

Variation in Matukar Panau kinship terminology

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Referential kinship terms in Matukar Panau (Oceanic, Papua New Guinea) are obligatorily possessed. Traditionally, kinship terms are directly possessed in Oceanic languages (with an obligatory suffix on the root that agrees with the person and number of the possessor). In Matukar Panau, some kinship terms are also indirectly possessed (with a classifier that agrees with the person and number of the possessor). A third pattern shows double-marking of possessors with directly possessed terms co-occurring with a classifier. I present a multivariate analysis of the predictors that influence the choice of the direct, indirect or double-marked patterns. Older women and younger men are most likely to use the indirect pattern, particularly when discussing their own kin from their households, especially in conversational situations. The indirect possession pattern, then, is used for more integral relationships, what has previously been the semantic domain of direct possession in Oceanic.

Keywords: Oceanic, possession, kinship, classifiers, random forest, mixed-effects regression

1. Introduction

In Matukar Panau, an Oceanic language of Papua New Guinea, a speaker may refer to a particular referent with multiple terms that express the same relationship. That is, a speaker may refer to their mother with the term *tinau* or *ngahau nen* equally felicitously or to their older same-sex sibling as *tawau*, *ngahau dabok* or *ngahau ka*. The terms in the first set are directly possessed (with a suffix for the person of the possessor) while the terms in the second set are indirectly possessed (with a classifier that takes a possessor person suffix). The former terms must be possessed, the latter terms not. There is, then, a grammatical consequence of the choice of word to refer to ‘my mother’ or ‘my older same-sex sibling’. Not all kin-

ship relationships in Matukar Panau show this kind of variation, but eight different, commonly used kinship relationships have at least one directly possessed and one indirectly possessed referential term. The directly possessed terms are older. The indirectly possessed terms have entered the kinship system more recently. This paper is concerned with both the sociolinguistic circumstances in which a speaker may choose to use one term over another and the semantic aspects of the kinship system that influence higher levels of variability for particular terms and parts of the kinship system.

After a literature review on variation in kinship systems of other languages (Section 2.1) and the Matukar possession system in the context of Oceanic languages (Section 2.2), I present the Matukar Panau kinship system and show which parts of the system display variability (Section 3). I then use possessed kinship terms from the Matukar Panau corpus to test which predictors influence the choice of either direct or indirect possession (Study 1 and 2 in Sections 5 & 6). Results of these studies show that female speakers are generally more likely to use indirectly possessed terms than directly possessed ones and that parental and child relationships are more likely to be indirectly possessed than other kind of relationships. The results also show that indirect possession is more likely when speaking about one's own kin or that of an addressee and that direct possession is more likely when speaking about someone else's kin. Finally, indirectly possessed terms are more likely to be used in conversation than in narrative and exposition. Taken together, these findings indicate that there is an overall shift towards indirect possession for kin terms (also cf. Meakins & O'Shannessy, 2005; Meyerhoff, 2017), particularly in immediate and informal contexts, and that the greatest variation is in the domain of intimate relationships likely to be part of a single household (cf. Tyler, 1966; Beer, 2015).

2. Literature review

2.1 Variation in kinship

Variation in kinship systems, where there are multiple words for the same or similar relationships, is widespread and comes from several loci: shift in family structure, words moving from an address (vocative) system to a referential system and generic words narrowing their meaning. These kinds of semantic changes have also occurred in Matukar Panau, leading to new words entering the kinship system with a concomitant morphological consequence for means of encoding possession of kin terms.

Wholesale changes in family structures can lead to changes in kinship term meaning. Between the 12th and 14th centuries AD clan systems moved to nuclear family systems in Slavic speaking areas, so that differentiations between paternal and maternal line terms for siblings were replaced by terms that collapse sibling terms by line, only differentiating them by gender (Kryukov, 1998). Between the 2nd and 5th centuries A.D., the Chinese system had shifts in many terms that sprang from a loss of obligatory cross-cousin marriage, so that the kinship nomenclature system moved from bifurcate merging type to a bifurcate collateral type system (Kryukov, 1972, 1998). Systematic changes in kinship systems are also part of larger social changes. In Wampar, Papua New Guinea, changes in the kinship system are coming about through contact and the influence of English and Tok Pisin. Beer (2015) writes about the shift in the importance of certain familial obligations in light of modernisation of the Wampar community. "As kinship usage tends to move away from Wampar norms to Tok Pisin or English, it seems that certain differentiae (cross-sex or same-sex relative) have become less salient" (Beer, 2015, p.216). The choice of a spouse was previously made by one's sibling, but that practice is fading away. This change leads to less importance in the brother – sister relationship, conferring more importance to bonds between husband and wife.

The choice of reference to a kin relation may also be affected by cultural practices such as sister-exchange marriage customs. In Yuat, Papua New Guinea, the relationship between two individuals may be expressed differently depending on social circumstances. McDowell (1977) discusses the importance of the cross-cousin relationship in Yuat. Although in this small village in Papua New Guinea everyone is related in some way (and likely in more than one way), "marriage is forbidden with all categories of kin except one-classificatory cross-cousins" (McDowell, 1977, p.179). A cross-cousin in Yuat can be referred to as either a cross-cousin or a sibling, which depends on the household and social network of the cross-cousins-cum-siblings and their parents. It also depends on whether the cross-cousins (and also parallel-cousins) need to be referred to, and socially converted into, siblings so that they can be part of the sister exchange that is important part of marriage in Yuat. Therefore there is variation in this domain of cross-cousin reference because of the important necessity of the sibling relationship for marriage and because of social closeness of the parental generation due to that generation's sister-exchange marriage. Although there is variation in the term for a cross-cousin due to this social arrangement, the term for the particular relationship between two people does not vary.

In multilingual communities, speakers may use kinship terms from both languages, as in Koya villages, where speakers use both Koya and Telegu terms (Tyler, 1966). Speakers may also vary their terms based on social dynamics in

Koya, with certain terms being regarded as more respectful or more “sweet”. Koya also has variation in the possessive pronouns used, depending on the relationship between the referent and possessor (respectful or joking), sex of the speaker, age of the speaker and audience, specifically the presence/absence of a speaker’s elder consanguineal relative and/or presence/absence of a non-kin member. The highest amount of variation in Koya occurs for kinship terms that designate members of the same household, the area of highest interest and interaction in the community (Tyler, 1966).

A different type of variation is when words from the address system of kinship terms move into the referential system. Such was the case for Chinese, where in the 5th century AD *gu* was a referential word for mother-in-law and *po* was the address term. The address term later replaced *gu* so that the referential and address terms were both *po* (Kryukov, 1972, 1998). This is a relatively common type of change and is also seen in Oceanic languages. For example, in Paamese, the address terms *māma* ‘mother’ and *tāta* ‘father’ can be used referentially when possessed and are more frequently used as referential kinship terms than their equivalents *lati-* and *tame-* (Crowley, 1996). This is also found in Oceanic Unua (Pearce, 2015, p. 132). Finally, generic terms often undergo semantic shifts, narrowing their meaning to some kind of kinship term. It is well known that Old English *wif* ‘woman’, for example, narrowed in meaning to ‘female spouse’, although the old meaning is retained in compounds like *midwife* and *fishwife*.

Kinship systems are not necessarily very stable as relationships shift and terms for relationships are renewed. Variation can be expected in important areas of life as well as in circumstances of contact and societal shift.

2.2 Matukar possession

Matukar Panau is an endangered Oceanic language with around 300–500 speakers. Most speakers are over thirty and most children are no longer learning the language. It is spoken in Matukar and Surumarang on the North Coast of Madang Province in Papua New Guinea in the sub-family Bel. Everyone in these communities speaks Tok Pisin, and many older speakers are multilingual in other languages of the area, both Oceanic and Papuan.

Like most Oceanic languages (cf. Lynch, Malcom, & Terry, 2002), Matukar Panau has direct and indirect possession. The key feature of directly possessed nouns is that the possessor must be indicated with a suffix on the possessum noun root (1)–(2); the term cannot be used unless the possessor is indicated (3). An indirectly possessed noun occurs with a classifier which takes a suffix indicating the person of the possessor (4)–(5). An indirectly possessed noun is not obliga-

torily possessed (6)–(7). Examples show explicit (1), (4) and unexpressed (2), (5) possessors.

