Spaced out: Intergenerational changes in the expression of spatial relations by Gurindji people

Gurindji Kriol is a mixed language spoken by Gurindji people at Kalkaringi in northern Australia (McConvell 2008; McConvell and Meakins 2005; Meakins 2008a, 2008b). It has retained many of the features of Gurindji including case-marking, most other nominal suffixes (inflectional and derivational) and significant portions of vocabulary (including nouns, coverbs). It has also lost many features of Gurindji including inflecting verbs and bound pronouns (Charola 2002; Dalton et al. 1995; Meakins 2009, 2010a, to appear; Meakins and O'Shannessy to appear). Other systems have also been significantly affected by language contact. For example although the Gurindji cardinal direction system is in evidence, it is greatly reduced both inflectionally and functionally. Where the paradigm of Gurindji cardinals contains 28 inflected forms for each cardinal direction and these are used pervasively to describe large and small spaces, Gurindji Kriol contains at most 4 inflected forms for each cardinal direction and they are only used for descriptions of large-scale space or when other systems such as demonstratives, gestures, landforms or place names are not available, for example when the speaker is out of sight. Despite this reduction in the use of Gurindji cardinal directions, Gurindji Kriol have not replaced or supplemented this system with Kriol cardinal terms or adopted English left/right system1 2.

Keywords: language change, spatial relations, Gurindji Kriol, Gurindji, cardinal directions

1. Introduction

Studies of post-colonial language shift in Australian languages have largely focussed on individual structural, lexical or phonological changes. For example a number of studies have drawn attention to changes in argument marking as a result of contact with English/Kriol word order: the ergative marker in Dyirbal (Schmidt 1985, 1985), Yuendumu Warlpiri (Bavin and Shopen 1985), Nyulnyul (McGregor 2002), Gurindji Kriol and Light Warlpiri (Meakins 2009; Meakins and O'Shannessy to appear); object marking in Lardil (Richards 2001) and Tiwi (Lee 1987). Possessive constructions and, in particular, the collapse of the distinction between inalienable and alienable possession has also been observed in a number of Australian languages where language shift is evident, for example Arabana, Paakantyi (Hercus 2005) and Areyonga Teenage Pitjantjatjara (Langlois 2004); or in contact languages where possessive or dative marking drawn from the traditional language is still in use, for example Wumpurrarni English (Disbray and Simpson 2005), Gurindji Kriol and Light Warlpiri (Meakins and O'Shannessy 2005). Other studies of language shift have focussed on lexical change. Many of these studies focus on the reduction in the lexical inventory of languages across different word classes and how borrowings from English and Kriol may supplement the vocabulary of younger speakers.

Less attention has been given to larger conceptual changes which may have ramifications for a number of structural or lexical subsystems in a language. The domain of spatial relations, or the way an object (figure) is located with respect to another object

1 Unlike colour or number terms i.e. Gurindji Kriol has borrowed colour and number terms from English/Kriol. Gurindji Kriol has not borrowed the relative system from English.

2 Note that many Kriol varieties have the east/west terms sanguap/sangudan. The Timber Creek variety has river drainage terms haiap/loudan (Schultze-Berndt 2006). Transfer of spatial concepts into a contact language has also been reported elsewhere for Solomons Pidgin (Terrill and Dunn 2006).
(ground), is one such conceptual system which finds its expression in a number of subsystems in a language. Most basically the position of a figure with respect to a ground is marked by prepositions or case-markers in many languages e.g. *the man is in the house*. Other parts of speech such as demonstratives, verbs expressing deixis and left/right terms can be used to evoke a triangular relationship between the figure, ground and the speaker e.g. *the man goes this way to the house, the man comes to the house or the man is left of the house*. More exact angular relations between the figure and ground are often expressed by fixed bearings e.g. *the man is north of the house* or *prepositions where an object has inherent facets such as a front, back or side e.g. the man is behind the house.*

Spatial relations are particularly interesting in Australian languages due to the absence of terms for 'right' and 'left' and the almost sole reliance on fixed bearings, such as cardinal points (N-S-E-W) or river drainage (upstream/downstream). Fixed bearings are not only used to locate objects in large-scale space but they are also found in descriptions of small-scale space including arrangements of objects on tabletops, pictures on the page of a book and even for distinguishing sides of the body. Contrast this use of fixed bearings with the English use of relative terms left/right for most spatial relations except large-scale route descriptions. Many of these Australian languages are now severely endangered with language shift apparent across generations of speakers. These inter-generational changes can be measured in terms of lexical loss, allomorphic reduction, the increased use of periphrastic constructions and the functional changes in the structural subsystems. What is often overlooked are larger conceptual changes such as the way in which different generations of speakers express spatial relations.

This paper presents a case study of inter-generational language shift in the Gurindji community of Kalkaringi (Victoria River District, NT). Older members of the community speak Gurindji (Pama-Nyungan), which uses both cardinal directions and river drainage to express spatial relations across large and small-scale space (Section 2.2). Younger Gurindji people speak a new language, Gurindji Kriol, which is a systematic admixture of Gurindji and Kriol (English-lexified creole language) (McConvell and Meakins 2005; Meakins 2008a, to appear) (Section 2.3). Although many Gurindji structures have been maintained in Gurindji Kriol, shifts in the expression of spatial relations were already being observed in the 1980s (Dalton et al. 1995). Now river drainage terms are no longer in use and the cardinal directions have virtually disappeared. Only 4 of the 28 inflected forms for each compass point remains and the functional domain of cardinal directions has also been reduced. Where cardinal directions are ubiquitous in Gurindji descriptions of large and small-scale space, Gurindji Kriol speakers favour deictic terms and gesture. Cardinal terms are only used sparingly in descriptions of large-scale space and are never found in small-scale space in natural discourse (Section 3).

The use of deictics and gesture requires the speaker and hearer to be visable to each other. Given the heavy reliance of Gurindji Kriol speakers on deictics and gesture, the question then becomes how these speakers express spatial relations when the speaker is obscured from the hearer's view. This question is explored in Section 4. The results of a 'Man and tree' elicitation task (CARG 1992) which was run at Kalkaringi are presented. This task was designed specifically to reveal strategies of spatial description used in static location in small-scale space where the speaker and hearer cannot see each other. Two
participants sit side-by-side with their view of each other blocked. They are given identical sets of cards which one participant describes to another. The cards contain different configurations of a man and a tree or two men which differ minimally from each other. The task of one participant is to describe the picture in enough detail so that the other participant will be able to choose the right card. The 'Man and tree’ task was run at Kalkaringi with 11 Gurindji Kriol-speaking participants (<32 years old) and 6 Gurindji-speaking participants (>45 years old). What emerges from this task is the overwhelming use of cardinal terms by Gurindji Kriol speakers to describe the relationship between figures in the picture.

The Gurindji Kriol data are drawn from my corpus of 80 hours of annotated recordings of peer and child-directed conversation, free and picture-prompt narrative (e.g. Frog stories) and picture-match elicitation games. The Gurindji examples come from my corpus of 23 hours of procedural and narrative texts. This data was recorded between 2004-2009, and is housed in the DOBES archive at the Max Planck Institute for Psycholinguistics (MPI) in Nijmegen (Holland). The 'Man and tree’ task was carried out in July 2009, and the recordings are also archived at the MPI. All examples are referenced in this style: (Speaker Initials: Recording Reference: Genre e.g. Narrative, Conversation, Description, Procedural or Elicitation), for example (VD: FM07_a021: Narrative).

2. Intergenerational language shift at Kalkaringi

This section sets the scene for the discussion of inter-generational changes in the expression of spatial relations by Gurindji people (Section 3). It begins with an overview of the sociopolitical history of Kalkaringi and its effect on the language ecology of this community (Section 2.1). Sketches the structures of Gurindji (Section 2.2) and Gurindji Kriol (Section 2.3) are then provided.

2.1 The language history and ecology of Kalkaringi

Kalkaringi is an Aboriginal community which is situated on Gurindji country in the Victoria River District of northern Australia (see Figure 1). Most of the people living in Kalkaringi are Gurindji with some residents from neighbouring areas. For example, many Warlpiri, Bilinarra and Ngarinyman people from the nearby communities of Lajamanu, Pigeon Hole and Yarralin have married into Gurindji families and now reside at Kalkaringi.

