Gender Lender: Noun Borrowings between Jingulu and Mudburra in Northern Australia

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Abstract

This paper explores borrowing of nouns between two unrelated Australian languages with a long history of contact: Mudburra, a language with no grammatical gender, and Jingulu, which has four genders and super-classing. Unusually, this case involves extensive borrowing in both directions, resulting in the languages sharing 65% of their nouns. This bi-directional borrowing of nouns allows us to simultaneously examine the behaviour of gender where (i) nouns from a language with no gender have transferred into a language with a gender system, and (ii) nouns from a language with gender have transferred into a language with no gender system. Previous work in this area has been interested in the how nouns are categorised in scenario (i) (Deuchar et al., 2014; Jake et al., 2002; Licerias et al., 2008; Parafita Couto et al., 2015; Poplack et al., 1982), and whether there is any evidence for the development of a gender system in the recipient language in scenario (ii) (Aikhenvald, 2003; Corbett, 1991; Heath, 1978; Matras and Sakel, 2007; Seifart, 2012; Stolz, 2009; Stolz, 2012). We show that Mudburra nouns borrowed into Jingulu are assigned gender on the basis of their semantics, with gender superclassing effects and morpho-phonological massaging. Some of the borrowings into Mudburra, on the other hand, demonstrate a sophisticated understanding of Jingulu morpho-syntax which speaks to a high degree of bilingualism between Mudburra and Jingulu over an extended period.

Keywords

noun borrowing – gender (grammatical) – bi-directional borrowing – semantic versus formal gender

1 Introduction

Gender has been the subject of numerous studies of language contact. Most of this work has examined code-switching and borrowing contexts where noun transfer has occurred between a language which marks gender and one which does not mark gender. Some of these studies have investigated situations where nouns from a language with no gender have transferred into a language with a gender system, with a particular eye on the principle(s) underlying the gender categorisation of transferred nouns (Deuchar et al., 2014; Jake et al., 2002; Liceras et al., 2008; Parafita Couto et al., 2015; Poplack et al., 1982). Other studies have examined instances of nouns from a language with a gender system which have transferred into a language without one, and the ramifications for the recipient language, i.e. whether there is any evidence for the development of a gender system in the recipient language (Aikhenvald, 2003; Corbett, 1991; Heath, 1978; Matras and Sakel, 2007; Seifart, 2012; Stolz, 2009; Stolz, 2012). To date, all studies have examined the unidirectional transfer of nouns from one language into another. In this paper, we present a case study from northern Australia which involves large-scale bidirectional borrowing of nouns between Jingulu (Mirndi, non-Pama-Nyungan), a language with a gender system (including a superclassing system), and Mudburra (Ngumpin-Yapa, Pama-Nyungan), a language without gender.

Contact between Jingulu and Mudburra represents an unusual situation where both languages have largely maintained their native morpho-syntax, but have absorbed significant portions of the other language's lexicon. In terms of nouns, Jingulu and Mudburra share 65% of their nouns, with 32% of shared nouns originating in Mudburra and 24.5% from Jingulu (and 43.5% of nouns for which the direction of borrowing is cannot be determined) (§2) (Meakins and Pensalfini, submitted). This level of borrowing is high, for example McConvell (2009: 795) reports that Gurindji, a language closely related to Mudburra, has borrowed 49% of its nouns, a figure which is among the world's highest (Haspelmath and Tadmor, 2009). What makes the Jingulu-Mudburra situation even more unusual is the relatively equal ratio of noun borrowings. The extent and nature of noun transfer is suggestive of high levels of sustained and balanced bilingualism, and begs the question of how bilinguals treat the

nouns in the respective languages given that gender is only marked in one of the languages, Jingulu.

Jingulu nouns belong to one of four genders masculine, feminine, neuter and vegetable, robustly identified by concord with adjectives and demonstratives. There is also a broad semantic classification (with exceptions), with a phonological reflex, summarised in Table 1. Superclassing also affects the agreement system and categorisation of nouns which is discussed in detail in §3.

In this paper, we examine the principles underlying the gender allocation of Mudburra-origin nouns in Jingulu, i.e. the respective roles of Jingulu noun semantics and phonology on transferred Mudburra nouns, and superclassing effects (§5.1). We also consider whether any parts of the Jingulu gender system (e.g. gender suffix productivity or agreement) have been ‘smuggled’ into Mudburra via Jingulu noun loans (§5.2). We begin by overviewing a method for determining direction of borrowing, i.e. Mudburra → Jingulu or Mudburra → Jingulu, using criteria independent of gender (cf. Meakins and Pensalfini, submitted) (§2). We then introduce the gender system of Jingulu (§3), and review previous work on noun transfer and gender (§4), before turning our attention to the behaviour of gender in the nouns borrowed between Jingulu and Mudburra.

TABLE 1 Phonology and semantics of genders in Jingulu (Pensalfini, 2003: 160–164; cf. Chadwick 1975)

Gender	Suffix	Semantics
Masculine	-a (sometimes -ji)	male higher animates, most mammals, raptors, some fish and insects, flat rounded objects. Default animate class.
Feminine	-rni (allomorph -rdi)	female higher animates, song birds, atypical animals, some fish and insects, axes.
Vegetable	-mi (allomorph -bi)	long and thin or pointy items of all sorts (includes most edible vegetables).
Neuter:	-u (or C-final)	default inanimate class (includes spherical edible plants, and body parts that are not pointy or long and thin).

2 Noun Borrowing between Mudburra and Jingulu

The traditional language of the area surrounding Elliott in northern Australia is Jingulu, a Mirndi language (non-Pama-Nyungan), but somewhere between 200 and 500 years ago¹ the Mudburra settled there and intermarried, introducing Mudburra, a Pama-Nyungan language of the Ngumpin subgroup of Ngumpin-Yapa languages to the area. Jingili² and Mudburra people formed one community for ceremonial and land ownership purposes, sharing a single kinship system (but maintaining distinct kin terms in each language to a large extent). Nowadays people in the area identify as Mudburra, or Mudburra and Jingili, with a very few identifying as Jingili but not Mudburra. The result of this close contact between Jingili and Mudburra people (and to a lesser extent with Warlmanpa and Wambaya people, and to an even lesser extent with Warumungu people) has been a complex ecology of multilingualism and language mixing. Since the colonisation of the area in the late 1800s, Kriol and English have been added to the mix and have contributed to the endangerment of Jingulu and Mudburra (see Figure 1). Today there are one or two fluent Jingulu speakers, and Jingulu is not used as a daily language of communication. Mudburra is also severely endangered, and used only between older speakers, and even then infrequently. Despite the dominant presence of Kriol and English in the area, the focus of this paper is on the earlier contact between Jingulu and Mudburra.

Jingulu and Mudburra exhibit high levels of bidirectional noun borrowings. Meakins and Pensalfini (submitted) demonstrated this bidirectional transfer through a comparative database of 871 nouns recorded for both Jingulu (Pensalfini, 2011) and Mudburra (Green et al., 2016; Raymond et al., 2018). They also included corresponding nouns from a number of related and neighbouring languages Wambaya (Mirndi, contiguous with Mudburra and Jingulu) (Nordlinger,

1 This is quite speculative because there are no written records or corresponding events with an archaeological record. Nonetheless we do not believe the contact was much deeper in time because the forms we are discussing are mostly completely corresponding rather than cognates which require sound change explanations. We are also assuming a single contact event, but again this is speculative. In any case, the contact event occurred long after the development of gender suffixes from the encliticisation and reduction of prefixed demonstratives to nominals (Harvey et al., 2006).

2 *Jingili* is the name of the people and *Jingulu* is the name of the language.

FIGURE 1 Main languages in contact in the Elliott area (Meakins and Pensalfini, 2016: 430)

1998a), Gurindji (Ngumpin, contiguous with Mudburra) (Meakins et al., 2013), Jaminjung (Mirndi, not contiguous with Mudburra or Jingulu) (Jones et al., 2011; Schultze-Berndt and Simard, 2015), Jaru (Ngumpin, not contiguous with Mudburra or Jingulu) (Blythe, 1992; Deegan et al., 2010), Warlmanpa (Yapa, contiguous with Mudburra and Jingulu) (Nash, 2003) and Warumpungu

(Pama-Nyungan isolate, contiguous with Warlmanpa and Wambaya, having had limited contact with Jingulu and none with Mudburra) (Simpson, 2014) (see Figure 1).