- (1) *nga-ha-u mam yang-an daidai ai*
 1SG-CLF-1SG father **name-3SG** daidai COP
 ‘My father’s name is Daidai.’¹
 Cathy Samun Wilian – Buai and Tabudape Chorus 20130412:
 8.86 ms–10.78 ms
- (2) *...bura-m gagau-dop, niu main agino-n ngale-p sisi*
throat-2SG dry-D:IRR coconut PROX **seed-3SG** get-D:IRR break
 ‘...your throat is dry, you get this coconut seed and break it open.’
 Bruce Kainor Kaluk – Niu do Mariu 20130422: 400.1 ms–408 ms
- (3) * *bura gagaudop, niu main agino ngalep sisi*
- (4) *...tibu-d ha-di ager sa-i-pid-do i*
 grandfather-1PL.EXCL CLF-3PL **war** ascend-3SG-descend-D:ADD 3SG
sol-e
 flee-I:R:PFV
 ‘The white man’s (lit: our grandfather’s) war came and he fled.’
 Bruce Kainor Kaluk – Life Story 20130422: 39.52 ms–47.49 ms
- (5) *ta-gamuk-ado ha-d mate-ng wai...*
 1PL.EXCL-talk-D:ADD CLF-1PL.EXCL **die-NMZ** About
 ‘We are talking about his sickness...’
 Rebecca Usarang – SocCog-mjk08-sd_klr_ru_3: 521.4 ms–523.3 ms
- (6) *ngam-mumui-e ngam-mado-ndo ngam-mado-ndo ager ti-e*
 1PL.EXCL-hide-D:R 1PL.EXCL-sit-D:ADD 1PL.EXCL-sit-D:ADD **war** finish-I:R:PFV
 ‘We hid, we stayed, we stayed and the war finished.’
 Bruce Kainor Kaluk – Life Story 20130422: 157.7 ms–161.3 ms
- (7) *mate-ng hun-i-nggo?*
die-NMZ hit-3SG-I:R:IPFV
 ‘Is he sick (lit: did sickness hit him)?’
 Kadagoi Rawad Forepiso – SocCog-mjk01-krf_spw_1:
 543.6 ms–544.5 ms

Matukar Panau has two additional possessive strategies. The first is used with some inanimate possessors, often locations (8) or nominalized verbs used for

1. Data freely available in archives: catalog.paradisec.org.au/collections/DGB1, catalog.paradisec.org.au/collections/SocCog & elar.soas.ac.uk/Collection/MPI1194127

characterization of the erstwhile object (9). In this construction a suffix *-(a)nen* occurs on possessor nominals. The suffix does not vary for person, it is either always third person singular due to the nature of the possessor or the form may simply be a frozen one. It should be noted that inanimate possessors can also be part of other possession constructions; they are not limited to this type and this inanimate possession strategy is relatively rare in my data. Other Oceanic languages also have a similar possession strategy, often using what is sometimes called a particle or preposition and the form is often something like *nen* or *nan* (cf. Crowley & Lynch, 2006a, 2006b, 2006c; Musgrave, 2007; Pearce, 2015; Schneider, 2010 *inter alia*). In these languages, this kind of construction is often called associative possession or prepositional possession and seems often to be used for non-controlling relationships. The second additional possession strategy in Matukar Panau is what I have been calling associative possession (10)–(12). Rather than the semantic characteristics of the possessor or possessum leading to the use of this strategy, it is the relationship between the entities. The suffix *-(a)ma-* occurs on possessor nominals and agrees with the possessor. This construction is used to encode characteristics of a possessor, some part – whole relationships and temporary co-occurrence. It is more common in my data. Some possessums, such as characteristics like colour or emptiness, always occur in this construction when possessed. This construction is the only means to express some characteristics like blindness (12). This construction is also used with nominalized verbs to characterize the erstwhile subject (13). Takia, a closely related Bel language, has a cognate form *a~ama-* ‘have’ which is used for predicative possession. In Takia, it is likely that it was grammaticalized from demonstratives *an* and *aman* (Ross, 2002, p. 229).

- (8) *garang-anen paintamat*
jungle-P.POSS people
‘people from the jungle’
- (9) *fun-i-k-anen pain*
fight-3SG-NMZ-P.POSS woman
‘a woman you have to fight/hit’
- (10) *nub kudu-ma-n*
water hole-APS-3SG
‘well’
- (11) *kagum sa-ma-di*
clay.pot emptiness-APS-3SG
‘empty clay pots’

- (12) *ngau kusup-ma-u*
 1SG blindness-APS-1SG
 'I am blind (lit: I my blindness)'
- (13) *tamat mon y-ani-k-ama-n haiyan*
 man DIST 3SG-eat-NMZ-APS-3SG bad
 'that man's (manner of) eating is bad'

From here on, I focus on solely the direct and indirect possession, as these are the possessive strategies used with kinship terms. In Oceanic languages, there is often a rough semantic division of possessums, as to whether they will be possessed directly or indirectly. The division between what possessive relationships are grammatically encoded by direct or indirect possession varies by language. In Matukar Panau, both direct and indirect possession can be used for kinship terms. Crowley (1996) also finds kinship terms possessed both directly and indirectly in Paamese, with blood relations more likely to be directly possessed and in-laws more likely to be indirectly possessed. However, he also finds many indirect equivalents to direct kinship terms. In Matukar Panau, in addition to kinship terms, direct possession is used for most body parts and some relational nouns that have grammaticalized from body part – terms (*patu* 'back, behind, outside', *na* 'face, in front of', *luwa* 'stomach, middle of' among others). Other directly possessed nouns include concepts that are closely related to body, the self or inner consciousness: *ilo* 'inside, thoughts, consciousness', *bru* 'anger', *antatu* 'picture, reflection, shadow', *abe* 'place, footprint', and the reflexive pronoun *hibe*-. Some, but few, body parts are possessed with the indirect strategy (*tabe* 'brain', *dar* 'blood'). In addition to kinship terms, indirect possession is generally used for ownership, controllability, some part – whole relationships and generally elsewhere (*han malal* 'his/her village', *han neuraurau* 'his/her story', *han bras* 'his/her age' etc.). Matukar Panau has one classifier for indirect possession *-ha*-, although some Oceanic languages have more than one depending on the type of relationship between the possessor and possessed entities (Lichtenberk, 1985, p.96). There are reconstructions for Proto-Oceanic for three classifiers: **ka* food/subordinate, **ma* drink and **na* general (ibid, inter alia). Ross (1988, p.186) also reconstructs a **le* general possessive for North New Guinea branch. The closely related Bel language Takia has two possessive classifiers: *sa*- and *a*-(/k)ane- (14), where the latter may mark a more intimate classification than the former in some dialects (Ross, 2002, p.229). This latter classifier seems to be cognate with Matukar Panau inanimate possession (cf. (8)).

(14) a. *Madi sa-n ab*

b. *Madi a(ne)-n ab*

Madi POSS-3SG house

'Madi's house'

(Ross, 2002, p. 229)

This semantic distribution of possessums being possessed with direct and indirect strategies in Matukar Panau is fairly similar to what is documented for other Bel languages. Takia has a similar system where kinship terms, body parts and parts of wholes are directly possessed, and where other kinds of relationships are encoded with indirect possession (Ross, 2002, p. 228). Gedaged uses direct possession for body parts, kinship terms and a handful of other concepts, many of which have Matukar Panau cognates: *ilo, la* 'within, inside, consciousness' *nitu, nutu* 'shade, soul' *baye* 'surrounding' *muzi, muzu* 'back, behind' *buzu* 'anger' *memalu* 'disgust, loathing' *abe* 'place, (foot)print' *gezaye, gezeye* 'side' *patu, putu* 'kernel' *jau, ju* 'joy' *segaza* 'envy' (Dempwolff, 1936, p. 24).