Figure 1  The town and Aboriginal communities of the Victoria River District

---


4 When I refer to Kalkaringi, I include Daguragu which is a Gurindji settlement 8km away. These communities were set up separately historically, however they operate as a single entity in terms of kin relations and administration.
Although the traditional language of Kalkaringi and the surrounding area is Gurindji, the language ecology is far from monolingual. Instead Kalkaringi is a complex of languages, language contact and mixing. The main languages spoken are Gurindji (Section 2.2) and Gurindji Kriol (Section 2.3). Kriol, Aboriginal English and Standard Australian English are also found, along with Warlpiri, though their use is more marginal. Gurindji is now only
spoken by older generations and is severely endangered in this respect. Most middle-aged people have a good knowledge of Gurindji, but code-switching between Gurindji and Kriol is the standard linguistic practice. Gurindji people below the age of 35 understand Gurindji but do not speak it in its traditional form. Instead they speak a mixed language, Gurindji Kriol, which is a conventionalised form of the code-switching. Gurindji Kriol is the main everyday language of young people and it is the language being acquired by Gurindji children. It is now also spoken by younger Bilinarra and Ngarinyman people in Pigeon Hole and Yarralin to the north of Kalkaringi (see Figure 1). Traditionally people in these communities spoke Bilinarra and Ngarinyman which are mutually intelligible with Gurindji. All Gurindji people speak Kriol to varying extents. Kriol is an English-lexified creole language which is the lingua franca of Aboriginal people across northern Australia with the exception of much of Arnhem Land (north-east) and the Daly River area (north-west) (see Figure 1). Gurindji people generally only speak Kriol when they visit Kriol-speaking areas to the north, for example Katherine and Timber Creek, or when they speak to Kriol-speaking visitors to Kalkaringi. Standard Australian English is the language of the school and is also the language of the media and government services. Nonetheless it plays little role in Gurindji people's home lives (Meakins 2008a: 287-95).

This intergenerational difference in language use at Kalkaringi is indicative of language shift. Language shift has occurred as a result of contact between non-indigenous colonists and the Gurindji people. In the early late 1800s, white settlers set up cattle stations in the Victoria River District area, including on the homelands of the Gurindji. Many Gurindji people were killed in skirmishes over land, and the remaining people were put to work on Wavehill cattle station as stockmen and kitchen hands in slave-like conditions with other Aboriginal groups such as the Bilinarra, Ngarinyman and Warlpiri (Hardy 1968; Berndt and Berndt 1987; Wavehill 2000). In 1966 the Gurindji initiated a workers' strike to protest against their poor conditions of employment and ultimately regain control of their traditional lands. Their campaign went on for nine years and resulted in the first successful land claim by an Aboriginal group in Australia under the Northern Territory Land Rights Act. Today the Gurindji continue to live on their traditional lands in the communities of Kalkaringi and Daguragu.

The mixed language, Gurindji Kriol, originated from these social circumstances. Before colonisation the Gurindji were multilingual, speaking the languages of neighbouring groups with whom they had familiar and ceremonial connections. The establishment of the cattle stations by colonisers saw the introduction of the cattle station pidgin and later Kriol into the linguistic repertoire of the Gurindji. In the 1970s McConvell (1988) observed that code-switching between Kriol and Gurindji was the dominant language practice of Gurindji people. It is likely that this code-switching and a certain amount of levelling between Gurindji and closely-related neighbouring languages such as Ngarinyman and Bilinarra provided fertile ground for the formation of the mixed language. At this time, similar changes to local linguistic ecologies occurred in other places in northern Australia with Kriol becoming the dominant language in many areas such as Timber Creek and Katherine (see Figure 1). Yet in Kalkaringi, a mixed language emerged from this situation (McConvell and Meakins 2005). It is likely that the dominance of one language, Gurindji, in this community was an important factor. The rapid shift to Kriol is seen in communities of people from different language backgrounds who would not have lived in such close proximity traditionally. In these communities, Kriol
provides a common language (McConvell 2007). As well as the 'one community, one language' argument, Meakins (2008b: 85-90) suggests that maintenance of Gurindji elements in the mixed language relates closely to the land rights movement and can be considered an expression of the persistence of their ancestral identity.

2.2 The structure of Gurindji

Gurindji is a member of the Ngumpin subgroup which forms a part of the Ngumpin-Yapa family (Pama-Nyungan). This language family includes Warlpiri (Hale, Laughren, and Simpson 1995; Laughren and Hoogenraad 1996; Nash 1986; Simpson 1991), Walmatjarri (Hudson 1978), Mudbura, Malngin, Nyininy, Wanyijrra and Jaru (Tsunoda 1981). Gurindji is mutually-intelligible with the eastern-most languages in the Ngumpin subgroup, Bilinarra (Nordlinger 1990) and Ngarinyman (Jones 1994).

Gurindji is a typical Pama-Nyungan language. It is an agglutinating language which employs only suffixes, no prefixes. It exhibits a mix of dependent and head marking: argument relations are marked on non-obligatory nominals in the form of case-marking and these nominals are cross-referenced by obligatory pronominal clitics which generally attach to an auxiliary or to the first element of the clause. Pronominal clitics distinguish number (singular, dual and plural) and person (1st, 2nd and 3rd) with 1st person non-singular pronouns also making an inclusive/exclusive distinction. Where two referents are referred to, they are encoded in a virtually monomorphemic pronoun. The pronominal clitics pattern according to an accusative system with nominals patterning according to an ergative system. In this respect, Gurindji can be described as a split ergative language.

The verb complex consists of an inflecting verb and a coverb. Inflecting verbs belong to a closed class of verbs which number around 30, and are grammatically obligatory. They are semantically bleached forms, encoding only basic meanings such as do, take, hit, see, talk, go, fall and cook. Coverbs belong to an open class of verbs which carry the semantic weight of the complex verb. They are uninflected except for a progressive suffix, and are grammatically non-obligatory. Finally, like most Australian languages, word order in Gurindji is not determined by grammatical relations but is governed by complex discourse cues. The excerpt below demonstrates some of these properties (McConvell 1996).

(1) ngu-rnalu ya-ni kanimparrar, kaarnimpa nyawa.
   AUX-1PL.EX go-PST downstream east.along this
   Nangala-lu paraj pu-nya ngu-∅-∅ ngarlu.
   subsect-ERG find pierce-PST AUX-3SG.S-3SG.O honey

'We came downstream along the eastern side here. (Then) Nangala found some bush honey.' (VD: FM07_a021: Narrative)

The first clause is a classic example of a basic Gurindji clause containing the core elements: a pronominal clitic =rnalu (we) and an inflecting verb yani (went). The second clause is semantically richer, using a coverb paraj (find) as well as an inflecting verb.
punya (pierced) to express the predicate, and full nominals to express the subject and object. Ergative marking distinguishes the argument relations of the two nominals.

Of particular interest to this paper is the way Gurindji speakers encode spatial relations. In (1) the speaker uses the locational nominals *kanimparra* (downstream) and *kaarnimpa* (along the eastern side) to describe the route the women took before they found the bush honey. As well as these terms referring to river drainage and cardinal directions, Gurindji also has other resources available in its 'space toolkit' to describe spatial relations, including gesture (hand and lip-pointing), an array of spatial case-markers (locative, allative, ablative, perative, dative and source), terms for landmarks and places, as well as demonstratives (including inflected forms of *nyawa* 'this' and *nyila* 'that' e.g. *nyawa-ngka* 'this-LOC; here'). Gurindji speakers also use adverbs to encode location in terms of the facets of an object. These linguistics resources for describing space can be discussed further in Section 3.

### 2.3 The structure of Gurindji Kriol

Gurindji Kriol is now the main language of young people at Kalkaringi. It exhibits a structural split between the noun phrase system and the verb phrase system. Kriol contributes the core of the clause including pronouns and much of the verbal grammar: tense and mood auxiliaries, and transitive, aspect and derivational morphemes. Gurindji supplies most of the NP structure including case and derivational morphology. Both languages also contribute small amounts of grammar to the systems they do not dominate. For example, the Gurindji progressive suffix is found in the VP, and Kriol determiners are common in the NP. In terms of the lexicon, Gurindji contributes nominals (e.g. body parts, plants, traditional artefacts) and verbs (e.g. of motion, bodily functions and impact) to the mix. Words for colours, higher numerals and modern artefacts are derived from Kriol as well as basic verbs. Both languages provide words for people, kin, food, animals and lower numerals (Meakins 2009, 2010a, to appear). This degree of mixing also extends to the phonology of Gurindji Kriol. Kriol and Gurindji elements in the mixed language maintain the phonological inventories and processes of their source languages. For example Kriol-derived words maintain a five vowel system and Gurindji-derived words, a three-way contrast (Jones, Meakins, and Buchan in progress).

The following example demonstrates the clause structure of Gurindji Kriol schematically in comparison with its source languages. Gurindji elements are italicised, Kriol elements are in plain font. Brackets indicate optional elements.

(2) (Meakins and O'Shannessy to appear)

```
det man  im=in  spiya-im  (im)  det guana  gat  jik  (K)
the man  3SG=PST  spear-TR  3SG  the goanna  prep  stick

man(-tu)  (i)  bin  jarrwaj  (im)  det guana  karnti-yawung  (GK)
man-ERG  3SG  PST  spear  3SG  the goanna  stick-PROP
```

---

5 The Gurindji-derived verbs found in Gurindji are derived from the coverb in Gurindji.
‘The man speared the goanna with a stick.’