The extent and direction of borrowing for nouns was determined by comparing shared forms in Mudburra and Jingulu first with their closest (geographic and phylogenetic) neighbours, Gurindji and Wambaya respectively. Jingulu and Mudburra forms shared with Gurindji were categorised as Mudburra → Jingulu; and Jingulu and Mudburra forms shared with Wambaya were categorised as Jingulu → Mudburra. The other languages were brought into the comparison when comparisons with Wambaya and Gurindji were not revealing. Meakins and Pensalfini (submitted) found that 65% ($n=562$) of nouns are shared between Jingulu and Mudburra, with the direction of borrowing relatively even. 32% ($n=181$) of nouns find their origins in Mudburra and 24.5% ($n=137$) of nouns are from Jingulu.³ This number (i.e. 65%) is at the higher end of the 40–71% range estimated by Pensalfini (2001: 393) and higher than the 40–43% given by Black's (2007: 67) as a revised-down figure. Note that Black did not consider all nouns, but only a sample of basic nouns from a set of 114 vocabulary items recorded by Chadwick (1975) in an attempt to separate established Mudburra borrowings from more recent language obsolescence effects. In this respect, Black's (2007) figure need not be considered inconsistent with those in Pensalfini (2001).

Importantly evidence for the direction of noun borrowings in a subset of 410 nouns was determined only by formal similarity between Mudburra and Jingulu nouns (and their geographic and phylogenetic neighbours) independent of the apparent presence or absence of Jingulu gender suffixes on nouns for a subset of this dataset. This subset of nouns forms the basis of this study, ensuring that our subsequent discussion of the behaviour of gender in noun transfers is free of circularity, i.e. we do not use phonological sequences in a Mudburra noun which are interpretable as gender suffixes as evidence for the direction of transfer from Jingulu into Mudburra. This allows us to independently examine the patterns of gender allocation.

3 This leaves 224 (43.5%) of nouns with an unknown origin according to the methods used by Meakins and Pensalfini (forthcoming) which mostly involved form correspondences with neighbouring languages. We can speculate on the origin of most of these nouns based on gender but did not want to for this paper due to the circularity of argumentation.

3 Gender in Mudburra and Jingulu

Typical of Pama-Nyungan languages, Mudburra does not have a gender system (or indeed any kind of noun classification system) (discussed further in §5.2.2). In contrast, Jingulu has a four-way gender system for nouns: masculine, feminine, vegetable and neuter (Chadwick, 1975; Pensalfini, 2003), which is common in non-Pama-Nyungan languages (Harvey and Reid, 1997). Gender of the noun is determined by agreement with modifiers such as adjectives or demonstratives, as shown schematically in (1), where the adjective *bardakurr-* ‘good’ shows either masculine, feminine, vegetable and neuter agreement with its noun head (Meakins and Pensalfini, 2016: 426).

(1)	MASC	Bininja	bardakurr-a	NEUT	Darrangku	bardakurr-u
		man(m)	good-MASC		tree(n)	good-NEUT
	FEM	Nayurni	bardakurri-rni	VEG	Karnarinymi	bardakurri-mi
		woman(f)	good-FEM		spear(v)	good-VEG

Most gender systems can be classified as either formal (based on the phonological or morphological shape of nouns) or semantic (based on animacy, sex, shape etc of the referent of the noun) (cf. Corbett, 1991), but many gender systems are shaped by both formal and semantic principles. Gender membership in Jingulu is largely predictable from the semantics of the noun, but phonology also plays a role. Each will be discussed in turn.

There are several semantic criteria at play in assigning gender in Jingulu. Masculine includes words for male humans and higher animates (2)(a), feminine includes words for female humans and higher animates (2)(b), vegetable includes many words for edible plants (2)(c), while neuter contains words for many lower animates, and other plants and inanimate objects (2)(d) (Pensalfini, 1999, 2003). Among lower animates, most mammals are masculine, while most birds are feminine. Feminine gender also includes animals that are atypical, such as water creatures that don’t swim (much) or insects that sting with their tails. Reptiles and insects are divided between masculine and feminine genders.

(2)	a)	bininja	wawa	warlaku	marluka	jurnma	kirdkilyi
		‘man’	‘boy’	‘dog’	‘old man’	‘left-hand kangaroo’	‘dragon lizard’

b)	nayurni
'woman'	wiwirni
'girl'	warlakurni
'female dog'	kirninginjirni
'emu'	jindirrimni
'crab'
c)	babirdimi
'yam'	milakurrmi
'wild potato'	kilibi
'bush banana'	wardbardbumi
'bush passionfruit'	
d)	ngawu
'home'	kijurlurlu
'stone'	yurrku
'flower'	bikirra
'grass'	kurrubardu
'boomerang'

Other semantic criteria determining gender assignment include markedness and shape which is not uncommon among semantically-driven gender systems (cf. Corbett, 1991). The vegetable gender in particular appears to be most strongly determined by shape, and is better characterised as the gender of objects whose length significantly exceeds their width (i.e. long thin or pointy objects). Thus, edible vegetables that are not of this shape, such as *damangka* 'spherical yam' or *kirangkiju* 'round melon' are neuter. Conversely, while body parts are typically neuter, *ngijinmi* 'tail', *junkumi* 'penis', *kilimi* 'nose', and *mankuji* 'neck', among others, are all vegetable. Also found in the vegetable gender are objects of this shape, such as *karnarinymi* 'spear', *limirnmi* 'fishing log' and *jaarumi* 'shield', and even more abstract versions of this shape such as *kingmi* 'rainbow' and *kaarijbi* 'road' (Pensalfini, 2003, p 161). Many inanimate items and body parts are found in the masculine class (3)(a), but relatively few in the feminine (3)(b). The assignment of inanimate objects to masculine gender is often associated with their having a flat and/or rounded shape, but this correlation is less strong than for the assignment of long thin objects to the vegetable class (Pensalfini, 2011).

(3)	a)	malamba
'liver'	biyawuja
'flat grindstone'	lawunja
'flat coolamon'	ibilka
'water'
	b)	jingirdi
'heart'	dawurdawu/dawurdawurni
'axe'	ibilkirni
'rain'	

The Jingulu gender system also has a strongly formal component. As can be gleaned from (2)-(3), each of the four genders has a characteristic ending. Masculine words tend to end in *-a*, feminine words in *-rni* or *-rdi*, vegetable words in *-mi* or *-bi*, and neuter words in *-u* (or a consonant).

Pensalfini (1999) also observed that modifiers can optionally 'disagree' with their head. This type of disagreement, later called 'superclassing' (Corbett, 2012),

is principled and hierarchical. Masculine-marked modifiers can optionally agree with heads of the feminine gender and neuter-marked modifiers can optionally agree with heads of the vegetable gender, for example in (4) where masculine agreement marking is used on *bardakurr*- ‘good’ despite the fact that the head is feminine. Masculine-marked modifiers can also optionally agree with the heads of all four genders, as in (5) (Meakins and Pensalfini, 2016: 426–27).

- (4)

FEM

Nayurni
woman(f)

bardakurr-a
good-MASC

VEG

Karnarinymi
spear(v)

bardakurr-u
good-NEUT
- (5)

MASC

Bininja
man(m)

bardakurr-a
good-MASC

NEUT

Darrangku
tree(n)

bardakurr-a
good-MASC
- FEM

Nayurni
woman(f)

bardakurr-a
good-MASC

VEG

Karnarinymi
spear(v)

bardakurr-a
good-MASC

Meakins and Pensalfini (2016: 427) claim that three hierarchically ordered generalisations can be made about disagreement patterns in Jingulu: (i) masculine gender is the default for animates, (ii) neuter gender is the default for inanimates, and (iii) masculine agreement is the über-default for all genders. These generalisations are shown schematically in Figure 2.

Of interest for this paper is (i) how Mudburra nouns borrowed into Jingulu were assigned gender, i.e. did the Jingulu principles of phonology, semantics or the default superclasses determine their categorisation (§5.1); and (ii) whether the extensive borrowing of Jingulu nouns into Mudburra has resulted in the transfer of any aspects of the Jingulu gender system, i.e. the productive use of gender suffixes or agreement (§5.2). The following section reviews the code-switching and borrowing literature which has reported on situations where nouns have been transferred between languages where one language marks gender and the other does not (note here we’re not concerned with noun

FIGURE 2 Hierarchy of gender disagreement in Jingulu

transfer between languages which both have gender (e.g. French-Arabic mixed NPs (Bentahila and Davies, 1983)).