Generally in Oceanic some words can be possessed with overlapping possessive strategies, and sometimes this comes with a predictable change in meaning (Lynch, 1973), but sometimes it may be a free variation (cf. Crowley & Lynch, 2006c for Avava). In Matukar Panau, *yang-* 'name' can be either directly or indirectly possessed (*ngahau yangan, yangau* 'my name'), as can *lu* 'cross-gender sibling' (*han lu, lun* 'his sister, her brother'). I have not identified any corresponding meaning difference for these possessed terms. There are several words in Matukar Panau that have differences corresponding to whether or not they are possessed. *Apain* 'girl', *aim* 'boy', *pain* 'woman', and *tamat* 'man' become 'daughter', 'son', 'wife' and 'husband' respectively when possessed. The possession of these words is indirect.

A paradigm of the indirect possessive classifiers and direct possession suffixes is provided in Table 1. The indirect possessive classifier is *-ha-* which takes a suffix depending on the person of the possessor. The suffix paradigm for the classifier is the same as the paradigm for the direct possession nominal suffixes. For the first person singular possessive classifier, there is an additional obligatory prefix *nga-*. For the first person plural exclusive possessive classifier, there is an optional prefix *nga-* so that the classifier is either *nghamam* or *hamam*. This is likely derived from a pronoun expressing the possessor (*ngau* '1SG' or *ngam* '1PL.EXCL') followed by the classifier. Ross (2002, p. 229) also noted this pattern for Takia, observing that "because the possessor is often expressed, there are portmanteau combinations of possessor and suffixed classifier in some dialects". The example he gives is a first person singular one, where the possessive classifier *ngine-g* alternates with (*ngai*) *ane-g*. This may be a recent change, as an earlier work, Z'graggen's (1971, p. 135) survey of Madang area languages, lists the first person possessive classifiers in

Matukar Panau as *ha-ng* and *ha-mam*, without the prefixes. However, an even earlier work from Kaspruś (1942) lists most the classifiers as having prefixes, as in *ng-ha-u*, *ong-ha-m*, *i-ha-n*, *nga-ha-mam*, *ang-ha-mim*, but *ha-di* (p.767). In present day Matukar Panau only the first person plural exclusive classifier shows any prefix variation. Perhaps there was formerly variation that led to the discrepancies between the Z'graggen and Kaspruś data, or perhaps this is due to differences in data collection.

Table 1.

Person	Direct possessor suffix	Indirect possessor classifier	Person pronoun
1SG	-u	<i>nga-ha-u</i>	<i>ngau</i>
2SG	-m	<i>ha-m</i>	<i>ong</i>
3SG	-n	<i>ha-n</i>	<i>i</i>
1PL inclusive	-d	<i>ha-d</i>	<i>id</i>
1PL exclusive	-mam	<i>nga-ha-mam/ha-mam</i>	<i>ngam</i>
2PL	-mim	<i>ha-mim</i>	<i>ang</i>
3PL	-di	<i>ha-di</i>	<i>i</i>

Note. Person pronouns are used for subjects, objects and recipients invariantly.

Because there are two distinct sites of possession in the noun phrase in Matukar Panau (a classifier preceding the term or a suffix on the term), there are occasions where a speaker will use an indirect possessor classifier with a directly possessed noun (15)–(16). This is infrequent, but does occur occasionally in the speech of many different speakers in the Matukar Panau corpus, for both kinship terms and body parts. Figure 1 shows the frequency of possessed nouns by their semantic category and possession type (limited to direct, indirect and double-marked possession, *n* = 5,511). This figure makes it clear that kinship words are possessed using all three strategies. Body part terms are rarely indirectly possessed, and that most other kinds of words are indirectly possessed.

- (15)

ha-di

lu-di

di-uri-nge

di-ya-go.

CL-3PL cross.gender.sibling-3PL 3PL-follow-R:D 3PL-go-R:I:IMPV

‘They are following their sisters.’

Kadgoi Rawad Forepiso-Frog_Story_20130504: 788.09 ms–791.31 ms
- (16)

nau-di-ya

gamuk-ado

ha-n

bube-n

y-abi-nggo

face-3PL-FOC talk-CONJ CL-3SG liver-3SG 3SG-hold-R:I:IMPV

‘He is speaking in front of them and holding his liver (being emotional).’

Rosa Mod – SocCog-mjk03-rm_vk_1: 609.32 ms–612.81 ms

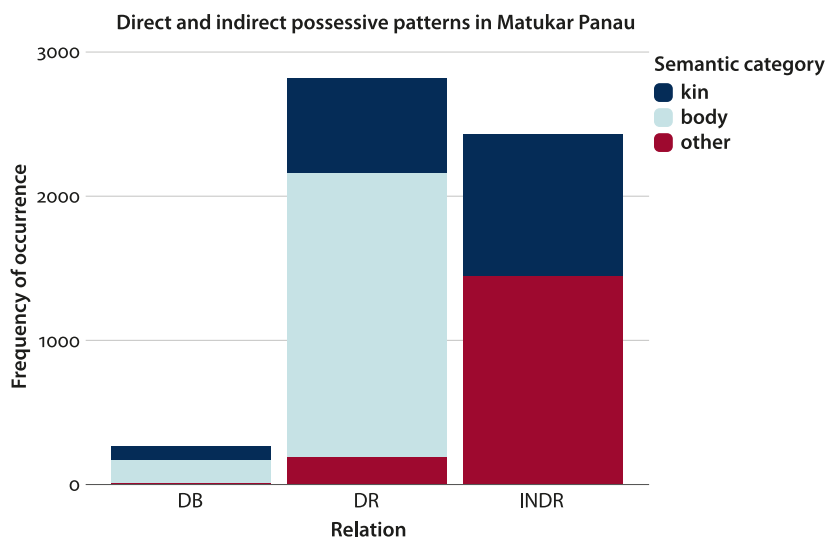


Figure 1. Frequency of possessed nouns by semantic category of possessum and possession type (Doubled, Direct or Indirect)

3. The Matukar Panau kinship system

3.1 Kinship terms and their sources

There are several sources of kinship terms in present-day Matukar Panau. Most of the directly possessed kinship terms are reflexes of the referential proto-Oceanic kinship words. In addition, there are referential kinship terms that have developed from vocative kinship terms, generic words that are understood as kinship terms when possessed, and an adjective that is understood as kinship term when possessed. These latter three types of kinship terms are indirectly possessed.

First, we turn to the Matukar Panau set of vocative/address kin terms for ‘mother’ *nen*, ‘father’ *mam* and ‘grandparent, grandchild’ *ses* or *sise* (17)–(19), with at least the first two being reflexes of proto-Oceanic vocative terms (Marck, forthcoming). Kaspruś (1942) glosses *mam* as ‘husband’s father’ and the vocative for ‘mother’s sister’s husband’ and *nan* as ‘husband’s mother’ and *nyen* as the vocative term for ‘father’s brother’s wife’. Currently in the language, the terms *mam* and *nen* do not have these meanings. Kaspruś (1942) also lists variants of *nen*, *mam* and *ses* in the nearby Papuan (non-Austronesian) languages Saker, Em and Ate that correspond to referential (not vocative) terms where he has Matukar *tamau*, *tinau* and *tibu*. Dempwolff (1936, p.22) writes that, for the Bel language Gedaged, the replacement family terms *nen* ‘mother’, *mam* ‘father’, *ses* ‘grandmother, grandfather, grandchild’, and *kak* ‘older brother, older sister’ (among others) are used

vocatively because the proper names for these relations dare not be used out of respect. Today in much of the area near Madang, *mam* and *nen* are used widely to mean father and mother even while speaking Tok Pisin by speakers of both Bel and Papuan languages. They are regularly combined with peoples' names or nicknames (*Nen Kadagoi*, *Mam Jobo*, *Nen Manamuk*, *Mam Wolfgang*) and used both referentially and as address terms for anyone of an older generation. Because they do not have the shape to be (or tradition of being) directly possessed, when used referentially they are indirectly possessed (20)–(22).

- (17) *se nen!*
 hey mother
 'hey mom!'
- (18) *o mam!*
 oh father
 'oh dad!'
- (19) *sise mai!*
 grandchild stop!
 'stop grandchild!'
- (20) *ha-di nen*
 CL-3.PL mother
 'their mother'
- (21) *ha-d mam*
 CL-1.PL.INCL father
 'our (incl.) father'
- (22) *nga-ha-mam sise*
 1-CL-1.PL.EXCL grandchild
 'our grandchildren'

In present-day Matukar Panau, several generic human referent words are used as kinship relationship terms when possessed. The words for 'man' *tamat*, 'woman' *pain*, 'boy' *aim* and 'girl' *aipain* (23)–(26), mean 'husband', 'wife', 'son' and 'daughter' respectively (27)–(30) when possessed. These generic terms are always indirectly possessed, rather than directly possessed.

