Guugu Yimithirr Cardinal Directions

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Speakers of the Australian language Guugu Yimithirr (hereafter GY) at the Hopevale community near Cooktown, in far North Queensland,[1] make heavy use in discourse about position and motion of inflected forms of four cardinal direction roots--similar in meaning to *north, south, east,* and *west*.[2] The system of cardinal directions appears to involve principles for calculating horizontal position and motion strikingly different from familiar systems based on the anatomies of reference objects, including speakers and hearers themselves. Rather than calculating location relative to inherent asymmetries in local reference objects, or from the viewpoint of observers themselves characterized by such asymmetries, the GY system apparently takes as its primitives global geocentric coordinates, seemingly independent of specific local terrain and based instead on horizontal angles which are fixed, as it were, by the earth (and perhaps the sun) and not subject to the rotation of observers or reference objects.

Previous work on GY (see Haviland 1979, 1993, Levinson 1992), and, indeed, GY speakers themselves emphasize the conceptual differences between a cardinal direction system so conceived and, for example, locational systems that exploit a left/right dichotomy. Thus, for example, when the late Tulo Gordon was working out translations into English of traditional GY tales (Gordon and Haviland 1980), at one point where he wanted to describe a lagoon which lies, as one would say in GY, "west of the Cooktown airport" he remarked, "But white fellows wouldn't understand that. In English we'd better say, 'to the right as you drive to the airport [from Hopevale].'"

Nonetheless, the relational and situated nature of cardinal term systems has been insufficiently appreciated. In this paper I explore some of the linguistic details of the GY cardinal term system, both to expose the internal logic of the elaborated set of directional terms, and to demonstrate the anchored and essentially deictic nature of GY directional discourse in general.

Comparative examination of spatial language, in many ways directly inspired by the striking properties of GY directional terminology, has led Levinson (1994) to propose a typology consisting of three "frames of reference" for encoding spatial relationships between objects on the horizontal plane. One frame locates Figures with respect to Grounds by exploiting the parts and asymmetries of the Ground objects themselves ("the ball was at the foot of the bed"); another exploits the parts and asymmetries of a Viewer, projected in various ways onto Grounds ("the ball was to the right of the tree")[3]; a third frame reads horizontal angles from an independently oriented coordinate system, as it were superimposed on the scene and independent of the geometries of particular reference objects or viewpoints ("the ball was north of the tree" or "downwind from the carcass"). Levinson distinguishes these frames of reference, which he dubs respectively Intrinsic, Relative, and Absolute, according to their internal logics. (Levinson chose the term "Absolute" evidently to emphasize that locative descriptions in such a framework are invariant under rotation of either observer or reference object. The lagoon west of the Cooktown airport remains 'west' even if the speaker [or, indeed, the airport] turns 180 degrees.) A central point of difference for Levinson is that the Intrinsic and Absolute frames of reference involve binary relations, between Figure and Ground, whereas the Relative frame of reference is ternary, introducing a third Viewpoint term into the relation. Levinson pronounces the three frames mutually untranslatable, and he points out that the problem of how to select Viewpoint and/or Ground is in principle different from the choice of frame of reference itself.

As an analytical exercise, Levinson's typology is unexceptionable[4] and useful. As an analysis of separate and possible incommensurable "logics" that are "systematically distinguished in the grammar or lexicon" (Levinson 1994:21) of particular languages the typology is potentially misleading. Since GY has been offered as almost the paradigm case of a language which insists on the "Absolute frame of reference" to the exclusion of others for calculating horizontal spatial relationships, it seems worthwhile to examine in detail the precise semantics of the cardinal terms, and their use in ordinary discourse, to be clear about what "Absolute" means in such a context. It does not mean, as we shall see in the case of GY, that either grammar or lexicon within a single language always or indeed ever keeps these frames of reference distinct. Also left in doubt is whether in the "Absolute frame of reference" the "independent coordinate system" by which locations of reference objects are calculated with respect to ground objects is independent of quite specific terrain, perhaps at a scale of resolution somewhat larger than that of the immediate "frame of reference."

There are three parts to my presentation. I demonstrate (1) that familiar deictic elements abound in the GY repertoire of locative resources; (2) that a kind of observer "viewpoint" is explicitly encoded in the complex morphology of GY cardinal terms; and finally (3) that ordinary discourse about place and location is replete with indexicality as well.