3 Gender in Contact Cross-Linguistically

In language contact settings where noun transfer between languages has occurred, two directions are possible: (i) nouns from a language which has no gender may transfer into a language with a gender system (§4.1), and (ii) nouns from a language with a gender system may transfer into a language without one (§4.2). Of interest in direction (i) are the principles underlying the gender categorisation of loan nouns in the recipient language; and of interest in direction (ii) is the degree to which formal features of a gender system are borrowed, i.e. does gender marking transfer frozen on borrowed nouns, is gender marking productively extended to native stems, and is there evidence for the transfer of (parts of) the agreement system? We examine both scenarios due to the large-scale bidirectional borrowing of nouns that has occurred between Jingulu, which has a gender system, and Mudburra, which does not.

3.1 *Transferring Gender-less Nouns in a Language with Gender*

The first scenario involves the transfer of nouns from a language which does not encode gender into one which does. Many studies in the borrowing and code-switching literature claim that nouns tend to be assigned according to principles underlying the gender assignment system of the recipient language. Other studies show a strong tendency for loanwords to be allocated to a single default gender which overrides native gender assignment principles. In fact, no single principle seems to be at play in most cases, as this section discusses.

Most gender systems can be classified as either formal (based on the phonological or morphological shape of nouns) or semantic (based on animacy, sex, shape etc of the referent of the noun) (cf. Corbett, 1991). Where the recipient language has a semantic system, the assignment of nouns from the source language is often guided by the inherent features of the referent or semantic associations. For example, Tamil has a strict semantic system which divides nouns into masculine, feminine or neuter, with borrowings allocated according to their natural features (sex and animacy) (Asher, 1985: 137). If the recipient language has a formal system of gender assignment, transferred nouns are often categorised according to their phonology or morphology. For example, Swahili has a morphologically-based assignment system (which has some semantic basis) that differentiates 10 genders, and Kibogoya (1995) found that most borrowings from English are categorised according to morphology,

although semantics also plays a role, for example English animates receive a Class 2 prefix and inanimates are assigned to Class 9.

Nonetheless other studies find a strong tendency for transferred nouns to be allocated to a default category, suggesting that loanwords are not always treated the same as native nouns. For example, in Spanish-Basque code-switching, where bilingual noun phrases consist of a Basque noun and Spanish articles, bilinguals show a preference for feminine articles (regardless of the gender of the translation equivalent) (Parafita Couto et al., 2015). In Maltese, 86% of a sample of 94 English nouns were borrowed into the masculine gender, regardless of their phonology and the fact that Maltese has a largely formal system of gender assignment (Stolz, 2009: 335). Similarly, in Spanish-English code-switching where bilingual noun phrases consist of an English noun and Spanish determiner, bilinguals show a productive preference for masculine articles (regardless of the gender of the translation equivalent) (Deuchar et al., 2014; Jake et al., 2002; Licerias et al., 2008; Poplack et al., 1982). The default preference for masculine articles in Spanish-English code-switching is also supported by recent comprehension studies. Valdés Kroff et al (2017) used an 2-picture visual world eye-tracking study to show that Spanish-English bilinguals who code-switch use feminine, but not masculine gender, as a cue for anticipating nouns in mixed Spanish-English NPs, which they interpret as the result of the extensive use of the masculine article as a default (and therefore unmarked) article in code-switching.

It is not clear what determines default genders. Poplack et al (1982: 21–23) suggests the default gender may be the gender with the largest numbers of nouns in it. This explanation may account for the variable observations of borrowings into Spanish. The Spanish lexicon is roughly split 50/50 between masculine and feminine nouns (Eddington, 2002), which means that a ‘default’ strategy could go either way. Valdés Kroff et al (2017: 191) suggest that it may just be the emergence of a community practice which determines whether masculine (e.g. Spanish-English code-switching) or feminine (e.g. Spanish-Basque code-switching) is favoured in switches.

Although many studies attempt to argue for a single principle of gender assignment, either determined by the recipient language system or by default, Poplack et al (1982: 5–6) note that single factors rarely explain all of the data, suggesting that “[t]he problem with studies which claim predominance of a single factor is the embarrassment of exceptions to be accounted for.” For example, even in the cases of loans in Swahili, phonology plays some role. If an English loanword contains an initial segment which is interpretable as a prefix, it is assigned to the appropriate class (Whiteley, 1967, cited in Corbett 1991: 72). Instead Poplack et al consider that a number of factors can be at play simultaneously.

In contrast with the prevalent approach, i.e. the explanation of gender assignment in terms of one categorical factor (e.g. physiological gender), and the successive explanation of all exceptions by invoking a series of other categorical factors, we have treated all the factors simultaneously, since presumably all are at play at the time of [the] introduction of a given borrowing, particularly in cases of conflict.

POPLACK ET AL., 1982: 25

For example, Poplack et al (1982) show that English nouns in Puerto Rican Spanish and Montreal French by and large were assigned according to the sex of animates and, to a lesser extent, phonology in the case of English loans into Spanish because phonology is a good predictor of gender in Spanish (e.g. 99.87% of nouns ending with *-o* are masculine and 96.30% of nouns ending with *-a* are feminine (Parafita Couto et al., 2015: 306)). Nonetheless Poplack et al (1982) found that in other cases English nouns were assigned according to the gender of their Spanish or French translation equivalents. Jake et al (2002) made similar findings in their study of 230 mixed NPs from 10 Latin American Spanish-English bilinguals. They found that both phonology and translation equivalence playing a role in the assignment of English nouns.

In §5.1, we examine the gender allocation of Mudburra nouns into Jingulu. Because gender assignment in Jingulu has both phonological and semantic cues, we are interested in the interplay of these two factors. Also of interest is whether a default assignment system, potentially based on gender superclassing already present in the recipient language Jingulu (and therefore unlike the case studies discussed in this section), might influence the categorisation of borrowed Mudburra, i.e. are all Mudburra nouns allocated to masculine gender über-default, or animates to masculine and in animates to neuter?

3.2 *Transferring Gendered Nouns in a Language without Gender*

The other logically possible outcome for two languages in contact where one language has a gender system and the other does not is that (parts of) the gender system may be borrowed. This scenario is claimed to be rare for languages with gender morphology as opposed to gender encoded in free forms such as articles. For example, in a survey of 27 pairs of languages in contact, Matras (2007: 44) finds that “bound case and gender markers remain on the whole among the most stable features in the noun domain, resisting especially direct replication of matter” i.e. borrowing of morphologically-marked gender is unusual. However examples do exist in the broader literature. As this section outlines, three degrees of borrowing can be observed: from the transfer of gender markers fused to the borrowed noun, through to the transfer of structural aspects of the gender system i.e. agreement in various functional

domains. Reports of the transfer of an agreement system is rare in the literature, as Stolz (2012: 102) observes, “documentation of uncontroversial examples of agreement phenomena is scarce.” This is unsurprising given Gardani’s (2008) observation that inherent inflection (e.g. number, TAM, gender marking) is more borrowable than contextual inflection (e.g. structural case, person and gender agreement).⁴

Firstly, gender has been observed to enter a language as ‘trojan horse structures’ (cf. Meakins, 2011: 60) i.e. attached to a loan noun or as a part of the noun phrase e.g. encoded in articles. In these cases, they are morphologically frozen in the recipient language. For example, although there have been claims that Michif (French-Cree mixed language, Canada) has borrowed French determiners (including gender features) (Papen, 2003), others have argued that the liaison processes which affect the final consonant of the determiners in French have fossilised in Michif, thereby precipitating the loss of the gender system while simultaneously creating a plethora of new consonant-initial French-origin words e.g. *li zef* (Michif) < *les oeufs* (French) (Bakker, 1997; Rosen, 2007). Slightly more productive are the instances where parts of the Spanish gender system have been borrowed into Ayacucho Quechua (Southern Quechua, Peru) and Ilocano (Austronesian, Philippines) which are languages which lack gender. Spanish gender-marked nouns and agreement on Spanish adjectives are found in these languages, however this agreement system has not extended to native forms (Aikhenvald, 2003: 48, 388).