- (23) *tamat mon tur-ago*
 man DIST stand-R:I:IMPV
 'that man is standing'

- (24) *pain nage-nggo*
 woman work-R:I:IMPV
 'the woman is working'
- (25) *aim main di-te-nge*
 boy PROX 3PL-see-R:I:PFV
 'they looked at the boy'
- (26) *aipain onon bal-ago*
 girl Hook fish-R:I:IMPV
 'the girl is fishing'
- (27) *ha-m tamat*
 CL-2.SG man
 'your husband'
- (28) *nga-ha-u pain*
 1-CL-1.SG woman
 'my wife'
- (29) *ha-n aim*
 CL-3.SG boy
 'her son'
- (30) *ha-di aipain*
 CL-3.PL daughter
 'their daughter'

Finally *dabok* 'big' can be used as a kinship term in Matukar Panau. *Dabok* is part of a small set of adjectives in the language (words that can modify nouns in a noun phrase) limited to size, colour and intensity terms. These words are often used as verbs, taking verbal inflection to have inchoative or completive meanings. As a possessed noun, *dabok* can indicate either an elder sibling (31) or a grandparent. It can also mean elder in general, such as the elders or important people of the village (32). This is the only nominal use of *dabok* I have found thus far in my corpus data. Kaspruś (1942) lists *dabok* as an expression for priority, meaning it must have been used to refer to some elders. Whether or not the meaning of 'elder' lead to a more general meaning of 'big' or vice versa is unclear to me. However, the use of *dabok* as a sibling term seems to be newer, and is probably due to analogy with Tok Pisin. In the Papua New Guinea creole one can refer to an older sibling as *bikpela blo mi*, lit: my big.

- (31) nga-ha-u dabok ida
1-CL-1.SG big COM
'with my elder sister'

Kadagoi Rawad Forepiso – SocCog-mjk01-krf_spw_3:
235.82 ms–239.23 ms
- (32) do main-angan eblong malal ha-n dabok
and PROX-FOC COMP village CL-3.SG big
'And that one is like the village's grandfather.'

Taleo Kreno – SocCog-mjk02-tk_jb_1: 1085.00 ms–1087.47 ms

A word list for the primary kinship terms is presented in Table 2 below. The second column shows a selection of reported terms from Kaspruś (1942) who collected his data in the 1930s. The next two columns show words I have collected through fieldwork between 2010 and the present. Terms with both directly and indirectly possessed forms in the Matukar Panau corpus are in bold, as these are the sets of terms that can be investigated for variation.

Table 2.

Kinship relation	Kaspruś term	Directly possessed term(s)	Indirectly possessed term(s)
great great grandparent-great great grandchild (reciprocal)			-ha- matan huhulun
great grandparent-great grandchild (reciprocal)			-ha- bagebagen
grandparent-grandchild (reciprocal)	tib-	tibu-	-ha- sise~sese
elder		tibu-	-ha- sise~sese, -ha- dabok
mother	tina-	tina-	-ha- nen
father	tama-	tama-	-ha- mam
aunt-niece/nephew (reciprocal)			-ha- bih~bihbih
uncle-niece/nephew (reciprocal)		wa-	
older sibling (same gender)	tawa-	tawa-	-ha- ka, ha- dabok
eldest brother			-ha- matu
younger sibling (same gender)	tey-	tei--tai-	-ha- te
cross-gendered sibling	lu	lu-	-ha- lu
cousin	iva- ²		-ha- kol
child		natu-	

2. Kaspruś (1942, p.777) lists *iva-u* as ‘father’s sister’s children’ and has no term for ‘father’s brother’s children’ or ‘mother’s sister’s (or brother’s) children’.

Table 2. (continued)

Kinship relation	Kaspruś term	Directly possessed term(s)	Indirectly possessed term(s)
children			-ha- aipainimaim~aimaipainim
daughter	natu pain		-ha- aipain, -ha- natun
son	natu-, wauwau-	wado-	-ha- aim
spouse		yawa-	
husband	tamat yawa-da	yawa- tamat	-ha- tamat
wife	pain yawa-da	yawa- pain	-ha- pain
parent-in-law		rawa-	
wife's mother/husband's wife	rawa-		
wife's father/daughter's husband	niu tie-		
husband's mother	nan		
husband's father	mam		
expression for priority	dabok		
expression for posterity	katetu		

3.2 Kin term usage

Matukar Panau has more kinship terms than what are listed in the table above. For example there are terms for other affines (in-laws) that are rarely found in the corpus, which I have encountered only through elicitation or the word list from Kaspruś (1942, p. 776–778). Several of the terms from Kaspruś seem to no longer be used in Matukar. This may be due to change in the last 90 years since the word list was collected. It may additionally be due to differences in data collection methods. Finally, some differences between the Kaspruś terms and modern usage are due to how kinship terms are used in practice. Generally, a person's aunts and uncles can be referred to with the terms for mothers and fathers and their nieces and nephews can be referred to with terms for daughters and sons. More generally, anyone within the same clan or large family group that is of the same generation can be referred to with a sibling term, anyone of one generation above can be referred to with a father/mother term, anyone of one generation below can be referred to with a child term and anyone two generations above or below can be referred to with a grandparent/grandchild term. This is a kind of merger of kin classification (cf. Lounsbury 1964; Scheffler 1978, p. 101, 115). This means that words for these relationships are much more frequent than

other relationships like ‘father’s sister’s children’ which Kaspruś (1942, p. 177) identifies as *iwa-u*, a relationship which occurs only once in the current Matukar Panau corpus. Rather this relationship is encoded with a term for ‘daughter’ or ‘son’. Again, ‘father’s younger sister’ which Kaspruś (1942, p. 176) lists as *nenābi-u katetu* would be expressed with a term for ‘mother’. The word *bih* ‘sister of father or mother’ encompasses the meaning of father’s younger sister and occurs only once in the current Matukar Panau corpus.

The usage of kinship terms is naturally more complex than what can be seen in a table. In Matukar, most people will have multiple spouses over the course of their life and have children with each spouse. How people refer to consanguineal half-siblings and step-siblings depends primarily on the household in which they are raised. These people will either be siblings or not, there are no special words for half- or step- relations. Additionally, many children are adopted into households of relatives and raised as the children or grandchildren of the head of that household. Only later on as an adult will the child learn who their birth mother (and/or father) are. So, someone may be raised in a household with a consanguineal cousin whom they consider their sibling by a consanguineal aunt who they consider their mother. Note an aunt or a mother will both be referred to with the same word, *nen*, because they are of the same generation. As a further complication to usage, many women have children over the full fertile period of their life. That means that often children are the same age as some of their aunts or uncles, and may live with them in the same household and grow up together as siblings. It is correct to refer to same-age multi-generational relatives with either sibling or parent terms. This usage will depend again on household structure and other family-specific situations that are unfortunately beyond the scope of the present paper.

4. Data

The data for this study comes from a corpus of 99 texts (approximately 14 hours) from Matukar Panau collected between 2010 and 2016. The corpus consists of roughly 43,000 words from 44 different speakers. Half of the corpus is made up of primarily monologues consisting of family stories, stories of the traditional Matukar way of life, descriptions of traditional aspects of culture and cultural activities, some narrations of videos of typical village activities like gardening, cooking, and some traditional or mythical stories. The remaining half of the corpus comes from conversations, descriptions and narrations stimulated through the Family Problems Picture Task (San Roque et al., 2012). This task involves pairs of speakers describing 16 cards with illustrations of people engaged in dis-

cussion and family activities and dealing with drinking, domestic violence and jail time. Because it can easily be interpreted that most of the people featured in these cards are family members, many (about 59%) of the tokens of kinship terms come from this data.

