang at it you'll miss it.' (Pensalfini 2011: 42)

(25) Kaminarrinyimi-rni ngimarnini **grow-marriyimi** ibilkirni-mbili-rni.
lily.sp-FOC DEM.FOC.ERG grow-went water-LOC-FOC
'The water lily grew on the water once.' (Pensalfini 2011: 32)

Likewise, Kriol verbs are found switched with Mudburra coverbs and vice versa. In (26), for example, the Mudburra coverb *kurdij* 'stand' is used instead of the Kriol verb *stend* or *stendap*. Similarly, in (27), the Mudburra coverb *jawuja* 'gossip' appears instead of a Kriol equivalent such as *gasip*. Despite its Mudburra origin, *jawuja* fits seamlessly into Kriol verbal grammar, taking the Kriol pluractional *-nabat*. Finally, (28) shows the opposite scenario: here, the clause has a Mudburra matrix, with a Kriol verb *peintim* used in place of an equivalent Mudburra coverb such as *jirning* 'paint up'.

(26) Kirri langa im **kurdij** deya karndi-ngka, si?
woman LOC 3sg stand there tree-LOC see
'The woman by him is standing there at the tree, see?' (MWH: AHA1-2017_002-04: 1:14min)

(27) Dis men, im **jawuja-nabat** na dis men fo is waif.
This man 3sg gossip-PLUR LOC this man DAT 3sg.POSS wife
'This man, he's gossiping to this (other) man about his wife.' (MJD: AHA1-2018_016-03: 4:31min)

(28) Ngayu=ma jalya=ma ba=rna **peint-im** **karri.**
1=TOP today=TOP AUX=1sg.S paint-TR be.POT
'Today I will paint up.' (MWH: AHA1-2016_035-03: 27:32min)

7. Conclusion

The language contact situation of Jingulu and Mudburra was evidently a conducive environment for lexical borrowing; this is reflected in the high proportion of verbs shared (39.7%) between the languages. While this may seem modest in comparison to the rate of noun borrowing (65%), verbs tend to be borrowed less frequently than nouns cross-linguistically. Interestingly, the proportions of Jingulu versus Mudburra

¹²Thank you to Claire Gourlay for these examples.

¹³The fact that *grow* here is in the coverbal root slot and not the preverb position is shown by the absence of an overt third person singular marker prefixed to the light verb *-marriyimi*. Third person singular subjects are null only if there is a coverbal root present. Otherwise 3sg is marked by *ka-* if preceded by a preverb, and *ya-* elsewhere. This demonstrates that coverbal roots are synchronically an open class in Jingulu, despite the fact that many Kriol and English words appear as preverbs. Putting *grow* in the coverb slot may be facilitated by the fact that it is vowel-final, and therefore requires no linking vowel to connect to the light verb.

borrowings are quite similar between the two word classes. Of the 39.7% shared *verb* forms, 33% of these are Mudburra → Jingulu and 18% of these are Jingulu → Mudburra. Of the 65% shared *noun* forms, 32% of these are Mudburra → Jingulu and 24% of these are Jingulu → Mudburra. Thus there is a 2:1 ratio (Mudburra:Jingulu) for verbs and a 4:3 ratio for nouns. Again the picture emerges of bidirectional borrowing, which is unusual cross-linguistically, as first identified by Meakins & Pensalfini (2020). The slightly higher figure for Mudburra-origin forms in both cases probably has a language shift explanation. We don't know how many of those borrowings (in either direction) took place hundreds of years ago versus in the early 1990s when documentation work on the languages began in earnest. It is likely that throughout the twentieth century the rate of Mudburra → Jingulu borrowing increased while the Jingulu → Mudburra rate trickled to a stop due to sheer weight of numbers. There were certainly many more Mudburra speakers than Jingulu speakers by the time Chadwick began documentation work in the 1960s and 1970s, and this was even more the case by the time Pensalfini began data collection in the 1990s. By the time the final work to compile the Mudburra dictionary was undertaken (2014–2018), it was a generation since anyone had heard Jingulu spoken on a regular basis. This imbalance in speaker numbers has probably caused a slight inflation in the proportion of shared nouns and verbs originating in Mudburra, leaving a historical picture of relatively and unusually even borrowing.¹⁴

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¹⁴Joe Blythe (per. comm.) posits a situation of receptive multilingualism (cf. Singer 2018), which may well have been the norm throughout much of Australia. In this scenario, bilingual conversations would consist of Mudburra people speaking Mudburra (predominantly) and Jingili people speaking Jingulu (predominantly). Accommodation of an addressee, in the context of receptive multilingualism, might constitute borrowing some of their lexical items: nouns, verbs, interjections, whilst largely retaining your own grammar.

documentation of Australian Indigenous languages in the Northern Territory and the effect of English on Indigenous languages. She has worked as a community linguist as well as an academic over the past 20 years, facilitating language revitalization programmes, consulting on Native Title claims and conducting research into Indigenous languages. She has compiled a number of dictionaries and grammars of traditional Indigenous languages and has written numerous papers on language change in Australia.

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