In other cases, these instantiations of gender have extended to native stems and can therefore be analysed as productive in the recipient language. Note though that in this scenario, the borrowing of a gender *system* has not occurred due to the lack of agreement. For example, Tadmor (2007, p. 312) observes that Indonesian has borrowed male and female human nouns from Sanskrit and Arabic which are marked for gender with this system becoming productive on some native Indonesian stems. Similarly Risígaro (Arawakan, Brazil) has borrowed two feminine gender suffixes from Bora (Isolate, Brazil) which have been extended to Risígaro stems (Seifart, 2012). Another example comes from Kormakiti (Arabic variety, Cyprus) which has many Greek loanwords. These loanwords retain their some of their morphology, in particular a set of suffixes marking the diminutive, which is further specified for gender and number and which is used productively used on Arabic nouns (e.g. Kossman, 2008).

4 Note that here we are not dealing with cases of borrowed noun classifiers (which do not involve agreement), for example the development of a classifier system in Hup (Nadahup, Amazon) under the influence of Tacano (Tacanoan, Amazon) (Epps, 2006), borrowed Chinese classifiers in Vietnamese (Alves, 2007) or the impressive wholesale transfer of the full paradigm of noun class suffixes from a Bora (Isolate, Brazil) into Risígaro (Arawakan, Brazil) (Seifart, 2012).

Some claims have also been made for the transfer of parts of the agreement system itself. In Tagalog (Austronesian, Philippines), the Spanish agreement system has extended to some Tagalog nouns. Spanish-derived predicative adjectives in clauses such as *The man is a teacher* show masculine or feminine agreement in both Spanish loan nouns with human referents and also in some native Tagalog nouns (Schachter and Otones, 1972: 96–97). Chamorro (Austronesian, Northern Mariana Islands and Guam) has also borrowed large amounts of Spanish vocabulary including nouns, and Stolz (2012) claims that the sizable proportion of Spanish loans which are overtly marked for gender have established a gender agreement system in Chamorro. Warndarang (Gunwinyguan, Australia) has borrowed the non-human gender III, IV and V prefixes (genders I and II are masculine and feminine, respectively and have not been borrowed) from a proto form of Nunggubuyu (Gunwinyguan, Australia). These are clearly borrowed as related languages in the same branch of Gunwinyguan such as Marra do not have a gender system. In the case of Warndarang, the use of these non-human genders was extended to native nouns and included agreement on free pronouns and demonstratives, however Heath (1978: 116) argues that Warndarang “has not taken advantage of all of the functional possibilities for noun-class [gender] prefix systems” which suggests that the system is not entirely productive.

In §5.2, we examine a set of Jingulu nouns which have been borrowed into Mudburra. Based on the literature, a number of outcomes are possible. Firstly, the Jingulu word may appear in Mudburra, preserving the sequence corresponding to the Jingulu gender suffix as a part of the stem. Secondly, the gender suffixes, particularly the feminine and vegetable gender suffixes (which are the most morphologically transparent and separable of the four gender suffixes) may be productively extended to Mudburra nouns. We are also interested in whether there is any indication that the Jingulu gender agreement system has transferred into Mudburra, which would be evidenced by the use of agreement suffixes on other parts of the Mudburra NP including adjectives and demonstratives. A final possibility not discussed in the literature is that Mudburra would ‘strip off’ the feminine and vegetable gender suffixes, recognising them as such due to the high degree of bilingualism at the time that the large-scale borrowing of nouns took place.

4 Gender in Mudburra-Jingulu Noun Transfer

The effect of the gender system of Jingulu on Mudburra noun stems was first noted by Nash (1997: 195) who observed that Jingulu and Mudburra share the word *bunaringmi* ‘wild orange, *Capparis umbonata*’ and hypothesised that it

was borrowed by Mudburra from Jingulu, with the direction determined by the presence of *-mi*, one of the vegetable suffixes in Jingulu (§3). In the following sections, we build on Nash's observation about Jingulu-Mudburra noun borrowings and gender. We use the two data subsets – (i) Jingulu → Mudburra borrowings and (ii) Mudburra → Jingulu borrowings – outlined in (§2) to examine gender behaviour of noun transfers between the languages. Recall that our criteria for determining the direction of borrowing does not include gender, allowing us to independently examine the gender patterns in both borrowing scenarios.

The data tables throughout §5 include the Jingulu and Mudburra forms and their English translation, plus columns headed 'Phonological criteria' and 'Semantic criteria'. These columns comment on whether the noun is typical of the gender class in which it appears (as determined by gender agreement). An entry of "Fine" under 'Phonological criteria' means that the form, as it appears in Jingulu, ends in the characteristic ending for that gender, as set out in §2. If the form is atypical of its class in terms of its phonology, a comment is made to that effect, stating which gender the form resembles. An entry of "Fine" under 'Semantic criteria' indicates that the word's meaning is consistent with the general meaning type associated with the gender, as also set out in §2. If the semantics of the word would lead us to expect it to be in a different gender, a comment to this effect is included.

4.1 *Gender Allocation of Mudburra Nouns Borrowed into Jingulu*

In §2, we observed that 410 cases where Jingulu and Mudburra share the noun form can be established based on similarity of form (not including gender endings). 176 (43%) of these are clear cases of borrowing from Mudburra into Jingulu. In this section, we discuss the allocation of Mudburra nouns to Jingulu genders. To determine factors affecting gender allocation (phonology, semantics, default categorisation), we use the criteria of concord (cf. Pensalfini, 2011) i.e. gender agreement on adjectives or demonstratives (§2), rather than endings on noun to establish independent criteria for gender allocation.

4.1.1 Allocation of Mudburra Nouns to Masculine Gender

Of the 66 masculine nouns, 97% (n=64) were unchanged because most nouns already ended in /a/ in Mudburra, which is the most common masculine noun ending in Jingulu (§2). A small number of others ended in /ji/, which also looks masculine in Jingulu, as there is a small class of Jingulu masculine nouns which end in this sequence (-ji being an older Mirndi masculine suffix, still used productively in Wambaya). Some examples are given in Table 2.

TABLE 2 Borrowed Mudburra forms into Jingulu masculine gender (with no change)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
horse	dimana	dimana	Fine	Fine – mammal
feather, down	diyardiya	diyardiya	Fine	BAD – expect neuter – synonymous <i>lyimbu</i> is NEUT
old man, boss, headman	marluka	marluka	Fine	Fine – masc human
blue tongue lizard	lungkura	lungkura	Fine	Fine – reptiles any gender (Jingulu also has a FEM form <i>lungkuriri</i>)
(small)				
bark	kamarra	kamara	Fine	BAD? – flat? – synonymous <i>barndabi</i> is VEG
traditional Aboriginal person	munba	munba	Fine	Fine – male human
mosquito (big)	karnamurrura	karnamurrura	Fine	Fine – insects go everywhere (matches phonology)
egg; brain	kidba	kidba	Fine	BAD – expect NEUT – synonymous <i>marrkulu</i> is neuter
bee, fly	kununga	kununga	Fine	Fine – insects any gender
maggot; worm	murlura	murlura (maggot)	Fine	Fine – insects any gender
corkwood tree;	ngimbija	ngimbija	Fine	Fine – some trees are MASC
coolamon tree				
tea	laliija	laaliija	Fine	BAD? – synonymous <i>jalurruka</i> is also MASC but <i>nyaryalu</i> (leaf) is NEUT. Edible plants are usually VEG.
swamp, billabong	langkana	langkana	Fine	fine – flat round shape, water and bodies of water
cave; dam	nankuna	nankuna	Fine	BAD – inanimate object should be NEUT (could be association with water)
silly, no good	waarungka	warungka (deaf)	Fine	Fine – male human – FEM version is <i>waarungkirni</i>

TABLE 2 Borrowed Mudburra forms into Jingulu masculine gender (with no change) (*Cont.*)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
blanket lizard (small)	walbingirra	walbingkirra	Fine	Fine – lizards can go anywhere
liver	jabarrka	jabaraka jawarrka	Fine	Fine – flat round body part
whitewood tree ⁵	jakirlirra	jakarlirra	Fine	Fine – trees can be MASC
blanket lizard, frill-necked lizard	jamankula	jamankurla	Fine	Fine – lizards can be any gender
flying fox	bilkina	bilkina	Fine	Fine – mammal
sweat	jilngirda	jilngirda	Fine	FINE?? – body parts usually NEUT, however could be semantically in same class as ‘water’
tree lizard (large), dull	buburlu	bubulu	unexpected – looks NEUT	Fine – reptiles go anywhere
skink, dragon lizard			unexpected – looks NEUT	Fine – insects go anywhere
march fly	burruju	burruju	looks NEUT	Fine – male human
maternal grandmother's	jaju	jaju	unexpected – looks NEUT	BAD – inanimate object/instrument
brother			unexpected – looks NEUT	
boomerang	kurrubardu	kurrubardu	looks NEUT	
dog (dingo or camp dog)	warlaku	warlaku	unexpected – looks NEUT	