Two analyses of the data are presented below. Study 1 has a three-way dependent (or outcome) variable to look at the full range of possible patterns a speaker could use to refer to a kin member. The methodology used is recursive partitioning, including a classification tree (Hothorn, Hornik, & Zeileis, 2006) and a random forest (Hothorn, Bühlmann, Dudoit, Molinaro, & Van Der Laan, 2006; Strobl, Boulesteix, Zeileis, & Hothorn, 2007; Strobl, Boulesteix, Kneib, Augustin, & Zeileis, 2008). This approach provides an exploratory look at the data and predictors to assess which predictors are relevant for further analysis. Study 2 reduces the data down to a two-way dependent variable and uses mixed effects generalized linear regression (Bates, Maechler, Bolker, & Walker, 2015) to assess the significance of predictors that were evaluated as important in Study 1.

5. Study 1

5.1 Study 1 data

The first study of kinship possession presented in this paper is concerned with determining the primary motivations for using traditional direct pattern with traditional terms, the new indirect pattern with newer kinship terms or both direct and indirect markers of possession with the traditional kinship terms. Is the emergence of the indirect pattern due to a preference for particular words for kinship relationships or due to individual speakers' usage or due to the preferences of groups of speakers (young people, women, young women, etc.)? To explore this question, I use recursive partitioning, first building a classification tree model and then assessing predictor relevance by using a random forest variable importance ranking. Table 3 shows the number of tokens by relationship, word and possession pattern. Figure 2 shows the proportion of possession strategy by kin relation.

Table 3. Kinship word frequency by relationship and possession pattern

		Direct total		Indirect total		Double- marked total
Elder	tibu-	4	dabok ($n=4$), sise ($n=9$)	13	tibu-	4
Father	tama-	114	mam	90	tama-	12
Husband	yawa- tamat	21	tamat	87		0
Mother	tina-	32	nen	59	tina-	6

Table 3. (continued)

		Direct total		Indirect total		Double- marked total
Son	wado-	64	aim	129	wado-	13
Wife	yawa- pain	56	pain	203		1
Younger sibling (ys)	tai- (<i>n</i> =8), te- (<i>n</i> =3)	11	te	12	tai- (<i>n</i> =7), te- (<i>n</i> =7)	14
Older sibling (os)	tawa-	4	dabok (<i>n</i> =2), ka (<i>n</i> =23)	25	tawa-	5
Total		306		618		55

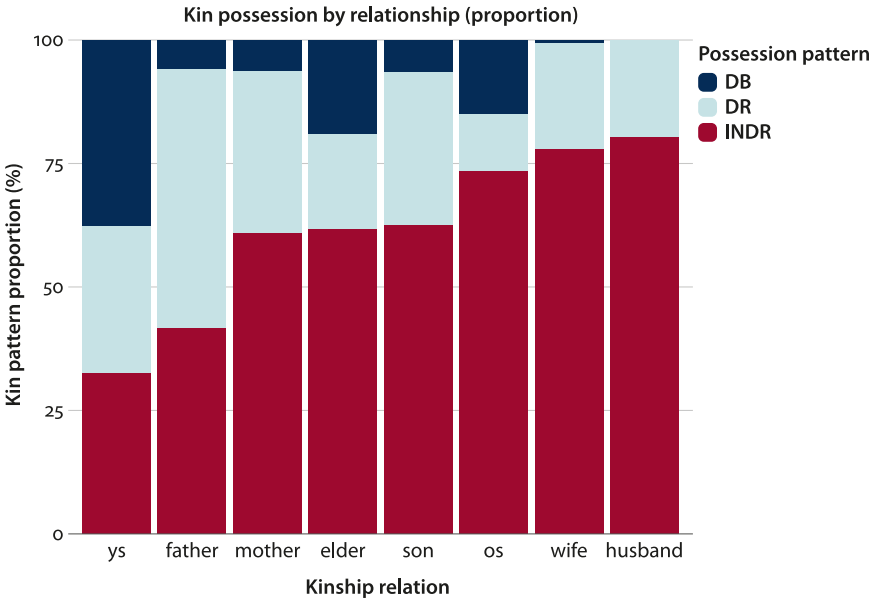


Figure 2. Possession pattern frequency by relationship
Note. DB – Double-marked, DR – Direct, INDR – Indirect

5.2 Study 1 methodology

I use two kinds of recursive partitioning to predict the three-level dependent variable of indirect possession, direct possession or double-marked possession. Random forests are an analysis based on a type of recursive partitioning analysis called classification trees, implemented here through the {party} package (Hothorn et al., 2006; Hothorn et al., 2006; Strobl et al., 2007; Strobl et al., 2008) in R (R Core Team, 2017). This kind of model determines which variable at which level(s) makes the best binary split of the data. Then after the first split, the classification tree determines which variables, or levels of a variable, makes the best

split of the remaining cases under each node. This continues until a stopping criterion is reached. Because each set of data under a node is looked at anew, the same variable can be used again in a lower level of the tree, with whatever levels are still relevant for that node. This feature of the classification makes it useful to explore non-monotonic relationships and predictors that impact only a portion of the data. Party classification trees also provide p values for each node indicating whether the group difference indicated by the split was significant. The algorithm for creating the tree model will not necessarily use all independent variables listed in the model specification. If there are IVs that would not make a significant split in the data, they go unused. In a random forest analysis, many classification trees are computed based on different subsections of the data and subsets of IVs, creating a “forest” of trees. Recursive partitioning as a methodology started in the medical sciences testing impact of pieces of DNA sequences on illness, but has been adapted to many other research areas including variationist linguistics (Schnell & Barth, 2018; Tagliamonte & Baayen, 2012). The variables included in testing are listed below.

Dependent variable – possession pattern

In Study 1, I examine a three level dependent variable, where the possession pattern may be direct, indirect or double-marked. Direct possession of kinship terms is most typical of Oceanic languages.

Independent variables

1. *Relationship*

The eight relationships examined are those found in Table 3 and Figure 2. Relationship is included as a variable to determine if the differences in kinship term usage is primarily due to particular relationships or not.

2. *Possessor Type (PSRsc)*

Tokens were coded for the realization of the possessor, either simplex or complex. Complex possessors are explicitly mentioned before the possessum ($n=66$) and simplex possessors are not mentioned explicitly but the possessum agrees ($n=913$) and are much more common in Matukar Panau.

3. *Speech Act Participant Possessor (SAP)*

Tokens were coded for the person of the possessor. Initial exploratory tests showed that third person singular and plural possessors patterned against first and second person singular and plural (exclusive and inclusive) possessors. Therefore, the possessor was simplified to being coded as a speech act participant or not. There are 304 tokens from speech act participant possessor and 675 third person possessor tokens.

4. *Speaker age (age)*

Tokens were coded as being spoken by an older speaker or younger speaker. Older speakers in this dataset are speakers who were 50 or older in 2010, and

younger speakers are those who were under 50 in 2010. Gabriel Nali Gall, the village recorder and census taker, and other residents of Matukar set 50 (in 2010) as the age of a person who is likely to use Matukar Panau most often, and those younger as likely to use Tok Pisin primarily, despite both groups being multilingual. There are 569 tokens from 18 older speakers and 410 tokens from 21 younger speakers in this dataset.

5. *Speaker gender (gender)*

Tokens were coded as being spoken by a female or male speaker. There are 674 tokens from 25 female speakers and 305 tokens from 14 male speakers in this dataset. In Matukar Panau society, women spend much more time with children than men. All the female speakers included in this study are mothers and most are also grandmothers. They tend to speak Tok Pisin with children, but some also occasionally speak Matukar Panau. Even in Tok Pisin, some Matukar Panau kinship terms are used as titles for people, especially *nen* 'mother' and *mam* 'father'. *Nen* will be used as a name for someone, or combined with a first name *Nen Kadagoi* or combined with a nickname as in *Nen Manamuk* for a woman from Manam, married into the Matukar village. These are usually used focusing on the perspective of the child, rather than the speaker. These kin names are used in adult speech as well, but start already in child-directed speech and child speech in Tok Pisin, particularly from female speakers.

6. *Generation of kinship term (kin.age)*

Tokens in the dataset were coded as being from the same generation as the possessor (husband, wife, older same-sex sibling or younger same-sex) ($n=438$), a younger generation than that of the possessor (son) ($n=206$) or an older generation than that of the possessor (mother, father, elder), which collapses relations both one generation and two generations older ($n=334$). Although the term *sese* can mean grandchild, but in the corpus is only used to mean grandparent or elder.