Given this degree of mixing, it is questionable whether Gurindji Kriol is an autonomous language system or just a continuation of the code-switching practices of older people. Some arguments for the claim that Gurindji Kriol is an autonomous language are (i) the high level of consistency between Gurindji Kriol speakers, (ii) its acquisition by children, (iii) the development of unique forms and (iv) the independent development of Gurindji and Kriol-derived forms and structures in the mixed language which are not reflected in the source languages. For example shifts in the function of case-markers are apparent (Meakins to appear, 2009; Meakins and O'Shannessy to appear, 2005) and Gurindji Kriol has developed an asymmetrical serial verb structure which is not found in either of its source languages (Meakins 2010a). For a detailed discussion of structural differences between the mixed language and the code-switching practices of older Gurindji people see Meakins (to appear).

Although Gurindji Kriol has maintained many Gurindji structures, particularly in the NP, it has also replaced many other Gurindji structures with Kriol equivalents. For example the Gurindji inflecting verb including TMA marking has been replaced by free TMA forms from Kriol. Similarly Kriol free form pronouns have replaced the Gurindji enclitic pronouns. Another striking difference between Gurindji and Gurindji Kriol is the way in which spatial relations are encoded. As the Section 3 will show, Gurindji Kriol has maintained the Gurindji up/down paradigm and the use of Gurindji adverbs to encode relations between a figure and a ground with inherent facets, however the Gurindji river drainage system has been completely lost and the Gurindji cardinal system is present but the inflectional paradigm and its functional range is greatly reduced.

Despite the functional gap left by Gurindji cardinal and river drainage terms, other systems have not been borrowed from other languages that Gurindji Kriol is in contact with. For example, although younger Gurindji people have extensive exposure to English through schooling and the media, they have not adopted the relative left/right terms from English to compensate for this reduction in the spatial descriptive resources. Neither have they adopted the Kriol cardinal nor river drainage terms, despite pervasive and continuing contact with people from different Kriol-speaking areas. For example a ‘degenerate’ (c.f. Levinson 2003: 49) cardinal system containing only terms for east (sanguap) and west (sangudan) is used in Kriol-speaking areas west and south of Katherine, and the Timber Creek variety has river drainage terms haiap/loudan (Schultze-Berndt 2006). Neither sets of terms have been borrowed into Gurindji Kriol. There are no functional or typological reasons why such borrowings have not occur. Indeed transfers of spatial concepts into a contact language have been reported elsewhere for Solomons Pidgin (Terrill and Dunn 2006). Instead of potential borrowings, what is found in abundance are deictic terms. The focus of the following section will be on the changes in the form and expression of spatial relations by Gurindji Kriol speakers.
3. Intergenerational shift in the expression of spatial relations

Basic locative construction

(3) warlaku ngu makin karrinyana warlu-ngka
dog CAT sleep be.PRS fire-LOC
'The dog sleeps by the fire.' (Gurindji)

(4) warluku im makin faya-ngka
dog 3SG sleep fire-LOC
'The dog sleeps by the fire.' (Gurindji Kriol)

Basic locomotion constructions

(5) malyju ngu rarraj ya-nana marru-ngkurra
boy CAT run go-PST.IMPRF house-ALL
'The boy runs to the house.' (Gurindji)

(6) boi im rarraj hawuj-jirri
boy 3SG run house-ALL
'The boy runs to the house.' (Gurindji Kriol)

Interested in the specification of angular relations though some discussion on non-angular relations such as deictic terms which specify radial spread from the centre of deixis, usually the speaker.

3.1 Large-scale space (static location and motion)

Spatial relations between a figure and ground can be expressed over large-scale space. The term 'large-scale space' is used here to refer to any area on the horizontal axis larger than approximately 3mx3m, or the size of a small group of people sitting around together. In large scale space, the ground tends to be a natural feature of the landscape such as trees, hills or billabongs, or man-made landmarks such as buildings or road turn-offs. In the largest contexts, the ground is often coded by a place name. The ground tends to be static in descriptions of spatial relations, however the figure can be static e.g. The boy is at the shop or in motion e.g. The boy goes to the shop. The following section considers the expression of spatial relations between a figure and ground in Gurindji and Gurindji Kriol.

3.1.1 Gurindji

Like most Australian languages, Gurindji uses fixed bearings as the primary means of describing spatial relations between a figure and ground in large-scale space to describe
motion, particularly in route descriptions. Two mainsystems are in evidence: (i) river drainage, and (ii) compass points. For example the speaker in (7) uses cardinals (e.g. *kurlarra* 'south') and river drainage terms (e.g. *kankarra* 'upstream') to describe to another person how she got from Kalkaringi to a large patch of medicinal lemon grass. In addition case marking (e.g. *-ngurlung* 'ablative'), place names (e.g. *Jampawurru*) and land features (e.g. *lurtju* 'ridge') are found.

(7)  **kurlarra** ngu=rnalu ya-ni, Township-ngurlung-ma

south AUX=1PLINC go-PST Township-ABL-TOP

**kurlangkurla.**  **Kurlarra** ngu=rnalu ya-ni

south.REDUP south AUX=1PLINC go-PST

**kankapa** nyawa, Jampawurru junction, pinka

upstream this Mud.Spring junction river

**Jampawurru-nga=nyi** nyawa-ma na. Yala-ngurlu-ma=rnalu

Mud.Spring-ABL this-TOP FOC there-ABL-TOP-1PLINC

**ya-ni karrawarra-k.**  **Kaarnirra** kuya na lurtju-ngka

go-PST east-ALL east thus FOC ridge-LOC

**nyila-rra-ma** karrinyana yuka-ma kupuwupu-ma.

that-PL-TOP be.PRS grass-TOP lemon.grass-TOP

"We went **south** from town, crossing to the **north side of the river**. We went **south** and **upstream** (of the Victoria River) to Jampawurru junction. From Jampawurru creek… From there we went **eastwards. To the east** on the ridge you can find lots of lemon grass." (VD: FM08_a089: Description)

Fixed bearings are not only common in descriptions of motion but are also used to express static location in large-scale space. In (8), the speaker describes the location of other Aboriginal women who live north and north-west of Kalkaringi in Timber Creek and Kununurra, respectively (see Figure 1). These places are 500km from Kalkaringi but are visited occasionally for familial or ceremonial purposes.

---

Note that another set of fixed bearing terms exist. These terms express the angular relation between a figure and ground on the vertical axis, and are simply translated as *up* and *down*. The inflected forms for *up* are given in the table below (McConvell et al. 2010). These terms will not be discussed further.

<table>
<thead>
<tr>
<th>FORM</th>
<th>TRANSLATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>kankula</td>
<td>up</td>
</tr>
<tr>
<td>kankulak</td>
<td>upwards</td>
</tr>
<tr>
<td>kankulupal</td>
<td>above</td>
</tr>
<tr>
<td>kankuliyit</td>
<td>from above</td>
</tr>
<tr>
<td>kankuliyiyinganang</td>
<td>from the bottom to the top</td>
</tr>
<tr>
<td>kankunungkarra</td>
<td>on top of something</td>
</tr>
</tbody>
</table>
The terms in the two sets of coordinates - river drainage and compass points - constitute a subgroup of nominals, so-defined because they inflect for all spatial cases except the locative, and are considered inherently locative, in this respect. The case suffixes of these spatial terms differ in form from the normal nominal case suffixes, hence their categorisation as a special subtype of nominal. This analysis is in line with observations of other Australian languages such as Jaminjung (Schultze-Berndt 2006) and Arrente (Wilkins 2006).

Gurindji is unusual in its use of both river drainage terms and compass points. In general, Australian languages tend to employ either a river drainage system such as Jaminjung which is spoken immediately north of Gurindji in the Timber Creek area (Schultze-Berndt 2006) (see Figure 1); or a cardinal system which is common to the languages spoken in Central Australia, and has been described in detail for Warlpiri (Laughren 1978) and Arrente (Levinson and Wilkins 2006a; Wilkins 2003, 2006). Cardinal systems are also found immediately west of Gurindji in the Kimberley area of north-western Australia and have been described for Jaru (Tsunoda 1981) and Warrwa (McGregor 2006). Cardinal systems are also commonly found elsewhere in Australia. For example the use of cardinal directions in Guugu Yimithirr which is spoken in Cape York has been discussed extensively (Haviland 1998; Levinson 1997, 2003).

Few Australian languages use both river drainage and cardinal systems to express absolute relations, though some exceptions include Gooniyandi (McGregor 1990), Bunuba (Rumsey 2000) and Miriwoong (Frances Kofod p.c. cited in Schultze-Berndt 2006) which are non-Pama-Nyungan languages spoken in the Kimberleys; and other languages such as Martuthunira, Panyijima and Yindjinbarndi which are spoken south of the Kimberleys in the Pilbara region (Dench 1995). Wardaman, which is located to the north-east of Gurindji country, also has a dual system of absolute terms (Merlan 1994). Finally the Eastern Ngumpin languages, Bilinarra and Ngarinyman, which are mutually-intelligible with Gurindji, also use both systems.