5 Atalaya hemiglauca

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
Australian bustard	kurrkabadi	kurrkabadi	unexpected – looks FEM	Fine – large flying birds
bullwaddy tree ⁶	kamanji	kamanji	Fine	Fine – some trees masc
barking owl ⁷	kurruji	kurruji, kurruji	Fine	Fine – large bird
small grindstone	jungarri	kurruji jungari	Unexpected – doesn't look like any class	Fine – generally flat and round, implements
spear thrower	jalykaji	jalkaji	Fine	Fine – has rounded haft
grasshopper	waniyi	waniyi	Unexpected – looks NEUT	Fine – insects can go anywhere
tick; flea	midiliyi	midiliyi	Unexpected – looks NEUT	Fine – insects can go anywhere
male skin name (all follow this pattern)	Jurlinginja	Jula	Fine	Fine

6 Macropteranthes lekwickii

7 Ninox connivens

Of the 64 unchanged forms in the masculine gender, 77% (n=49) have the expected phonology and 86% (n=55) have the expected semantics. In all, 63% (n=40) of unchanged forms have both the expected phonology and semantics. Only one form, *kurrubardu* ‘boomerang’, has neither the expected phonology and semantics, although it could be masculine by association with males, as some, but not all, men’s weapons are masculine. It should be noted that while the ‘expected’ phonology for Jingulu masculine nouns is to end in /a/ or, far less commonly, /ji/ (which is an older Mirndi masculine morpheme, still found as the usual masculine in Wambaya (Nordlinger, 1998b)), there is quite a bit of variation in the endings of ‘native’ masculine nouns in Jingulu – far more than for feminine or vegetable, but far less than neuter.

Only two other instances of Mudburra forms borrowed in Jingulu masculine gender are present in the data (Table 3). They show a change of the final Mudburra vowel to /a/ in Jingulu, being the characteristic marker of masculine gender (§2). Note that semantically, these nouns are also in the expected masculine gender.

TABLE 3 Borrowed Mudburra forms into Jingulu masculine gender (with some change i.e. → a)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
grandmother’s brother	ngabuja	ngabuju	Fine	Fine – male human
hopping mouse	(w)ijibarda	wijibardu	Fine	Fine – marsupial

4.1.2 Allocation of Mudburra Nouns to Neuter Gender

Of the 57 cases of neuter gender nouns in Jingulu being borrowed from Mudburra, 84% (n=48) were unchanged with regards to their endings. Recall from §2 that neuter is the gender in Jingulu with the most phonological variation in terms of ending. Some examples are in given in Table 4.

Of these 48 neuter forms, 46% (n=22) have the expected /u/ ending, although the ‘expected phonology’ count rises to 67% (n=32) if we include the forms that don’t look like any other gender (remembering that neuter shows the greatest variability in endings in Jingulu). Most of the remainder end in /a/ and therefore ‘look masculine’ – however Jingulu has a reasonable proportion of /a/-final neuter nouns already. The expected semantics of the neuter gender are found in 96% (n=46) of these forms. There were no forms that had neither the expected phonology nor semantics, while 60% (n=29) of forms that had both.

TABLE 4 Borrowed Mudburra forms into Jingulu neuter gender (with no change)

English	Jingulu	Mudburra	Phonological criteria	Semantic Criteria
nulla-nulla, club	kuduru	kurduru	Fine	Fine – spears/shields are VEG, but other words for nulla-nullas are also NEUT so perhaps this a semantic sub-class
upper arm, shoulder	murlku	murlku	Fine	Fine – body part
tribal scars	barduru	barduru	Fine	Fine – body part
house, town	marru	marru	Fine	Fine – body part
fingernail	nungkuru	nungkuru (hand, finger, forearm)	Fine	Fine – body part
wife-relation	karu	karu (child)	Fine	BAD – should be FEM
didgeridoo	kinjuwurnu	kinjuwurnu	Fine	BAD – should be VEG (long pointy); synonymous <i>kulungkukbi</i> is VEG
back, back bone, spine	kumungku	kumungku	Fine	Fine – body part
forehead	walu	walu	Fine	Fine – body part
wet season	(y)ibu	yibu	Fine	Fine – seasons/times
cloud	kulumarra	kulumarra (sky)	unexpected – looks MASC	Fine – synonym <i>mardayi</i> is NEUT
ear	langa	langa	unexpected – looks MASC	Fine – body part
fire; firewood	buba	buba	unexpected – looks MASC	Fine – fire and related things
sore	marndara	marndara	unexpected – looks MASC	Fine – body part
ochre (red), red paint	kalnga	kalnga	unexpected – looks MASC	Fine – object
cheek, jaw	kangarnda	kangarnda	unexpected – looks MASC	Fine – body part (gen)
charcoal	linyarda	linyarda	unexpected – looks MASC	fine – fire and related things
windbreak	narranjana	narranjana	unexpected – looks MASC	Fine – object
clothes	(w)abaaba	wabawaba	unexpected – looks MASC	Fine – object

TABLE 4 Borrowed Mudburra forms into Jingulu neuter gender (with no change) (*Cont.*)

English	Jingulu	Mudburra	Phonological criteria	Semantic Criteria
grass (any)	yuka	yuka, bikirra	unexpected – looks MASC	Fine – inedible plant
open space, clearing, outdoors	bakara	bakara	unexpected – looks MASC	Fine – landscape
tongue	jalanya	jalanya	unexpected – looks MASC	Fine – body part
ashes	buna	buna	unexpected – looks MASC	Fine – fire and related things
rib, side	janyburra	janyburra	unexpected – looks MASC	Fine – body part
wax (plant or ear wax)	jikala	jikala	unexpected – looks MASC	Fine – body/plant part (gen)
initiation songs (women's), women's dance (part of boy's initiation)	bandimi	bandimi	unexpected – looks VEG	Fine – ceremony
woomera, spear thrower	warlmayi	warlmayi	?? – doesn't look like any gender	Fine – not long and thin, has flat handle
ironwood ⁸	karndi	karndi (tree)	?? – doesn't look like any gender	Fine – trees
chest	mangarli	mangarli	?? – doesn't look like any gender	Fine – body part
cloud	madayi	mardayi	?? – doesn't look like any gender	Fine – weather
shade	ngandayi	ngandayi, ngandawi	Fine (neut residue)	Fine – landscape
fight	(y)ingiyiingi	yingiyiingi (cv. provoke)	?? – doesn't look like any gender	Fine – abstract action (same as synonymous <i>bunbaku</i>)

⁸ *Eythrophleum chlorostachyum*.

Examples of Mudburra forms borrowed in Jingulu neuter gender where the form has changed also exist, They typically involve replacing the final vowel of the Mudburra word with /u/. There were nine such examples given in Table 5:

While adjectival nouns almost always take *-u* when agreeing with a neuter gender referent, substantives in the neuter gender can end in any segment, although the great majority do end in /u/, with most of the rest evenly divided between /a/, /i/, and permissible word-final consonants. This would also explain why some of the changes are not to the characteristic /u/. The only truly unexpected change in form is of *nyili* to *nyila* ('fin of fish'). The form for 'chewing mix' is derived by adding the comitative suffix *-ngkujk-* to the Mudburra form prior to suffixing the neuter gender marker *-u*. The changes to the form of the word for 'short ribs' are unexplained. Once again, all of these words would be expected to fall into the neuter gender on the basis of their semantics.

TABLE 5 Borrowed Mudburra forms into Jingulu neuter gender (with some change i.e.→ u)

English	Jingulu	Mudburra	Phonological Criteria	Semantic criteria
hot weather before wet	barungku	barungka	Fine	Fine – seasons and times of day
eye	ngabanju	ngabanyji	Fine	Fine – body part
fin of fish	nyila	nyili (spike of fish)	BAD – looks MASC	Fine – body part
hook	warridirli	warrirdila,	BAD – doesn't	Fine – implement/
boomerang ('Number 7')		wardadilya	look like any gender	weapon
mist, fog	jungunaku	jungurn (cv. smoke/ dust rising)	Fine	Fine – weather
tight (fist), tied (shoelaces etc.)	manyburrili	manburr (cv. close legs or mouth)	BAD – doesn't look like any gender	Fine – property of inanimate
chewing mix (tobacco with ashes)	bunangkujku	buna (ashes)	Fine	Fine – object
red, light brown, red sand,	bilyingbiyaku	bilyingbilyinga	Fine	Fine – property of inanimate
short ribs	jimbangu	jiminkina (rib bone)	Fine	Fine – body part

4.1.3 Allocation of Mudburra Nouns to Feminine Gender

Of the 25 nouns in feminine gender that were borrowed from Mudburra, only 20% (n=5) were unchanged from their Mudburra form, which are given in Table 6.