7. *Gender of kinship term (kin.gender2)*

Tokens in the dataset were coded as being female terms (mother, wife) (357 tokens), male terms (father, husband, son and some elder terms) (531 tokens) or unspecified for gender (older same-sex sibling, younger same-sex sibling and some elder terms) (91 tokens). Some instances of the term *dabok* occurred with a male gender marker when meaning 'elder', so those tokens were coded as male gender.

8. *Genre*

Tokens in the dataset were coded as coming from conversational data ($n=107$), expository data ($n=305$), family history data ($n=353$) or narrative data ($n=214$).

9. *Task Type (soccog)*

Tokens were coded as coming from the social cognition task (cf. Data Section) ($n=581$) or not ($n=398$), to determine if the usages coming from these different kinds of data were equivalent. In the social cognition task, the kin anchors were characters in a story. In the other data, the kin anchors were generally real people from the Matukar community, or occasionally people from well-known mythical stories.

10. *Speaker*

There is data from 39 speakers in this dataset. Speaker is included as a variable to determine if differences in kinship term usage is due primarily to speaker-specific preferences, or other predictors as well. Of these, eight speakers exclusively use the indirect possession pattern (in this dataset), and one uses the direct possession pattern exclusively (in this dataset). Speaker is only used as a variable in the random forest analysis, not in the classification tree analysis, as a variable with 39 levels creates too many opportunities to split, and would create a very complicated, unintuitive tree.

5.3 Study 1 results

Figure 3 shows the classification tree analysis based on the nine predictors above, with a splitting criterion of $p < 0.01$ and allowing for a maximum of four levels of splitting. Five predictors are used in the tree: relationship, SAP, kin gender, kin age and speaker gender. Additional predictors do not make significant splits as per the restrictions stated above. The first split (numbered 1 at the circle at the top of the tree) comes from terms for father and younger siblings (right side of the tree) being more likely to be expressed with direct possession and double-marked possession than terms for other relationships (left side of tree). The next level of splits on both sides of the tree are from the person of the possessor (splits 2 and 13). In both sides of the tree, we see that when the possessor is a speech act participant, the possession is more likely to be indirect than when the possessor is in the third person.

Continuing with just the left side of the tree, we see under split 3 that the gender of the kinship term creates a significant split for speech act participant possessors, with female and male terms (terms for mother, wife, husband and son) being more likely to be indirectly possessed than unspecified gender terms (older sibling and elder). Under split 6, it may not be immediately obvious, but terms for husbands, mothers and sons are more likely to be directly possessed (42.1%) than terms for elders, wives and older siblings are (23.9%), and the former are also more likely to show double-marked possession. There are significant speaker

Classification Tree for Matulur Kinship Patterns

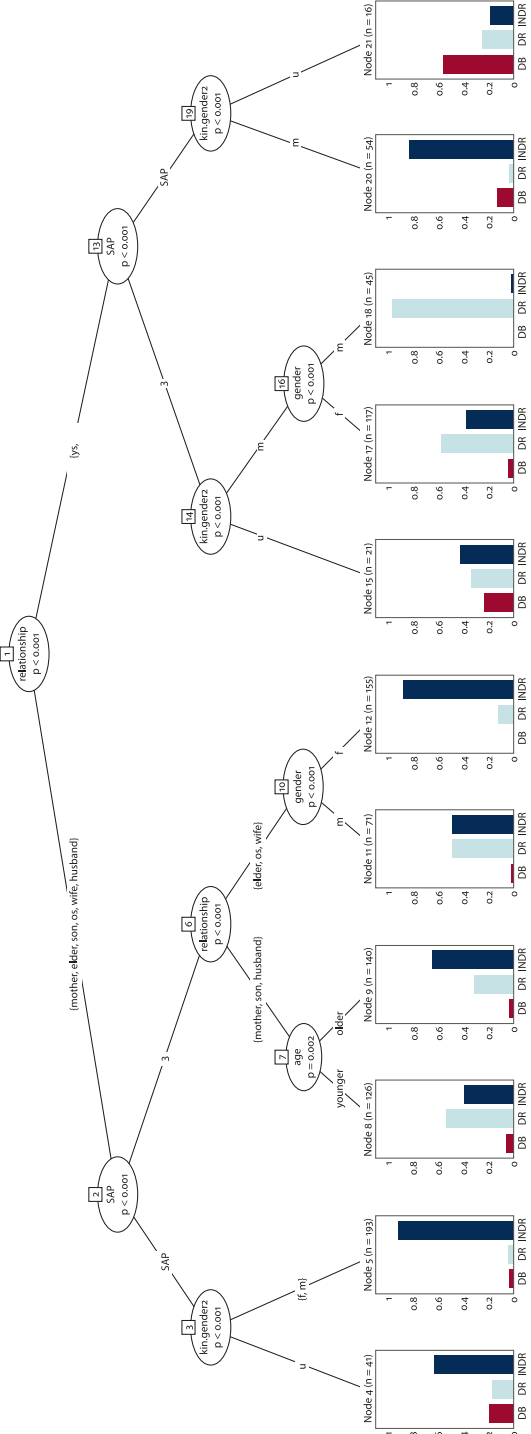


Figure 3. Classification tree for kinship possession expression

age effects shown under split 7, with younger speakers more likely to use direct terms than older speakers. There are speaker gender effects seen under split 10, with female speakers being much more likely to use indirect possession than male speakers. However, it is important to remember that the data in the nodes under splits 7 and 10 are only on sub-portions on the data, restricted to only three kinship relationships each.

Turning now to the right side of the tree, we see that under splits 14 and 19 there is again splitting due to the gender of the kinship terms. As the data subset partitioned under this side of the tree is only dealing with two terms, father (male gender) and younger sibling (unspecified gender), this variable is telling us just about the patterns for these particular terms. There is an interaction with the person of the possessor here. Under split 14, a term for a younger sibling is more likely to be indirectly possessed when the possessor is in the third person and a term for a father is more likely to be directly possessed (particularly when the speaker is male, as seen under split 16). Under split 19, it is the terms for father that are more likely to be indirectly possessed when the possessor is a speech act participant. What this data shows is that when speakers refer to their own fathers, they are more likely to use indirect possession with the term *mam*, but when they refer to someone else's father, they are more likely to use direct possession with the term *taman*. Under both splits 14 and 19, we see that some of the partitioning is likely due to the propensity of speakers to double-mark possession of terms for younger siblings.

In summary, this classification tree shows that much of the variation in the possession patterns is due to associations with particular terms. We also see that kinship terms possessed by speech act participants are more likely to be indirectly possessed, meaning when speaking about one's own kin, one is more likely to use indirect terms. Speaker characteristics such as age and gender do have a role to play in predicting the kinship possession patterns, but their role is smaller. Other factors, such as the task type, genre, the type of possessor (simplex or complex) and the generation of the kinship term did not make a significant difference for this data. However, because classification trees can over-fit data, the random forest analysis below shows a summary of the importance of predictors averaged across many classification trees.

The random forest analysis of the same data is presented in Figure 4. The random forest importance ranking is conditional, averaged across 1,200 trees and includes speaker as an independent variable. Figure 4 shows that speaker is the most important variable for determining what kind of possession is used. This is to be expected, as variation tied to the speaker is commonly found in corpus linguistic, psycholinguistic and sociolinguistic studies, and is therefore a common reason to use speaker and word as random effects in mixed-effects modelling (cf.

Baayen, 2008; Tagliamonte & Baayen, 2012). Person of the possessor and genre are also ranked as highly important in predicting the possession strategy, as is the kinship relationships. As seen in Figures 1 and 2, expressions for *husband* and *wife* are more likely to be indirectly possessed, and expressions for *younger sibling* and *father* are more likely to be directly possessed, and elder and younger sibling are more likely to be double-marked. A few additional predictors are ranked as important. These include: genre (which was not selected in the classification tree in Figure 3), speaker gender, age (or generation) of the kinship term, whether the possessor is simplex or complex, the gender of the kinship term and minimally, the age of the speaker. The importance ranking selects different variables as important compared to the classification tree above, showing the need to accompany classification trees with random forests for a full picture of the data. The kind of data collected (narrative and exposition vs the stimuli-based social cognition task) is ranked as unimportant and is therefore excluded from Study 2.