Gurindji (and indeed Bilinarra and Ngarinyman) is sandwiched between languages to the north which use river drainage systems exclusively (e.g. Jaminjung) and those to the south which use cardinal directions exclusively (e.g. Warlpiri), and it likely the existence of both systems is an old contact feature of the Eastern Ngumpin languages. Additionally the span of traditional Gurindji country from the black soil plains of the Victoria River District to the northern edge of the Tanami desert may have played some role in reinforcing the use of both systems.

Interestingly Schultze-Berndt (p.c.) does report that some Jaminjung speakers have a memory of three terms for cardinal points, but they are not in use.
The use of these river drainage terms is fairly restricted to discussed of large-scale space particularly places and journeys where a water course (often the Victoria River and its tributaries) is salient. They are not as pervasive as cardinal directions in the speech of full Gurindji speakers. The river drainage terms have four forms, as shown in Table 1.

Table 1  'Upstream paradigm' (McConvell et al. 2010)

<table>
<thead>
<tr>
<th>FORM</th>
<th>TRANSLATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>kankarra</td>
<td>upstream</td>
</tr>
<tr>
<td>kankapa</td>
<td>in the upstream area</td>
</tr>
<tr>
<td>kankarrak</td>
<td>going upstream</td>
</tr>
<tr>
<td>kankayit</td>
<td>coming downstream</td>
</tr>
</tbody>
</table>

Cardinal directions are almost ubiquitous in Gurindji discourse. Barely an utterance in a Gurindji conversation or narrative will go by without the use of a cardinal. They are not grammatically obligatory, however they 'flavour' the language and people who are considered master story tellers use them liberally. Only four cardinals are in use: kayirra (north), kurlarra (south), kaarnirra/karrawarra (east) and karlarra (west). They are not combined to mark deviations from the basic directions as occurs in English, for example north-west. When asked to point kayirra, Gurindji speakers will point directly north, however in conversation and narrative the term kayirra extends 45 degrees on either side of north to form a quadrant. Finer distinctions are indicated using hand and lip gestures, as McGregor (2006:149) also observes for Warrwa speakers. Haviland (1998: 29) notes that, for Guugu Yimithirr speakers, the cardinal terms are rotated slightly clockwise from standard Western compass points, however in Gurindji they are aligned with these points.

Gurindji cardinal directions are highly inflected. As with the other spatial nominals, they have a set of spatial case-markers which differ in form from the markers found on regular nominals. They inflect for allative, ablative, perlative and origin. Additionally they also inflect for land features (river, hill, shade), an faceted feature (side), a verticality feature (up) and orientational features (along, turning, across). Thus far, 28 forms for each cardinal direction have been recorded. Table 2 gives the declension for north.

Table 2  'North' declension (McConvell 1982; McConvell et al. 2010)

<table>
<thead>
<tr>
<th>kayirra</th>
<th>north</th>
<th>kayirrangkarrajirri</th>
<th>north and upstream</th>
</tr>
</thead>
<tbody>
<tr>
<td>kayirrak</td>
<td>to the north</td>
<td>kayikayinimpa</td>
<td>moving intermittently across the north on the other side of the river</td>
</tr>
<tr>
<td>kayirrampa</td>
<td>in the north (long way)</td>
<td>kayinuk</td>
<td>turning north and up</td>
</tr>
<tr>
<td>kayirrampari</td>
<td>??</td>
<td>kayirralany</td>
<td>a long way to the north</td>
</tr>
<tr>
<td>kayiliyin</td>
<td>from the north</td>
<td>kayirrampawuk</td>
<td>turning to the north area</td>
</tr>
<tr>
<td>kayiliyinnginyi</td>
<td>originating from the north</td>
<td>kayirrangkarrak</td>
<td>oriented north-south</td>
</tr>
<tr>
<td>kayiliyarra</td>
<td>along the north side</td>
<td>kayinimpawuk</td>
<td>turning to the north area and up area</td>
</tr>
<tr>
<td>kayini</td>
<td>further north</td>
<td>kayirrawariny</td>
<td>further north</td>
</tr>
<tr>
<td>kayinirra</td>
<td>to the north and up</td>
<td>kayirrampawariny</td>
<td>further up north</td>
</tr>
<tr>
<td>kayinimpa</td>
<td>stationary on the</td>
<td>kayiniwariny</td>
<td>on the northern end</td>
</tr>
</tbody>
</table>
northern side

<table>
<thead>
<tr>
<th>Northern Side</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>kayinimpal</td>
<td>moving or lying along the northern side, e.g., a river</td>
</tr>
<tr>
<td>kayirrawurru</td>
<td>shade on the northern side</td>
</tr>
<tr>
<td>kayiliyinkarra</td>
<td>on the north side of the river</td>
</tr>
<tr>
<td>kayinimparlarra</td>
<td>upstream or downstream towards the north</td>
</tr>
<tr>
<td>kayinizinjarrk</td>
<td>crossing from south to north side of the river</td>
</tr>
</tbody>
</table>

### 3.1.2 Gurindji Kriol

Gurindji Kriol speakers also use fixed bearings in descriptions of large-scale space, however their use is limited compared with Gurindji speakers. The river drainage terms have been completely lost, and the cardinal directions are not used as prevalently. Furthermore, the inflectional paradigm of compass points is greatly reduced. Where Gurindji speakers use 28 inflected forms, Gurindji Kriol speakers use four at most and indeed most speakers use just the uninflected base form, for example, kayirra 'north' and the allative form for example, kayirra-k 'north-ALL'. Some individual variation occurs in the use of these terms which is common in situations of language shift. Table 3 shows the extent of knowledge of some Gurindji Kriol speakers, which can be compared with Table 2 which shows the complete set of inflected forms used by Gurindji speakers.

**Table 3  'North' declension for Gurindji Kriol**

<table>
<thead>
<tr>
<th>kayirra</th>
<th>north</th>
</tr>
</thead>
<tbody>
<tr>
<td>kayirra-k</td>
<td>northwards</td>
</tr>
<tr>
<td>kayi-rni-pal</td>
<td>said on the northside</td>
</tr>
<tr>
<td>kayiliyin</td>
<td>from the north</td>
</tr>
</tbody>
</table>

Although less prevalent than Gurindji, cardinal directions can be found in natural discourse in Gurindji Kriol in descriptions of large-scale motion (9) and static location (10).

(9) **nyawa-ma wi gon kaarnirra-k na Jamangku-ngkirri.**
    this-TOP 1PL.S east-ALL FOC New.Wave.Hill.Station-ALL
    'Now we're going eastwards to New Wave Hill station.'
    (RS: FM060.B: Conversation)

---

8 The up/down paradigm is also maintained but in a reduced form. Compare the following declension for up with the table in Footnote 6:

<table>
<thead>
<tr>
<th>Form</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>kankula</td>
<td>up</td>
</tr>
<tr>
<td>kankulak</td>
<td>upwards</td>
</tr>
<tr>
<td>kankulupal</td>
<td>above</td>
</tr>
</tbody>
</table>
(10) *ngumpit-waliya* weya dei yusta top *kaarnirra* ngarlaka-ngka.
man-PAUC REL 3PL.S PST.HAB be east hill-LOC
'The men who used to camp east on (the side of) the hill.'
(RS: FM060.B: Conversation)

Where cardinals are found in Gurindji Kriol, it is generally as a last resort where gesture and deictics are unavailable and where a location has no placename. Narratives told out of their immediate context are one place where cardinals are found. In (11) CE is describing some video footage to another person, SO. The footage was recorded when CE went to a location on a river with her daughter and some other family. She is setting the scene for SO who wasn't there and is not sure where they are based on the footage alone. The CE and SO do not have a place name for the site so CE tries to evoke their common knowledge, as shown in the liberal use of the recognitional demonstrative *nyanawu*. CE describes some features of the place (landmarks), for example it is a good place to collect mussels and it has a pump. Then she uses the name of a place nearby, Tumpuruk. When all else fails, she uses a cardinal direction which is the information SO needs to anchor the footage. Note that, despite the fact that the place is located on a river, she does not use river drainage terms.

(11) (SO, CE: FM07_a056: Conversation)

SO: *wanyjika-warla nyawa?*
where-FOC this
'Where’s this place?'

CE: *nyawa-ma nyanawu-ngka.*
this-TOP DEM.RECOG-LOC
'This is …. you know the place.'

CE: *tuku-waji-la yu nou nyanawu spring spring-kaji.*
mussel-AGENT-LOC you know DEM.RECOG spring spring-AGENT
'You know - the place where you can get mussels. There's a pump there.'