Of these five forms, only 40% (n=2) have the expected feminine ending *-rni/-rdi*, while 60% (n=3) have atypical endings. 80% (n=4) have the expected semantics (see Meakins and Pensalfini (submitted) for a discussion about bird names). 40% (n=2) have both the expected phonology and the expected semantics. The one outstanding form, *kabila* ‘digging stick’, does not look like a feminine noun. As noted in Table 6, there are two other terms for ‘digging stick’ in Jingulu, one of which is masculine and the other also feminine. While the shape of the item would suggest it should be vegetable gender, it could be that it is feminine gender by association with women, who typically use these to dig tubers.

In other cases, Mudburra forms borrowed in Jingulu feminine gender have changed form. Jingulu adds the feminine suffix *-(r)ni* (or more accurately *-i(r)ni*, replacing any final vowel), and this triggers regressive vowel harmony in the stem, changing adjacent instances of /a/ to /i/. The process spreads leftwards, and is stopped by the presence of a vowel which is already high (/i/ or /u/)

TABLE 6 Borrowed Mudburra forms into Jingulu feminine gender (with no change)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
diamond dove, peaceful dove	kularnkurrurdi	kulankurridi kulankurru	Fine	Fine – smaller birds
sulphur crested cockatoo	bangarra	banngarra	unexpected – looks MASC	Fine – cockatoos
mistletoe bird	jindiminya	jindiminya	unexpected – looks MASC	fine – smaller birds
storm bird, rain-bird	kurrkurrmirni	kurrkurrmini	Fine	fine – smaller birds
digging stick, yam stick	kiyali	kiyarri	Unexpected – doesn't look like any class	questionable – should be VEG, or possibly MASC (synonymous <i>kabila</i> is MASC, but synonymous <i>makalyani</i> is also FEM – association with women?)

(Pensalfini, 2002). There were 20 such forms in the database, outnumbering unchanged feminine borrowed forms by a ratio of 4:1. Some examples are given in Table 7.

With the exception of the two words for ‘bilby’, gender membership for these words is predictable from their semantics. The Jingulu female subsection terms all end in the sequence /nginju/, which at first looks odd, however, this represents an older Mirndi pattern which, as discussed in Meakins and Pensalfini (submitted), affects subsection terms.

TABLE 7 Borrowed Mudburra forms into Jingulu feminine gender (with some change i.e. → (r)ni)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
butterfly, moth	marlimarlirni	marlimarli	Fine	Fine – insects can be any gender
bilby	yalbawurrini ⁹	jalbawurru	Fine	Unexpected – mammals are MASC
bilby	yarningkirni	yarningki	Fine	Unexpected – mammals are MASC
grandmother (paternal)	ngabujirni	ngabuju	Fine	Fine – female human
scorpion	mundarlirni	mundarla	Fine	Fine – stinging insects
tomahawk	mayingkirni	mayingka	Fine	Fine – all axes are FEM
granddaughter (maternal)	kaminjirirni	kaminjarra	Fine	Fine – female human
blue tongue lizard	lungkurirni (female), lungkura (male)	lungkura	Fine	Fine – lizards can be any gender – some reptiles vary gender depending on biological sex
tawny frog-mouth, mopoke	jurdiyini	jurdiyina	Fine	Fine – bird

9 Note this is also a case of initial lenition. Other examples exist in the database such as the word for ‘corkwood tree’, which is *kulunjurru* in Jingulu and *wulunjurru* in Mudburra. For further discussion see Meakins and Pensalfini (submitted).

TABLE 7 Borrowed Mudburra forms into Jingulu feminine gender (with some change i.e.→ (r)ni) (Cont.)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
girl	(w) amarlakardini	wamarla	Fine	Fine – female human
bat (small), flying fox (small)	ngaliminymirni	ngarlamany- many, ngarlaminymina	Fine	Fine – atypical animal
female skin name, same sub- section as male Jabijinnginja (all follow this pattern)	Nabijinnginju	Nambijinba	BAD – looks neuter, but see below	Fine – female human
emu; Dromaius novaehollandiae	kirninginjirni	karnanganja	Fine	Fine – atypical animal

4.1.4 Allocation of Mudburra Nouns to Vegetable Gender
Finally, of the 19 Mudburra nouns borrowed into vegetable gender in Jingulu, 21% (n=4) were unchanged, as shown in Table 8.

In all but one of these cases, *ngurrmana* ‘blanket’, the Mudburra form already ended in a sequence i.e. *-mi* or *-bi* which Jingulu would recognise as a characteristic ending for the vegetable gender (§2). Three of the four forms have the expected semantics, with the fourth form being the name of a plant part. Half of them had both the expected semantics and phonology.

Other cases where Mudburra forms are borrowed in Jingulu vegetable gender all involve adding *-mi* (or its allomorph *-bi*), Jingulu’s characteristic vegetable gender ending, to the Mudburra word (§2). If the word is vowel-final, the final vowel is usually replaced with /i/. This ending, like the feminine *-(r)ni*, triggers regressive vowel harmony (Pensalfini 2002). There were 15 such forms in the database, outnumbering unchanged vegetable gender borrowings by almost 3:1. See Table 9 for some of the forms:

The phonological changes are entirely predictable, and most of these nouns fit the semantics of the vegetable gender class.

TABLE 8 Borrowed Mudburra forms into Jingulu vegetable gender (with no change)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
yellow-jacket tree ¹⁰	kambulumi	kambululmi	Fine	Fine – edible gum on tree
bark	barndabi	barndabi	Fine	unexpected – tree parts usually neuter
bush banana	kilibi	kilibi	Fine	fine
blanket, traditional initiation headwear, string, radio, wireless	ngurrmana	ngurrmana (string) barlkina (blanket)	Unexpected – looks MASC	Fine – extension of ‘string’ meaning

TABLE 9 Borrowed Mudburra forms into Jingulu vegetable gender (with some change i.e.→ mi/bi)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
wild onion	kinyuwurumi	kinyuwurra	Fine	Fine – edible plants
tail	nyinjimi	nyinyji (lower back)	Fine	Fine – long thin body parts
soap tree	bilangbilangmi	bulangbulang	Fine	Fine – plants
navel, umbilical cord	majulujulubi	majula (stomach)	Fine	Fine – umbilical cord, like other ropes etc are veg (long and thin), navel is extension.
spear	karnarrinyimi	karna	Fine	Fine – spears are VEG
ceremonial ring	ngirrinyinmi	ngarranyana	Fine	Bad – ceremonial words are usually neuter. Shape doesn't seem right either.
hip, rump	mirimi	maru (hip)	Fine	Bad – body parts are neuter, shape doesn't seem right.

¹⁰ Terminalia canescens

TABLE 9 Borrowed Mudburra forms into Jingulu vegetable gender (with some change i.e. → mi/bi) (*Cont.*)

English	Jingulu	Mudburra	Phonological criteria	Semantic criteria
knee; elbow	mujumi	munjuna (elbow); dingari (knee)	Fine	Fine – pointed body part
grass with prickly seeds	burrurumi	bururru	Fine	Fine – pointy ‘fruit’
shield	kurdujumi	kurduju, kuwarri, mirda	Fine	Fine – long thin object
fire-stick tree; <i>Premna acuminata</i>	kungkulimi	kungkarla	Fine	Fine – long pointed shape
back of neck	jikidikidibi	jikirdikirdi	Fine	Fine – long thin body part
wild curry kurrajong; <i>Brachychiton multicaulis</i>	miyikimi	miyaka	Fine	Fine – edible vegetable
fishing log	limirnmi	liminmi	Fine	Fine – long thin object

4.1.5 Summary

What determines which gender Mudburra nouns were allocated to when they were borrowed into Jingulu? The data shows that no single factor accounts for all cases, which is in line with Poplack et al's (1982) observation about the competing and simultaneous influences of factors in gender systems. Firstly, we find that the über-superclass of masculine does not play an absolute default role in gender allocation, but rather the masculine and neuter genders, which are the default Jingulu animate and inanimate superclasses respectively, are most salient. Most commonly, Mudburra nouns are allocated masculine gender (40%, $n=66$) or neuter gender (34%, $n=57$). In comparison, only a small number of Mudburra nouns were allocated to the feminine (15%, $n=25$) and vegetable gender (11%, $n=19$) which are considered specialised classes within the superclassing system. Nouns which are borrowed into the latter two specialised classes almost always have their endings altered to fit the characteristic endings of these classes, unless they already match them in their Mudburra form.