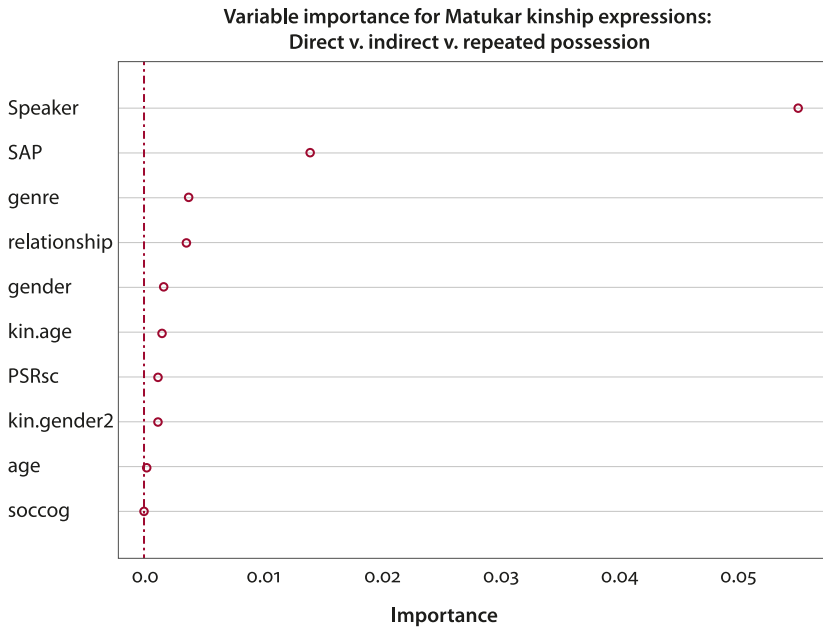


Figure 4. Variable importance ranking for kinship possession expression

In summary, the results show us that specific speaker behaviour is important, and so are particular relationships. The relationships that are most likely to be expressed with the indirect possession pattern are mother, wife, husband and son. The relationships of father and younger sibling are still more likely to be expressed through older terms in the language and the traditional direct possession pattern.

There are both sociolinguistic and systemic factors that influence the choice of term and by consequence, possession strategy. The next study takes this further and tests whether there are any significant effects of sociolinguistic groups or kinship system categories when the variation from particular speakers and for particular terms is taken into effect.

6. Study 2

6.1 Study 2 data

If the specific relationships and specific speaker behaviour are taken into account, are there still any remaining effects from classes of speakers, classes of terms, genre context or the grammatical person of the possessor? To investigate this question, I use generalized linear regression with random effects for speaker and relationship.

6.2 Study 2 methodology

Generalized linear regression (logistic regression) is used to predict the binary dependent variable of indirect possession or direct possession, using the packages `{lme4}` (Bates, Maechler, Bolker, & Walker, 2015) and `{lmerTest}` (Kuznetsova, Brockhoff, & Christensen, 2017) in *R* (R Core Team, 2017). The predictors I test are those ranked as important by the exploratory random forest variable importance ranking. The model has random intercepts for speaker and relationship. Fixed effects are person of the possessor (speech act participant or not), speaker gender (male or female), relationship term gender (male or female, relationship term age (-1, 0 or +1/2 from ego) and genre (narrative, conversation, exposition or family history). Logistic regression is appropriate here because the remaining predictors are additive and none are highly collinear with each other as evaluated through *a priori* testing.

6.3 Study 2 results

The results for the generalized linear mixed-effects model are displayed in Table 4 for the random effects and Table 5 for the fixed effects. Table 4 shows that there is little difference in the variance between speakers in kinship possession pattern expression, and the variance between relationships for this dataset is practically zero. Once speaker and relationship intercepts can vary in the mixed-effects model, are there remaining differences in classes of features? In Table 5, we see

that there are five predictors that are significant (in bold in the table): the person of the possessor, the age of the speaker, the gender of the speaker, the genre of the text and the age generation of kinship term. Negative coefficients (β) are associated with higher rates of direct (inalienable) possession of kinship terms.

This data shows that if a possessor is a speech act participant, then the kinship term is more likely to be possessed with the indirect pattern. If the speaker is male, he is more likely to use the direct pattern. If the speaker is younger, they are more likely to use the direct pattern. The interaction reverses this pattern however, showing that young males ($n=4$) and older women ($n=8$) are most likely to use the indirect pattern. There is more data from most of the older woman than there is from any of the younger men, so we can feel more confident about the patterns of behaviour from the older women. If the genre is exposition, a family history or a narrative, the pattern is also more likely to be direct than if the genre of the text is conversation. If the kinship term is for an older generation than the possessor (mother, father, elder), then the possession is also more likely to be direct. The type of possessor (simplex or complex) and the gender of the kinship term do not come out as significant. Overall, I take this to mean that older female speakers and younger male speakers are more likely to use the indirect pattern and everyone is more likely to use the indirect pattern in less formal contexts and when it is their own relative they are referring to. The strongest shift, then, is seen in the most intimate domains.

Table 4.

Random effects	Variance	Standard deviation
Speaker (Intercept)	1.48	1.22
Relationships (Intercept)	0.00	0.00

Note. Number of observations=924, Speaker $n=39$, Relationship $n=8$

Table 5.

	β	σ	Z score	p value
(Intercept)	1.76	0.77	2.29	0.02
Possessor – SAP	3.54	0.40	8.81	0.00
Possessor – Simplex	0.76	0.43	1.77	0.08
Speaker Age – Younger	-1.55	0.66	-2.36	0.02
Speaker Gender – Male	-2.83	0.72	-3.96	0.00
Speaker Age by Gender – Young by Male	4.35	1.39	3.13	0.00
Genre – Conversation	0.89	0.42	2.14	0.03
Genre – Exposition	0.20	0.31	0.67	0.51
Genre – Family Histories	0.07	0.35	0.20	0.84
Relationship Term Age – 0 (Same Generation)	-0.30	0.33	-0.89	0.37

Table 5. *(continued)*

	β	σ	Z score	p value
Relationship Term Age – +1 (Older Generation)	–1.84	0.30	–6.06	0.00
Relationship Term Gender – Male	–0.36	0.27	–1.34	0.18
Relationship Term Gender – Unspecified	–0.81	0.42	–1.91	0.06

Note. Reference levels for variables are Possessor – Third Person, Possessor – Complex, Speaker Age – Older, Speaker Gender – Female, Speaker Age by Gender – Older by Female, Genre – Narratives, Relationship Term Age – –1 (Younger), Relationship Term Gender – Female.

7. Discussion

7.1 Sociolinguistic variation

The shift from directly possessed terms to indirectly possessed terms is primarily led by older female speakers ($n=8$) of Matukar Panau and women of all ages are more likely to possess kin with the indirect strategy. Not all older women are participating in this change, but those who are, are considered by themselves and others in the village to be ‘expert’ speakers or ‘language keepers.’ This means that they are seen as some of the people in the village who can be relied on to speak the language fluently and who often encourage and correct others, and know words and meanings that have become obscure. We may expect that the best speakers of the language would be the most conservative, keeping the language ‘pure’ and free from change. However, as these women are strong and fluent speakers, it also makes sense that they would be the ones who are able to innovate, play with meanings and extend words’ semantics.