CE: *nyanawu Tumpurak yard-jirri nyanawu yu nou*
DEM.RECOG place.name yard-ALL DEM.RECOG 2SG know

*pinka wen wi garra kroj-im. malawa-ngka.*
river when 1PL.S FUT cross-TRN creek-LOC

'You know (when you go to) Tumpurak to the cattle yards, then (there's the) river where you have to cross. Well (we're) at the creek.'

CE: *nyila-ngka na nyanawu tuku-waji yu nou*
that-LOC FOC DEM.RECOG mussel-AGENT you know

*kaarni-pal-said ngawa wen im top.*
There you know where you get mussels on the eastside where the waterhole is.'

SO: yeah.

CE: nyila-rni na nyawa-ma wi bin top.
that-ONLY FOC this-TOP 1PL.S PST stay
'We well just there - that's where we were.'

3.2 Small-scale space

Spatial relations between a figure and a ground can also be expressed in small-scale space. For the purposes of this paper, small-scale space can be thought of as an area smaller than the size of approximately 3mx3m. This encompasses small groups of people, table-top space, a page from a book down to the surface area of a body. It is in this domain that stark differences between Gurindji and Gurindji Kriol are found.

3.2.1 Gurindji

Gurindji also uses one of its fixed bearings systems, cardinal directions, in descriptions of small-scale space. They are used when speakers can see each other and the spatial context such that other spatial resources such as gestures and deictic expressions would suffice. This is a crucial difference between different generations of Gurindji people which will be discussed in Section 3.2.2. Gurindji people from the age of 35 years and older use compass points to describe where to find objects in rooms or on shelves, where another person should sit in a group of people, which side of a DVD case has the opening or which part of a tabletop to shift something to. I have even observed a Gurindji speaker using cardinal directions with a blind man to explain which side of his body to buckle a seatbelt. He had no trouble performing the task, no doubt because he had spent most of his life with sight and his mental map of the world was still obviously highly reliant on cardinal orientation.

A recorded example of the use of cardinal directions in small spaces is given in (12). It was uttered as three older women were sitting around a 1x1m patch of ground, digging for white ochre to use in ceremony. Other spatial resources such as deictics terms (here/there) and gestures were also found in this interaction, but cardinal directions were just as common.

(12) karrawarra nyila na ngu=rna pung-an-ku.
"I want to be digging that (ochre) in the east (of the pit)."
(BW: FM08_a01_2a: Conversation)

The use of cardinals in small spaces is also very common in describing the location of a figure with respect to a ground which has no obvious front or back. Trees are good examples of such grounds. In Gurindji, the sides of trees are always described in terms of
cardinal directions. For example in (13) three women are chopping a tree down with an axe to make a wooden dish. One woman instructs another as to where to cut tree to make sure it falls safely away from them. Note that in this example the cardinal is double-marked with the Gurindji 'edge' suffix -yarra and the Kriol equivalent -said.

(13) **kurla-yarra-said** na pa-rra Nangala, nyuntu na!
    south-along-side FOC hit-IMP sub.sect 2PL FOC "Chop along the south side (of the tree) Nangala, it's your turn now."
    (VD: FM07_a02_1: Reported speech)

Even where the sides of a human body are differentiated, cardinal terms are used, as is shown in (14) where the relevant hip is described as being on the eastside of the woman's body.

(14) **ka-ngana ngu-∅-∅ juluju kulaj kajirri-lu, kawarla-la,**
    take-PRS AUX-3SG.S-3SG.O carry.hip woman-ERG coolamon-LOC

**kaa-rni-mpala-nginyi-lu-ma.**
    east-up-along.side-ABL-ERG-TOP

The woman carries the baby in the coolamon on her hip from up on the east-side of her body. (VD: FM10_a133: Elicitation)

This use of cardinal directions is particularly striking to speakers of Indo-European languages such as English which never use cardinal directions for descriptions of small-scale space but rather rely heavily on left/right terms. Such terms do not exist in Gurindji. Indeed Gurindji does not express spatial relations in terms of the ego in any sense. For example speakers do not assign facets (e.g. front, back) to an inherently unfaceted object such as a tree based on their perspective. In English, speakers might say, *John is in front of the tree*, where *the tree's front* is designated based on the speaker's perspective, and John is necessarily positioned between the tree and the speaker (Levinson 2003: 44).

Gurindji speakers do not use these constructions for describing similar configurations of a figure and ground. The expression of angular relations between a figure and a faceted ground will be discussed further in Section 3.3.1.

Although Gurindji has no terms for 'left' and 'right', a number of terms exist which describe a person's handedness. The terms used for right-handed, *jutu* and *jutumparra*, also mean 'straight' or 'correct', whereas the terms used for left-handed, *ngarlkuny, ngarlkunjarrrip, wartiwarti, jampukarra, wirlkirri*, and *jirrpintikarra*, do not have any other meaning (McConvell et al. 2010). Importantly, these terms are only used to describe handedness and have not been extended to specify the location of another entity in relation to ego. An example is given in (15).

(15) **EXAMPLE**
Gurindji speakers recognise the use of cardinal directions as the functional equivalents of the English left/right terms in descriptions of small-scale space. They understand the use of cardinal directions in Gurindji to be as fundamental to spatial description as left/right is in English. For example in (16) after a Gurindji speaker had described a picture from the 'Man and tree' task to another Gurindji speaker (see Section 4), she turned to me and translated the Gurindji cardinal terms into English left/right terms rather than English cardinal equivalents e.g. north/south.

(16) nyawa-ma kuya-rniny ngu=wula jurlngurra karrinyana kutij,
this-TOP thus-HITH AUX=3DU.S face.away be.PRS stand

kayiliyarra kurlayarra that mean that side kayiliyarra
north.ALL south.ALL that mean that side north.ALL

kurlayarra mean that side, like left and right
south.ALL mean that side like left and right

Here one the two of them are standing facing away (from each other) to the north and south. Kayiliyarra - that means 'that side' and kurlayarra - that means 'that side' [gesturing], like left and right. (EO: FM09_a104: Man and tree)

3.2.2 Gurindji Kriol

Given the restricted use of cardinal directions in the description of large-scale space, it is not surprising to find that they are completely absent in descriptions of small-scale space. Instead, Gurindji and Kriol-derived deictic terms are used instead. These deictic terms are an adverbial subset of the larger deictic paradigm, shown in Table 4. They consist of Kriol-derived forms, though some Gurindji-derived forms are also in use. They function in the basically same manner as their English sources.

<table>
<thead>
<tr>
<th>ADNOMINAL</th>
<th>NOMINAL</th>
<th>ADVERBAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>location</td>
</tr>
<tr>
<td>PROXIMAL</td>
<td>dij</td>
<td>nyawa</td>
</tr>
<tr>
<td></td>
<td>'this X'</td>
<td>'this one'</td>
</tr>
<tr>
<td>DISTAL</td>
<td>det</td>
<td>nyila</td>
</tr>
<tr>
<td></td>
<td>'that X'</td>
<td>'that one'</td>
</tr>
<tr>
<td>ANOTHER</td>
<td>(n)aja</td>
<td>(n)ajan</td>
</tr>
<tr>
<td></td>
<td>'another X'</td>
<td>'another one'</td>
</tr>
</tbody>
</table>

Deictic terms are 'vague' in comparison with cardinal terms or left/right terms because do not specify angular relations. The use of gesture often accompanies deictic terms in order
to provide this angular information. Deictics alone encode only radial information in relation to the speaker is, for example in motion verbs *The man came here*. They often provide the ground in static locative constructions such as *The man is here*, in the same manner as the prepositional phrase encodes the ground in *The man is in the house*. However in both of these cases, they fail to specify an angular relation between the figure and ground. In particular, deictic terms, such as *here* and *this way*, fail to specify angular locations with respect to the ground which is simultaneously the deictic centre or the speaker. This difference is more apparent when deictic terms are contrasted with *The man is to the left of me* (intrinsic), *The man is in front of me* (intrinsic), *The man is to the north of me* (absolute) (Levinson 2003: 67).

These deictic terms are found in descriptions of small-scale space in Gurindji Kriol where cardinals directions would have been used in Gurindji. For example, in (17), the speaker is directing someone else to get a specific rock which is sitting beside another rock. She uses only deictic terms and gesture, marking the ground, the other rock, with a locative marker. The area referred to is approximately the same size as the 1x1m ochre pit referred to in (12), but cardinal directions are completely absent. Indeed the specification of angular relations is completely absent.

(17) jangkarni-wan nyila jarrei jangkarni-wan.
    big-NMLZ that.one that.way big-NMLZ
    hiya luk nyila. wumara-ngka wumara-ngka.
    here look that.one rock-LOC rock-LOC

"That big one that way, the big one. Here look, that one. Near (another) rock."
(11: SS: FM033.A: Conversation)

These deictic terms are also used in descriptions of small-scale space where the ground has no inherent facets such as a tree. Example (18), which was uttered by a Gurindji Kriol speaker, is comparable to the Gurindji example in (13). However, where the Gurindji speaker uses a cardinal term to describe position with respect to a tree, the Gurindji Kriol speaker uses a Kriol-derived deictic. The Gurindji Kriol speaker encodes the ground, the tree, using a locative-marked nominal and describes the position of bush gum in the tree using the verticality term *kankula* (up) and the Kriol-derived deictic *darrei* (that way). The speaker also uses a pointing gesture to specify the location more precisely.