In general, 27% (n=45) of Mudburra loans show a change in their ending in ways which relate to their gender allocation.¹¹ 4.5% (n=2) are masculine, 20% (n=9) are neuter, 44.5% (n=20) are feminine, and 31% (n=14) are vegetable. In contrast, nouns which are borrowed into the masculine and neuter genders are most likely to remain unaltered in terms of their endings, largely because they match the characteristic phonology of these classes. 73% (n=122) of the 167 loans from Mudburra into Jingulu show no change to the ending of the noun. All of this would suggest that phonology is a strong determinant of gender allocation, however we find that the semantic criteria plays a significant role. Of the 122 Mudburra nouns which don't change when they are borrowed into Jingulu, 88% (n=107) have the expected semantics, 71% (n=87) have the expected phonology (and 60% (n=73) have both the expected phonology and semantics).

4.2 *Gender Suffixes on Jingulu Nouns Borrowed into Mudburra*

In this section we examine what happens to the gender endings on Jingulu nouns when they are borrowed into Mudburra, a language with no grammatical gender. 22.5% (n=92) of all 410 shared show this direction of borrowing.

4.2.1 The Productivity of Gender on Borrowed Jingulu Nouns Stems

In 85% (n=78) of cases where a Jingulu noun is borrowed into Mudburra, the gender marker is borrowed as part of the noun, as shown in Table 10.

Of these unchanged Jingulu-origin nouns, 46% (n=36) are masculine in Jingulu, 19 of them ending with the characteristic masculine *-a*, and eight with the older Mirndi masculine *-ji*. The remaining eight end in /i/ but not as part of a recognisable gender ending. 27% (n=21) of the unchanged words are neuter in Jingulu, eight of which end with the characteristic neuter *-u*, 11 end in /a/, and two end in /i/, but not as part of a recognisable gender ending (none are consonant final). 15% (n=12) are feminine in Jingulu, 10 of which end with the characteristic feminine *-mi*, one ending in /i/ but not as part of a recognisable gender suffix, and one ending in /u/. Finally 12% (n=9) are vegetable in Jingulu, all of which end with the characteristic vegetable suffix *-mi*.

Despite the majority of Jingulu forms remaining unchanged in the process of borrowing into Mudburra, we found 14 cases (15%) where there are changes to the end of the word from Jingulu to Mudburra. These are organised and discussed by the nature of the change in Table 11-Table 15.

11 Note that there were some other changes in a handful of stems, but we are not interested in such matters as lenition at the beginning or stem-internally, minor changes to vowels stem-internally (other than those conditioned by feminine and vegetable suffixes), or the addition of derivational morphology in Jingulu.

TABLE 10 Jingulu nouns borrowed into Mudburra with no changes

English	Jingulu	Jingulu Gender	Mudburra
finger nail, toenail, claw, talon	milinji	MASC	milinji
hill kangaroo	(w)ankurra	MASC	wankurra
ta-ta lizard	kaburi	MASC	kaburi
jabiru	karrinji	MASC	karrinji
spider	karruji	MASC	karruji
baby (human)	manjala	MASC	manjala
woomera,	ngarluka	MASC	ngarluka
spearthrower			
red-legged stilt	nginginji	MASC	nginginji
left-handed (person)	(w)akunya	MASC	wakunya
spinifex grass,	kinima	MASC	kinima (spinifex
spinifex wax			wax)
freshwater mussel	marlangayi	MASC	marlangayi (mussel)
hungry	balika	MASC	balika
ochre (yellow)	dankurra	MASC	dankurra
ghost gum	darralyaka	MASC	darralyaka
star	jirnkiji	MASC	jinkiji
western brown	ngayiliji	MASC	ngayiliji
snake			
whirlwind,	mayamba	MASC	mayamba
willy-willy			
bone	kardakarda	NEUT	kardakarda
muscle, flesh, beef	kanyburru	NEUT	kanyburru
armpit	wanjku	NEUT	wanyku
headband	bakuri	NEUT	bakuri (women's, ceremonial)
body hair, fur,	nganya	NEUT	nganya
eyelash			
grass (most types)	bikirra	NEUT	bikirra
head	damangka	NEUT	damangka
lung	jaalyakbalyaku	NEUT	jaalyakbalyaku
smoke tree	bularraku	NEUT	bularraku
louse	mukunjirni	FEM	mubunjini
ibis	kunymirni	FEM	kunymirni
corella, white	birrili, birrilyi	FEM	birriyili
cockatoo			

English	Jingulu	Jingulu Gender	Mudburra
bronzewing pigeon	marababirni	FEM	marrababirni
hopping mouse	munyunyurni	FEM	munyinyirni
yam type	kibilimi	VEG	kibilmi
wild orange tree, bush orange	burnaringmi	VEG	bunayingmi
nose	kilimi	VEG	kilimi
lumbar back, back (lower)	barndumi	VEG	bandumi
white currant	ngaburrayimi	VEG	ngaburrayimi

TABLE 11 Final /u/ → /a/

English	Jingulu	Jingulu gender	Mudburra
salt, poison, medicine	lungkaru	NEUT	lungkarda
left (side)	wakunyu	NEUT	wakunya
moustache	jawulungbulungku	NEUT	jawurlungkulunga

TABLE 12 /i/ → /a/

English	Jingulu	Jingulu gender	Mudburra
peewee, magpie lark	dirridirriji	MASC	dirridirrija
lancewood tree	karnawunji	MASC	karnawuna

This vowel change could be interpreted as losing the neuter suffix *-u* and replacing it with an epenthetic /a/, which Mudburra generally does when borrowing consonant-final nouns.

This vowel change could be viewed as loss of the (old Mirndi) masculine suffix *-ji* in the case of ‘lancewood’, where Mudburra may have lost *-ji* and added an epenthetic /a/ to avoid a consonant-final noun. However in the case of

‘peewee’, Mudburra has kept the /j/ and then added epenthetic /a/. It is not clear why Mudburra would not simply retain **dirridirri* or keep the complete form. However, bird names, particularly those with an onomatopoeic component, seem to be a law unto themselves when it comes to borrowing (Meakins and Pensalfini, submitted).

In these cases, Mudburra appears to have removed Jingulu’s feminine gender suffix and replaced it with /a/ or /i/. It is not entirely clear why these forms have undergone this process while the nine forms in Table 10 ending in /rni/ have not. There appears to be no semantic rationale for this difference. For instance the word for the ‘small diver duck’ has undergone the process while the word for ‘cormorant’ has not (however note that Mudburra also uses the Jingulu form without modification as an alternative name for ‘small diver duck’). The word for ‘short neck turtle’ shows a sophisticated understanding of Jingulu morphophonology, suggesting a high degree of bilingualism at the time of borrowing. The other two forms in the Table 13 end in an /a/ in Mudburra. We hypothesise that historically the stem in Jingulu was also (*kijakija*-, *birrida*-) and it shifted gender at some point adding *-rni* is added, with vowel harmony changing the final /a/ to /i/. If the stem for ‘short neck turtle’ were *kulumandarra*-, then addition of *-rni* would produce the Jingulu word *kulumindirri-rni*. The fact that that form is *kulumandarrirni* suggests that the underlying stem is actually *kulumandarri*-. When *-rni* is added to *kulumandarri*-, the stem-final /i/ blocks the harmony from spreading further into the stem (Pensalfini, 2002). Mudburra speakers seem to recognise this, and thus the word surfaces in Mudburra as the bare Jingulu stem *kulumandarri*.