Many sociolinguistic studies done in the 1970s, 1980s and 1990s in the United States show that gender is correlated with the degree of standardness in speech, and often that female gender is associated with a higher degree of standard variable use. In Norwich English, Trudgill (1974) found that women tend to use more formal phonological variants than men and in Japanese, Ogawa and [Shibamoto] Smith (1997) found that women are more likely to use formal terms of address than men. The strong association between women and standard speech in Western societies is noted by many scholars (i.e., Nordberg, 1971; Romaine, 2003; Trudgill, 1983) as well as the tendency for women to lead change from “above” and for men to lead change from “below” (Gal, 1979; Labov, 1990). That is, the increased use of standard variants in a community is more likely to be driven by women and the increased use of non-standard variants in a community is more likely to be driven by men. However, in many non-Western societies, the notion of what is standard is less clear. And “women are further away from the prestige norms of society” (Romaine, 2003, p.109), likely due to a lack of access to

education and being less active outside the home (cf. Nichols, 1983; Nordberg & Sundgren, 1998; Romaine, 1982, but also cf. Keenan, 1974 for Malagasy). In a community such as Matukar, it is difficult to say what the standard or prestige variant is. Tok Pisin usage mixed in with Matukar Panau is common but frowned upon. The double-possession strategy is generally considered incorrect, but used occasionally by many. Certain words are considered more correct by some speakers, but not by others. In the case of the directly possessed kinship terms, some speakers find these to be better, particularly the words *tina*- 'mother' and *tama*- 'father'. Other speakers say *nen* and *mam* are just different words but exactly the same meaning. Although the data here shows that *nen* and *mam* are more likely to be used in casual speech, no one mentioned that these terms seem more familiar or informal. More ritualized discourse (which is not necessarily more formal) such as clan meetings, discussions and prayer are often conducted in Tok Pisin these days. Despite the diffuse nature of 'standard' in spoken-language only community, it is clear that women are leading the change.

Some strains of sociolinguistic work interpret female speech differentiation as part of the social construction of gender, rather than being due to gender. Eckert (1989, p.245) argues "the correlations of sex with linguistic variables are only a reflection of the effects on linguistic behaviour of gender – the complex social construction of sex – and it is in this construction that one must seek explanations for such correlations". Eckert (1989) considers that women's high usage of particular linguistic variables is used to construct an identity through social capital. She argues that women are more status-bound than men, and as they cannot accumulate wealth or power with impunity, they rely on accumulating social capital, however that might be manifested in a particular community. Women may feel a need to assert membership (partially through linguistic variables) in a community to have social capital within that community and so will use the appropriate linguistic variables (whether standard or non-standard) to a greater degree than men in the same community. The need for social capital may be even more important in a small rural community like Matukar than in an urban Western community. There are few opportunities for women to enter the workforce, reach high levels of education or become representatives of their community. They can, however, position themselves as experts of household care, cooking, gardening, other tasks, social gossip and language. More research is needed to see what other aspects of Matukar Panau show differentiation by gender, but positioning themselves as different as men may be a way to signal something special about what they are capable of. Additionally, some of the female-driven change may also come from their higher use of child directed speech. As explained above, in Matukar, the vocative terms *nen* and *mam* are used often in Tok Pisin and can also be used referentially, but *tinan* and *taman* are never used in Tok Pisin and, as far as my experience

goes, never used in child directed speech. The frequency of word choice in child-directed speech may bleed over into other kinds of discourse for women, also creating an aspect of their female-mother-grandmother-carer identity.

7.2 The semantics of alienability

Z'graggen's (1969) report of possession in the languages of Madang describes Matukar Panau as having a system where kinship and body part possession patterns separately from object possession. This is no longer the case. Kinship possession can be done both alienably or inalienably. The choice is not an unmotivated one. Kin members are more likely to be alienably possessed when they are household members (wife, husband, son) than when they are siblings or parents. Remember that the speakers of Matukar Panau are generally over 30 and most no longer live with their parents. Further, when a relationship is in the first person or second person, alienable possession is more likely. Taken together, this seems to indicate that more intimate relationships are actually expressed with alienable possession. Given the semantics of alienable and inalienable possession, this seems counter-intuitive. Relationships that are more meaningful should be more necessary or more integral to the self, which is what inalienability expresses (Chappell & MacGregor, 1996). Rather, we see here a bleaching of the semantic difference between alienability and inalienability, so that alienable possession can be used for more integral relationships.

In other parts of Papua New Guinea, sibling relationships have traditionally had a tremendous importance, with siblings deciding aspects of each other's lives such as marriage. In modern Papua New Guinean society, the household relationships have increased in importance, particularly in urban areas (Beer, 2015). This has led to weakening semantic distinctions in sibling kinship terminology, such as a loss of the cross-gendered vs same-sex distinction in Wampar, an Oceanic language spoken near Lae (*ibid*). Matukar Panau has maintained the cross-gendered vs same-sex distinction, even in the newer sibling terms (*dabok*). However, we see that spouses and children have a special status in Matukar, where these relationships are far more likely to be indirectly possessed than the other kinship relationships. While there is no loss of inalienable terms, the proportion of use of inalienable terms has lowered. The newer kinship terms are necessarily indirectly possessed (it would be ungrammatical with either of the other two possession strategies). The shifts in kinship terminology have influenced the semantic space of (in)alienability: the semantic domain of alienability has increased and the semantic domain of inalienability has decreased.

Matukar Panau is not the only language in which the kinship system is losing strict direct possession. In Nkep, an Oceanic language of Vanuatu, borrowed kin-

ship terms from Bislama are indirectly possessed and some normally directly possessed kinship terms in metaphorical uses are possessed indirectly. In Vera'a, another Oceanic language of Vanuatu, vocative terms can be used referentially, as seen above in Matukar Panau, and are then also possessed indirectly. The use of vocative terms as referential terms in Vera'a is primarily done in child-directed speech (Meyerhoff, Barth, & Schnell, 2018). As these and other Oceanic languages see semantic shifts and borrowing of kinship terms, new words come into the kinship system. These new words are not subject to the same grammatical rules as the traditional kinship terms because they do not require possessor affixes to be felicitous. In Matukar Panau, and presumably in most other Oceanic languages, new kinship words cannot take a possessor affix grammatically; a speaker cannot say **nenu* or **dabokam* and be understood. The consequence of the semantic changes is therefore syntactic and systemic within a particular language, and when happening in multiple languages, typological. The semantic basis of Oceanic inalienability is in the process of becoming more limited. The present paper has focused on kinship terms in Matukar Panau. In Matukar Panau, body parts are still primarily expressed with the directly possessed terms. However, semantic changes and borrowing also occur with body parts, and therefore we may also anticipate that there may be losses of direct possession beyond the kinship system in other Oceanic languages.

8. Conclusion

In summary, Matukar Panau has a complex kinship system which shows variability in terms for many of the most important kinship relationships. Studies 1 and 2 show that the loci of variation come from several parts, but create a systematic grammatical consequence. Study 1 shows that the double-marked possession pattern is a minor one, and that the most important predictor for variation is the behaviour of individual speakers and whether or not speakers are referring to their own kin or that of someone else. One's own kin is much more likely to be referred to using the indirect possession pattern. Study 2 showed that when individual speaker variation is taken into account, older women lead the change from direct to indirect possession, particularly for conversational contexts. Using the indirect pattern for kinship terms is a change for an Oceanic language, and taken together, the results of the studies above show that the most familiar and intimate contexts are the ones most likely to be possessed with the indirect pattern. The shift towards increased indirect possession is a change that is found not only in Matukar, Papua New Guinea, but other areas of Oceania as well. Future research will focus on the distribution of all kinds of possession constructions in Matukar Panau.

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Abstract (Matukar Panau)

Referenzielle Verwandtschaftsbegriffe werden in Matukar Panau (Ozeanisch, Papua-Neuguinea) immer possessiv genutzt. Traditionell sind Verwandtschaftsbegriffe in ozeanischen Sprachen als Besitz markiert (mit einem obligatorischen Suffix an der Wurzel, das mit der Person und dem Numerus des Besitzers übereinstimmt). In Matukar Panau sind zudem auch einige Verwandtschaftsbegriffe als indirekter Besitz markiert (mit einem Klassifikator, der mit der Person und dem Numerus des Besitzers übereinstimmt). Ein drittes Muster zeigt die Doppelmarkierung von Besitzern mit direkt besessenen Referenzen, die mit einem Klassifikator zusammenfallen. In dieser Arbeit präsentiere ich eine multivariate Analyse der Prädiktoren, die die Wahl der direkt, indirekt oder doppelt markierten Muster beeinflussen. Die Ergebnisse zeigen, dass ältere Frauen und jüngere Männer das indirekte Muster am ehesten verwenden, insbesondere wenn sie über Angehörigen aus ihrem Haushalt sprechen. Das indirekte Besitzmuster wird also für integralere Beziehungen genutzt. Diese semantische Domäne wurde bisher in ozeanischen Sprachen dem direkten Besitz zugeordnet.

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