(18) darrei ola martyia kankula tri-ngka.
    that.way DET.PL bush.gum up tree-LOC
    'All of the bush gum is that way up in the tree.' (SS: FHM122: Conversation)

Cardinal directions are also never used in reference to the body. Compare the Gurindji example in (14) with an equivalent example from Gurindji Kriol shown in (19). Here a

---

9 This sentence uses the intrinsic frame of reference because it expresses a binary relationship between the figure and the ground where the ground and the viewpoint are the same (the speaker). In the relative frame of reference a ternary relationship is expressed between the viewpoint (often speaker), figure and ground, for example *The man is standing to the left of the house* (Levinson 2003: 45).
mother is directing her son to put a sticker on his foot. His feet are distinguished again only by the deictic term deya (there) and gesture. Cardinal directions are absent, as are English left/right terms, despite the speaker's extensive exposure to English.

(19) put-im deya nang put-im fut-ta nang. put-TR there stick put-TR foot-LOC stick "Stick (the sticker) on there, stick it on (your) foot."
(RR: FM002.A: Conversation)

### 3.3 Grounds with inherent facets

A figure can be located with respect to another object which has features that are intrinsic to its form, such as a front, back or side. Some common objects with inherent facets are houses or cars. The terms for facets are often derived from body parts terms, such as the back of a car, the nose of a ship. In Gurindji, the attribution of body parts terms to facets sometimes differs from English, for example the back of an axe is termed lutju 'heel'.

Gurindji and Gurindji Kriol show remarkable similarity in how they mark spatial relations between a figure and a ground with inherent facets, as the following sections will show.

#### 3.3.1 Gurindji

The predominant means of expressing the spatial relationship between a figure and a faceted ground is through adverbs, although they commonly occur in conjunction with cardinal and river drainage terms as well. Although the term 'adverbs' is used here, they are actually a difficult part of speech to categorise. They share some properties with coverbs in that they modify the inflecting verb and are grammatically non-obligatory, however they also show some differences. For example adverbs do not combine with the progressive suffix -karra, and can host the expectation modifying clitic -rni 'only, just, exactly' where coverbs cannot. Adverbs also do not form subordinate clauses using case-markers which is a property of coverbs (see Section 2.2). Adverbs can be case-marked, however this is a form of agreement which, as McConvell (1996: 35) notes, makes them more similar to nominals.

(20) mangarri nya-nga jartkarra jurrulu-ngku karu-ngku yalu-ngku. damper eat-PRS eat face.away-ERG child-ERG that-ERG
That kid is facing away eating damper.
(IH:FM:Narrative:2002: Example from Bilinarra)

Adverbs are used to describe the relationship between a figure and an intrinsic facet of the ground, for example kamparri (front), ngumayila\(^{10}\) (back), kamurra (in the middle of)

---

\(^{10}\) Ngumayila is said by most Gurindji people with a frozen locative marker -la. Older speakers use ngumayi.
and *palpap* (side-by-side).\(^\text{11}\) The terms are interpreted with respect to either the actual inherent features of a ground (e.g. back), the static projected region from a ground's intrinsic facets (e.g. behind) or simultaneous staggered motion with respect to a facet (e.g. following or leading). For example, telling someone to put something in a car using the term *ngumayila* may be interpreted as being either in the back of the car or behind the car. Context usually enriches the interpretation. In (21), a women wants to put a bunch of bush medicine leaves in a car and asks another woman where she should put them. The other woman's reply includes the adverbial *ngumayi*, which is interpreted as 'back' because the women wish to take the medicinal plants home.

(21) (VD, BW: FM07_v01_1: Conversation)

VD: *marntaj wanyika-warla-rna yuwa-rru*
    OK where-FOC-1SG.S put-FUT
    "OK now where should I put it?"

BW: *murla-ngka ngumayila*
    this-LOC back
    "Here in the back (of the car)."

Where the ground is expressed, it is marked locative (22) or cross-referenced by an oblique pronoun (23). The adverb is optionally marked locative in agreement with the ground.

(22) *mangarri-waji-la ngu=wula wanyja-nana na kamparri-la*
    food-AGENT-LOC AUX=3DU.S leave-PRS FOC front-LOC

    warrkwarrkap wamala-kujarra-lu\(^\text{12}\)
    dance.REDUP girl-DU-ERG

The two girls dance in front of the shop. (BW: FM07_a043: Elicitation)

(23) *ngu=rna=rla kamparri karrinyana lurlurlulu.*
    AUX=1SG.S=3OBL front be.PRS sit.REDUP
    I'm sitting in front of her. (VD: FM09_a127: Conversation)

3.3.2 Gurindji Kriol

In descriptions of spatial relations where the ground has facets, Gurindji Kriol behaves in much the same way as Gurindji. For example, adverb *fran* (front, <Kriol) is used in relation to cars in Gurindji Kriol as shown in (24), which can be compared with an

\(^{11}\) Two of these terms are suffixed with *-jang* to express different generations, for example *kamparrijang* (previous generations, lit: ahead generations) and *ngumayijang* (following generations, lit: behind generations).

\(^{12}\) Unusually 'dance' combines with a transitive inflecting verb *wanyjanana* (leave) in Gurindji and therefore requires an ergative-marked subject.
equivalent Gurindji example in (21). The space extending from the facet of a ground is also described in terms of the intrinsic features of the ground, as shown in (25). Again the Kriol term *fran* is used. The Gurindji equivalent, *kamparri*, now seems largely restricted to descriptions of simultaneous staggered motion as shown in (26).

(24) Mishai yu put-im motika-ngka *fran*-ta deya
NAME 2SG put-TR car-LOC front-LOC there
Mishai you put it there in the front of the car. (CE: FM058.B: Conversation)

(25) yu garra kom *kutij* hiya luk *fran*-ta Becky *fran*-ta.
2SG POT come stand here look front-LOC NAME front-LOC
You came and stand here Becky in front (of the camera).
(CE: FM045: Conversation)

(26) bulugi-*walija* dei til *rarraj* *kamparri*-ngka.
cow-PAUC 3PL.S still run ahead-LOC
The cows are still running ahead (of the moving car).
(RS: FM08_a081: Conversation)

The deictic terms, *dijsaid* 'this side' and *detsaid* 'that side' are also used to express the position of a figure in terms of a ground's facets. When they are used to refer to the side of a ground, they are non-specific, for example *this/that side of the house*. They are more specific when they are used to refer to the front and back of a ground. For example, when the speaker is standing on one side of a house, she may describe the relation of a man (figure) in relation to a house (ground) as *The man is on this side of the house* (front) or *The man is on that side of the house* (back). For example, in Error! Reference source not found.,

(27) EXAMPLE

3.4 Summary of the expression of space in Gurindji and Gurindji Kriol

Gurindji and Gurindji Kriol show both similarities and differences in the expression of spatial relations. Where a ground has inherent facts, both Gurindji and Gurindji Kriol use adverbs predominantly to express the position of a figure in relation to the ground. Yet stark inter-generational differences are also apparent. Where Gurindji speakers use fixed bearings such as compass points and river drainage terms to spatial relations in large and small-scale space, Gurindji Kriol speakers rely heavily on deictic terms. Compass points are in evidence in descriptions of large-scale space, however they are not found descriptions of small-scale space, and river drainage are completely absent. These similarities and differences are summarised in Figure 2.

Figure 2 Summary of spatial relations in Gurindji and Gurindji Kriol
The heavy use of deictic terms by Gurindji Kriol speakers makes their expression of spatial relations quite non-specific, unless supplemented by gesture which provides the angular relations. The use of gesture requires the figure and ground to be visible to the speaker and hearer, or for both of them to have a good knowledge of a spatial context even if they are not present in that context. How Gurindji Kriol speakers specify angular relations when this context is stripped from the communicative context is the focus of the next section.