TABLE 13 Loss of feminine ending -rni

English	Jingulu	Jingulu gender	Mudburra
bull ant	kijakijirni	FEM	kijakija
turtle (short neck)	kulamandarrirni	FEM	kulamandarri
diver duck (small)	birridini	FEM	birrida birridini birriwidi
itchy caterpillar, ‘greenfire’	burruburrurdi	FEM	burruburrurda
masked lapwing	dirrjirirni	FEM	dirrjirrina

TABLE 14 Loss of vowel harmony

English	Jingulu	Jingulu gender	Mudburra	Wambaya
stone axe	kirnbirlirdi	FEM	karnbalaja	ganybalinya

The common root in the words for ‘stone axe’, shown in Table 14, is *kaNbala*. Jingulu’s feminine gender suffix (*-rdi*, and allomorph of *-rni*) triggers regressive vowel harmony, as previously described, which results in all of the low vowels in the stem raising to /i/. It could be that Mudburra has borrowed the Wambaya word rather than the Jingulu, which is why the Mudburra form lacks high vowels. In either case, Mudburra has ‘undone’ the gender morphology and accompanying vowel harmony: if borrowed from Wambaya, Mudburra has removed the feminine suffix *-nya* and replaced it with /ja/; if borrowed from Jingulu, Mudburra has removed the feminine *-rdi* and undone the vowel harmony, and added /ja/. Either scenario raises the question of what the Mudburra sequence /ja/ is doing. If the latter scenario is the case, this demonstrates a keen understanding of Jingulu morphophonology among Mudburra speakers at the time the word was borrowed, suggested a high degree of bilingualism.

Some final remaining cases are given in Table 15. We hypothesise that the Jingulu and Mudburra forms for ‘axe’ are actually both derived from a reduplication of **rdawu*. In Mudburra, the retroflexion disappeared, while in Jingulu **rdawurdawu* was reduced to *rdardawu* after Mudburra borrowed the word, but apicals are never retroflexed in initial position in Jingulu. Note that all words for axes are feminine in Jingulu. The Jingulu word for spider-web, *marawunji*, is identical to the Wambaya word for ‘spider’ (none of the other languages having a form anything like this). This has lost the sequence /nji/ in Mudburra. There is no apparent explanation for this. The masculine gender suffix in Wambaya is *-ji*, and ‘spider’ is indeed masculine in Wambaya. In Jingulu, however, *marrunji* means spider-web (‘spider’ is *karruji*) and is neuter in gender. Mudburra could be argued to have dropped a gender ending but then we would expect the resultant **marawun* to take an epenthetic final /a/ to become **marawuna*, as usually happens with consonant-final stems in Mudburra, rather than to drop the final /n/.

In general, of the 14 cases where Jingulu endings change when a word is borrowed into Mudburra, 4 are masculine (29%), 3 are neuter (21%), 7 are feminine (50%), and none are vegetable. Mudburra removes a Jingulu masculine

TABLE 15 Remaining cases

English	Jingulu	Jingulu gender	Mudburra
axe	dardawu	FEM	dawudawu
web (of spider)	marawunji	MASC	marawu
child (crawling), toddler	dirndijakala	MASC	dirndij (co-verb: to crawl)

ending 11% of the time, a neuter ending 14% of the time, and a feminine ending 37% of the time.

In summary, 85% (n=78) of 92 borrowed Jingulu nouns show no change in their form. When Mudburra does change an ending, it is most likely to remove a feminine ending. This is perhaps not unsurprising, given that feminine is a specialised (marked) gender in the superclassing system, and is also more easily segmentable from the noun stem. If this is the case, however, it is surprising is that there are no instances of nouns from Jingulu’s vegetable gender, which is likewise a highly specialised and segmentable gender, having their endings removed. Nonetheless, it is worth noting that there are only 9 unambiguous instances of vegetable gender nouns being borrowed from Jingulu into Mudburra, out of a total of 92 clear borrowings (less than 10%).

Of relevance here is the fact that no native Mudburra noun stems have acquired gender endings. This suggests that the borrowed Jingulu noun has a fossilised Jingulu gender marker, analysed in Mudburra as being part of the root. In this respect, the Jingulu nouns ‘smuggled’ the gender endings in as unanalysable ‘trojan horse structures’.

4.2.2 Evidence of Agreement Phenomena in Mudburra?

Given that there is no evidence of the productivity of gender suffixes in Mudburra, i.e. the extension of Jingulu gender suffixes to native Mudburra nouns, it is unlikely that agreement phenomenon would have transferred into Mudburra. Indeed, we find no evidence of gender concord in Mudburra. For example, in the following Mudburra clauses in (6)-(8), the Mudburra adjective *dija* ‘big’ does not change its form to agree with Jingulu-origin vegetable or masculine nouns. Similarly in (9), the Mudburra demonstrative *yali* ‘that’ does not change form in agreement with the Jingulu-origin feminine noun.¹²

12 Thanks to Amanda Hamilton for the first three examples. All examples are referenced with the following information: Speaker (two or three letter initial), source (recording, publication) and start time in recording. The Gurindji speakers were:

- (6) **Dijardija** **kilibi** kamba-rnini warlu-ngka
 big.REDUP bush.banana(v) cook- PRES fire-LOC
 (They) cook the big bush bananas in the fire. (SM: TTS1-76_11B-01: 40:31min)
- (7) **Dija** **yibilka**
 big water(m)
 Large waterhole. (SP: PMC1-PM1-01: 00:41min)
- (8) **Kamirrinji** **dija** duma-rni
 morning.star(m) big rise-INF
 The morning star rose big. (PD: PMC1-PM1-01: 36:23min)
- (9) **Yali=ma** **kilwilwirni=ma** murlu-ngarnarra ngurra-ngarnarra=ma
 That=TOP pigeon(f)=TOP this-DEN country-DEN=TOP
 The spinifex pigeon is from all around this country. (SD: Raymond et al., 2016)

5 Conclusions

This paper has explored large-scale bi-directional borrowing which has taken place over numerous (at least ten) generations between a language which lacks grammatical gender (Mudburra) and one with four grammatical genders (Jingulu). These languages come from two different, but bordering, language families. Remarkably little if any morpho-syntactic diffusion has taken place between the languages, each maintaining its own structure and core morphology, for example there is no evidence of an incipient gender system developing in Mudburra (§5.2.2). Nonetheless a result of the extensive borrowing, which has been in almost equal proportions in each direction, the languages now share 65% of their nouns. This paper has focused on this transfer of nouns to see how the different gender systems affect the form of loan words.

For the most part, and as the phoneme inventories and phonotactics of the two languages are very similar, loans from Jingulu into Mudburra retain their Jingulu form. The exception to this typically involve the removal of the gender suffix from Jingulu nouns in the feminine gender, which is a semantically specialised gender within the superclassing system, and one which involves the most regular and identifiable gender affixes. The recognition of these Jingulu gender affixes by Mudburra speakers attests to a high degree of bilingualism in the contact scenario. This is further evidenced by cases in which Mudburra has not only removed a Jingulu gender suffix, but also undone or mitigated the vowel harmony triggered in Jingulu by the presence of these affixes.

Jingulu's gender system has hitherto been characterised as being both semantic and formal (Pensalfini, 2003). Mudburra nouns borrowed into Jingulu reveal the basis of the Jingulu gender system to be predominantly semantic, with the form of the word following from its semantic classification, i.e. Jingulu generally assigns a Mudburra loan to a gender on the basis of its meaning, and then modifies the ending of the word in accordance with the following principles: if the word is assigned to either the default animate masculine gender or the default inanimate neuter gender, it is not modified; if the word is assigned to one of the specialised feminine or vegetable genders, the appropriate gender suffix is added and regressive vowel harmony is triggered. Note that the animate and inanimate superclasses shape the classification of borrowed nouns to some extent, with most nouns with unexpected genders allocated to the default animate (masculine) or default inanimate (neuter) genders.

As a final comment on gender and language contact in this region of northern Australia, it is worth noting the possibility that the 'disagreement' phenomenon in Jingulu (which reveals the superclassing of the genders) may be contact-related. Although there is no evidence of any incipient gender system in Mudburra, it is possible that contact with Mudburra may have caused the Jingulu gender system to 'weaken', permitting modifiers and demonstratives to appear without the morphology expected given the gender of their referent, but in accordance with the underlying superclassing of the system. We have not explored this here, but were the Jingulu system in an advanced state of attrition, we might expect loans to be assigned to the default genders regardless of their semantics, which, as demonstrated, is not the case. In almost all cases, the gender of borrowed nouns proceeds according to their semantics across all four genders.

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List of Abbreviations

DAT	dative	PRES	present
DEN	denizen	PST	past
FEM	feminine agreement	REDUP	reduplicant
(f)	feminine	TOP	topic
INF	infinitive	VEG	vegetable
			agreement
LOC	locative	(v)	vegetable
MASC	masculine agreement	-	morpheme
			break
(m)	masculine	=	clitic break
NEUT	neuter agreement		
(n)	neuter		

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