4. Cardinals revealed! Small-scale spatial description (speaker/hearer obscured)

In order to test how Gurindji Kriol speakers encode figure and ground relations in small-scale space without the use of deictic terms and gesture, I used the 'Man and tree' elicitation task. This task belongs to a family of spatial description games designed by the Cognitive Anthropology Research Group at the Max Planck Institute for Psycholinguistics (Nijmegen, Holland) specifically to reveal strategies of spatial description used in static location in small-scale space. The 'Man and tree' task is conducted as director-matcher game. Two participants sit side-by-side with a matching set of pictures in front of them. Both have the same stimuli in front of them. The pictures include different configurations of a tree, which has no intrinsic facets, and a man, who does has intrinsic facets, as well as different configurations of two men. The task of the director is to describe each picture in turn in such a way as the matcher can identify the correct picture. The matcher must attempt to select the correct picture or ask for clarification where it is unclear which one is correct. The director and matcher are screened off from each other to ensure that they are unable to rely on deictics or gesture to express spatial relations (Pederson et al. 1998: 563). This task has been used by members of Cognitive Anthropology Research Group in a range of languages including Tzeltal (Mayan), Longgu (Austronesian), Dutch (Indo-European) and Tamil (Dravidian) (Pederson et al. 1998), Lavukaleve, Touo (Papuan) and Solomons Pidgin (Terrill and Dunn 2006) as well as a number of Australian languages including Arrente (Pama-Nyungan) (Pederson et al. 1998; Wilkins 2006), Jaminjung (non-Pama-Nyungan) (Schultze-Berndt 2006) and Warrwa (non-Pama-Nyungan) (McGregor 2006). Variations of this task have also been designed, for example the 'Ann Senghas' task which is more comprehensive than the original 'Man and tree' task because it includes all possible combinations of the four positions of a man in relation to a tree (Terrill and Burenhult 2008: 95-96).

The 'Man and tree' task was run at Kalkaringi with 11 Gurindji Kriol-speaking participants (<32 years old) and 6 Gurindji-speaking participants (>45 years old), for comparison. All participants were women. Four boards of 5-8 pictures each (27 pictures
in total) were created using the pictures from the MPI Cognition and Space kit. The pictures differed minimally in the relative position of a tree and a man, or of two men, and the orientation of the men. They included four sets (i) two men standing in different positions in relation to each other both facing the same way (Game 1, Pictures 1.1-1.8), (ii) a man standing in various positions in relation to a tree facing different directions (Game 2, Pictures 2.3-2.8) (see Pederson et al. 1998: 564 for pictures), (iii) two men standing in different positions in relation to each other facing different directions (Game 3, Pictures 3.1-3.8), and (iv) a man, a herd of pigs and a clump of trees configured in different ways (Game 4, Pictures 4.1-4.5). The director had the four boards of pictures to describe in turn, and the matcher had a set of loose pictures in front of her. The director and matcher sat side-by-side and a board was placed between them to block their view of each other's pictures. The director and matcher were instructed not to look at each other, although this instruction proved unnecessary because both spent the duration of the task looking intently at the pictures. The director described the content of each picture on the board and the matcher chose the matching picture and handed it to the director. The director then described the next picture or handed the picture back if the matcher had chosen the wrong picture. In these cases the director described the picture further. The matcher was allowed to ask questions if she needed more information to make a choice. The director was allowed to describe the pictures on each board in any order. The task was run by locally-trained research assistants with the author present. One research assistant recorded the session using a digital audio recorder, while another research assistant sat behind the director recording the order of pictures she chose. The direction the matcher and director were facing was also recorded (i.e. N-S-E-W). Most participants were familiar with this director-matcher paradigm because the author had used it for previous studies on case-marking. All participants were paid for their participation.

Although it was difficult to maintain experiment-like conditions in this field situation, a number of conditions were kept constant throughout all 17 renditions of the task. All participants were tested in the same setting which was outside in open in the community, and all participants were tested in the late afternoon. Nonetheless it was impossible to control for other conditions. For example most participants performed the task with children playing nearby and other adults talking or playing card games in the vicinity. Adults who had already participated in the task were also often present watching on and commenting to each other or laughing at the participants when they found it difficult. Indeed the task was considered difficult by all participants, however it was treated as a game and an alternative to the usual evening card games.

Figure 3 Gurindji research assistants (Cassandra Algy and Rosy Smiler) recording "Man and Tree" tasks with Amanda Vincent and Thelma Smiler. A previous participant, Leanne Smiler, watches on.
Based on the conversational data, it was not clear how the participants would fare without deictic terms and gestures to rely on. It was assumed that Gurindji participants would use cardinal terms and Gurindji Kriol participants would merely find the task incredibly difficult. Instead, the use of cardinal directions emerged as the strongest relational cue for Gurindji Kriol speakers who showed striking similarities to Gurindji speakers in how they performed the task.

Two relational parameters were of interest: (i) the orientation of the man which has been called 'facing' relations e.g. facing left, facing north or facing the other man/tree, and (ii) the relative position of the man and the tree or 'standing' relations e.g. the man is to the left of the tree, to the north of the tree or behind the tree (Levinson and Wilkins 2006a: 11; Pederson et al. 1998: 567). In a study of another Pama-Nyungan language, Arrente, which also makes heavy use of cardinal terms, Wilkins (2006: 56-58; Levinson and Wilkins 2003b: 547) found that speakers used an absolute frame of reference for descriptions of 'facing' relations, and both absolute and intrinsic frames of reference for 'standing' relations. As the following examples will demonstrate, Gurindji speakers performed similarly in the 'Man and tree' task, however they also used an absolute frame
of reference to describe 'standing' relations because, unlike Arrente\textsuperscript{13}, Gurindji has a subset of cardinal terms which can be used to describe the side of objects which are inherently non-faceted such as trees, e.g. kayiliyarra (along the north side), kayinimpa (on the northern side), see Table 2 and (13). What is surprising is that Gurindji Kriol speakers also relied heavily on an absolute frame of reference, although there are some differences in the extent it was used to describe 'standing' information. Where cardinal directions are rarely seen in Gurindji Kriol conversation and narrative, they become abundant when deictic terms and gesture are stripped from the linguistic context.

In terms of first parameter, 'facing' relations, both Gurindji Kriol and Gurindji speakers orientated the men in all of the games in relation to picture external cues, specifically cardinal directions. In this respect, no ground is evoked. They orientated the man by describing which way the man is 'facing' or 'looking'. Gurindji speakers used the complex verb karrap nyangana (look) or the existential verb karrinyana (to be) coupled with the plain form of a cardinal term or an allative-marked form. In (28) the two men are described by a Gurindji speaker as both facing northwards.

\begin{verbatim}
(28) nyawa ngu=wula karrinyana parlkij
this AUX=3DU be.PRS level

ngu=wula kayirra-k karrinyana.
AUX=3DU north-ALL be.PRS

"The two of them are (standing) side-by-side. They are (facing) northwards."
(BW: FM09_a106: Man and tree: Gurindji)
\end{verbatim}

Similarly Gurindji Kriol speakers used the verbs karrap (look, <Gurindji) and feising (face, <Kriol) and used the plain form of a cardinal term or an allative-marked form. For example in (29) the Gurindji Kriol speaker describes one man as looking southwards and the other man as looking northwards.

\begin{verbatim}
(29) kartiya karrap kurlarra-k najan kartiya karrap kayirra-k,
whitefella look south-ALL another white.fella look north-ALL

parntawurru-itj dei jou-im.
back-each 3PL.S show-TR

"A whitefella is looking to the south, another whitefella is looking to the north.
They have their backs to each other." (RS: FM09_a103: Man and tree: GK)
\end{verbatim}

The Gurindji Kriol speaker in (28) also used an intrinsic frame of reference to give 'facing' information, that is she described the facing position of the two men as 'back-to-back'. Gurindji Kriol speakers used a number of different periphrastic constructions to give this kind of facing information, for example:

\footnotesize\textsuperscript{13} Wilkins (2006: 54) reports that for Arrente, speakers have borrowed the English 'side' as a suffix to express these relations. Gurindji speakers have also done this but it double-marks a cardinal nominal which already encodes 'side'. See (13), for example.
Gurindji speakers used coverbs to describe 'facing' relations with respect to the two men, e.g. julngurra 'face away', marrangan 'face towards' and wiringanang 'face different ways'. These facing terms are only used to describe one man with respect to the other man in the pictures rather than a picture external ground such as the speaker or landmark.

The intrinsic frame of reference was also used in other Gurindji and Gurindji Kriol examples to describe 'standing' relations between the two men including: kamparri 'in front of' and ngumayila 'behind'. In other cases, both Gurindji and Gurindji Kriol speakers also used an absolute frame of reference to describe this 'standing' relation. For example in (31), the Gurindji speaker uses cardinal terms, describing one man as standing on the north side of the other man, and the other on the south side of the other man. MAYBE NORTHSIDE AND SOUTHSIDE OF PICTURE? An equivalent example is found in (32) using the base form of the cardinal plus a Kriol suffix, -said (side).

(31) nyawa-ma kuya-niny ngu=wula jurlngurra karrinyana kutij, this-TOP thus-ALL AUX=3DU.S face.away be.PRS stand

kayiliyarra kurlayarra.
north.side south.side

''Here - the two of them are standing facing away (from each other) on the northside and the southside (of each other).''
(EO: FM09_a104: Man and tree: Gurindji)

(32) palpap tubala wanbala kurlarra-said im luk kaarnirra-k level 2DU one south-side 3SG look east-ALL

najan kayiniyarra-said im luk karlarra-k.
another west-side 3Sg look west-ALL

''The two of them are standing level with each other. One is on the southside (of the other man) looking eastwards and the other is on the northside (of the other man) looking westwards.''
(LE: FM09_a109: Man and tree: Gurindji Kriol)

The description of 'standing' relations is of particular interest with respect to the man and tree pictures (Game 2) where the tree does not have intrinsic facets. Gurindji Kriol and Gurindji speakers did use an intrinsic frame of reference to describe the relative position
of the man and the tree, however they designated the man as the ground and describe the position of the tree with respect to the man's facets. They never used a relative frame of reference, by assigning facets (front, back and side) to the tree based on their perspective.\textsuperscript{14} In (33) a Gurindji speaker describes the tree as being behind the man (with the man referred to the oblique pronoun). Similarly in (34) a Gurindji Kriol speaker describes the tree as being in front of the man.

(33) \textit{nyawa} \textit{kankula, kurlarra-k karrinyana, karnti-ma-rla}
\textit{this up south-ALL be.PRS tree-TOP-OBL}

\textit{kayirra-k, ngumayila-la.}
\textit{north-ALL behind-LOC}

'This one above is (facing) south, and the tree is northwards \textbf{behind the man, at the back of the man}.' (BW: FM09\_a106: Man and tree: Gurindji)

(34) \textit{kartiya-ngku im karrap dat karnti kamparri-ngka.}
\textit{white.fella-ERG 3SG look the tree front-LOC}

'The whitefella is looking at the tree which is in front (of him).'
(\textit{RS: FM09\_a103: Man and tree: Gurindji Kriol})

Both Gurindji and Gurindji Kriol speakers also relied on an absolute frame of reference to describe the relative position of the man and tree. However, where Gurindji speakers used this cue methodically, it was only a last resort for Gurindji Kriol speakers. Gurindji Kriol speakers only used cardinal terms to distinguish the two pictures where the man is standing on either side of the tree (Picture 2.7 and 2.8, see Figure 4 for these two pictures). In these cases, the term \textit{wansaid} 'beside' does not distinguish the pictures, and cardinal terms were relied on. For example in (35) the Gurindji Kriol speaker first described the man in relation to picture external cues (facing northwards) and then states that he is standing on the east side of the tree. This is the strategy also used by Gurindji speakers as shown in (36). Moreover the figure and ground relations are reversed and the position of the tree is also described in terms of the man.

(35) \textit{wanbala kartiya im top kutij feising kayinirra-k,}
\textit{one whitefella 3SG be standing facing north-ALL}
\textit{kaarnipal-said tri-ngka.}
\textit{east.along.side-side tree-LOC}

"One whitefella is standing \textbf{facing north} along the \textbf{east side} of the tree."
(\textit{LE: FM09\_a109: Man and tree: Gurindji Kriol})

(36) \textit{kartiya kutij karrinyana karrawarra-k julngurra}
\textit{whitefella stand be.PRS east-ALL face.away}

\textsuperscript{14} For example, in English, one might say \textit{The man is in front of the tree}, where the man is standing between the speaker and the tree, and the speaker has assigned a front to the tree based on this perspective).
"The whitefella is standing facing east along the southside (of the tree) facing away from the tree which is standing along the northside (of the man).

(EO: FM09_a104: Man and tree: Gurindji)

These similarities between Gurindji and Gurindji Kriol speakers in the 'Man and tree' task are summarised below in Table 5. The difference between the groups of speakers is largely the extent to which they used an absolute frame of reference. It was used much less by Gurindji Kriol speakers to describing 'standing' relations.

Table 5  Summary of frames of reference used express facing and standing relations

<table>
<thead>
<tr>
<th>Facing Information</th>
<th>Standing Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture External</td>
<td>Picture Internal</td>
</tr>
<tr>
<td>Faceted Ground</td>
<td>Non-faceted Ground</td>
</tr>
<tr>
<td>i.e. man</td>
<td>i.e. tree</td>
</tr>
<tr>
<td>Gurindji Absolute</td>
<td>Gurindji Kriol</td>
</tr>
<tr>
<td>Absolute, Intrinsic</td>
<td>Absolute, Intrinsic, Absolute</td>
</tr>
</tbody>
</table>

The most striking result of this study was that Gurindji Kriol speakers used cardinal directions to describe small-scale space when all other spatial descriptive resources are rendered unavailable. Although all 11 Gurindji Kriol speakers tested had all been exposed to the English left/right system through schooling and the media, not one speaker used this system in the 'Man and tree' task. When other spatial cues such as gesture and deictic terms are unavailable, it seems that they are able to use cardinal directions with ease. Indeed I was somewhat doubtful of the 'naturalness' of their use of an absolute frame of reference and prompted two speakers to use landmarks and placenames, which are common in the productive data in spatial descriptions, see (11) for example. The concern was that Gurindji Kriol speakers knew that I was interested in the use of cardinal directions and were producing them in a performative manner rather than naturally. Yet, though the speakers attempted to use landmarks and place names external to the pictures at my prompting e.g. The man is facing the council office, they did so very hesitantly. After describing two or three pictures in this manner, they reverted back to using cardinal directions, and used them with ease. Thus even though it is not evident from the naturalistic data described in Section Error! Reference source not found., the internal compass of Gurindji Kriol speakers is still in operation in discourse situations. Gurindji Kriol speakers seem to still be well-grounded in absolute space.
5. Conclusions

given that younger Gurindji people can resort to cardinal directions - are they still firmly ground in absolute space?

Given this significant inter-generational shift in the expression of space by Gurindji people, the question then becomes whether corresponding changes in spatial cognition have also occured.

By contrast English speakers only use cardinal directions in descriptions of large-scale space, relying heavily on left/right terms in descriptions of small-scale space. These stark differences in the expression of spatial relations, particularly in relation to small-scale space, xxx a more fundamental conceptual difference in the way many Aboriginal people and English speakers conceptualise space. Spatial cognition for English speakers is largely egocentric, utilising the planes of the body to place objects in space by defining regions projected from the body i.e. 'to the left/right of', 'behind' and 'in front of'. By contrast speakers of traditional Aboriginal languages maintain their orientation at all times with respect to fixed bearings rather than their bodies. The heavy use of fixed bearings coupled with the impressive dead-reckoning skills of many Aboriginal people.

6. List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABL</td>
<td>ablative</td>
</tr>
<tr>
<td>ALL</td>
<td>allative</td>
</tr>
<tr>
<td>AUX</td>
<td>auxiliary</td>
</tr>
<tr>
<td>COM</td>
<td>comitative</td>
</tr>
<tr>
<td>DAT</td>
<td>dative</td>
</tr>
<tr>
<td>DU</td>
<td>dual</td>
</tr>
<tr>
<td>DYAD</td>
<td>kinship pair</td>
</tr>
<tr>
<td>ERG</td>
<td>ergative</td>
</tr>
<tr>
<td>FOC</td>
<td>focus</td>
</tr>
<tr>
<td>FUT</td>
<td>future</td>
</tr>
<tr>
<td>IMPF</td>
<td>imperfect</td>
</tr>
<tr>
<td>INC</td>
<td>inclusive</td>
</tr>
<tr>
<td>LOC</td>
<td>locative</td>
</tr>
<tr>
<td>NEG</td>
<td>negative</td>
</tr>
<tr>
<td>O</td>
<td>object</td>
</tr>
<tr>
<td>OBL</td>
<td>oblique</td>
</tr>
<tr>
<td>PAUC</td>
<td>paucal</td>
</tr>
<tr>
<td>PERF</td>
<td>perfect</td>
</tr>
<tr>
<td>PL</td>
<td>plural</td>
</tr>
<tr>
<td>PROG</td>
<td>progressive</td>
</tr>
<tr>
<td>PRS</td>
<td>present</td>
</tr>
<tr>
<td>PST</td>
<td>past</td>
</tr>
<tr>
<td>QN</td>
<td>question nominal</td>
</tr>
<tr>
<td>S</td>
<td>subject</td>
</tr>
<tr>
<td>SG</td>
<td>singular</td>
</tr>
<tr>
<td>TAG</td>
<td>tag question</td>
</tr>
<tr>
<td>TR</td>
<td>transitive</td>
</tr>
<tr>
<td>1</td>
<td>first person</td>
</tr>
<tr>
<td>2</td>
<td>second person</td>
</tr>
<tr>
<td>3</td>
<td>third person</td>
</tr>
<tr>
<td>-</td>
<td>morpheme break</td>
</tr>
<tr>
<td>=</td>
<td>clitic break</td>
</tr>
<tr>
<td>&gt;</td>
<td>acting on</td>
</tr>
</tbody>
</table>

7. References


Jones, Caroline, Felicity Meakins, and Heather Buchan. in progress. Citation-speech vowels in Gurindji Kriol and local Australian English.