1. DEICTICS AND OTHER LOCATIVE DEVICES IN GY

The GY system of nominal inflection includes a LOCative/ALLative case and an ABLative case which can occur on virtually all nominal expressions. The meanings involved may range from literal location at, or motion towards/from a thing or place, to more abstract sorts of origin, source, destination, and purpose.

GY discourse about location and motion also makes use of a variety of explicit deictic devices. Most frequent are a pair of demonstrative roots, *yii* 'here, this'[5] and *nhaa* 'there, that,' involving a familiar distinction of proximity coupled with presupposability (Silverstein 1992). These may occur with several different inflections in apparently locational meanings.

{1} t8912b1[6]
nganhthaan-gu barrbi yii spring-bi
1PlNOm EMPH camp+PAST here spring-LOC
We camped here at the spring.

{2} t8912b1
nhaway dubi ngali motorcar
there+LOC leave+PAST 1DuNom automobile
We left our car there.

Deictically anchored motion, again of a familiar kind, is encoded in the verbs *gadaa* 'come,' and *thadaa* 'go.'[7] The reference point is normally fixed on the speaker, who also provides an unmarked origo for the deictic *nguundu*, usually translated into Hopevale English as 'this side,' i.e., 'towards here.' Example {3} illustrates the verb

gadaa ‘come’ together with an explicit ALLative form of *yii* ‘here, this,’ and example {4} shows *nguundu*.

{3} wurey3
minha-angu yii-muu gad-ii
meat-PURP here-ALL come-IMP
Come (to) here for meat!

{4} t9208a1
nyulu bujiil nguundu
3SgNom nose to=here
He’s facing this way.

GY also has two deictics which typically require gestural supplementation: the presentational *yarra* ‘there (look!)’, and the demonstrative *yarrba* ‘thus.’

{5} t847b
dagu bama yarra ngaabaay
thing person yonder head
Why, there’s a human head, (look)!

{6} boat
ngayu nhangu yarrba bagaalga-y
1SgNom 3SgAcc thus poke+REDUP-PAST
I poked him this way.

The language does use a limited set of nominal roots to express such object-centered (in Levinson’s terms, Intrinsic) spatial relations as interiority[8] (via the words *wawu* ‘inside,’ and *waguurr* ‘outside’), and anteriority[9] (*thagaal* ‘front,’ *gurriir* ‘back,’ and *gaarbaarr* ‘between, middle’).

{7} rh.trs:212
wawu-wi yitharrin gunggaarr
inside-LOC put north
Then he put [me] inside [the building], to the north.

{8} milbi7
bula waguurr gada-y ngaarala-thi
3DuNom outside come-PAST stretch-PAST+REF
The two of them came out (of the water), and stretched out.

{9} hv846b
George nyulu thagaal-bi
3SgNom front-LOC
George was in the lead (of a group of men searching for something).

{10} t827a2:
bama biini gurriir
man die+PAST behind
The man (who had been left behind) died.

{11} wurey6
gaarbaarr barrbi nyulu
middle camp+PAST 3SgNom
He camped half-way (i.e., part way towards his destination).

In addition, GY routinely uses apparent body-part words such as *baru* 'chin' or *ngada* 'back of the knee' to express what David Wilkins (p.c.) calls "facing" relations.[10] Thus, one hears such expressions as *baru nguundu* 'lit., chin towards here, i.e. facing towards here' or *ngada wugurr* 'lit, follow the back of [his] knee, i.e., walk behind him [his back to you].'

Although these devices do exploit certain intrinsic asymmetries in reference objects for characterizing spatial relations, GY makes no use of locational expressions based on, for example, a right/left discrimination (although the lexicon distinguishes left from right hands, and left from right handedness).

Instead, GY selects for special elaboration, both morphological and discursive, four roots for geocentric direction. The roots[11] denote roughly the same directions as the English words *north*, *south*, *east* and *west*, although the GY terms assume quadrants rather than idealized points on the horizon. (Moreover, the GY system is rotated slightly clockwise from standard Western compass directions, possibly reflecting the line of the coast, prevailing winds, or the seasonal arc of the sun.)

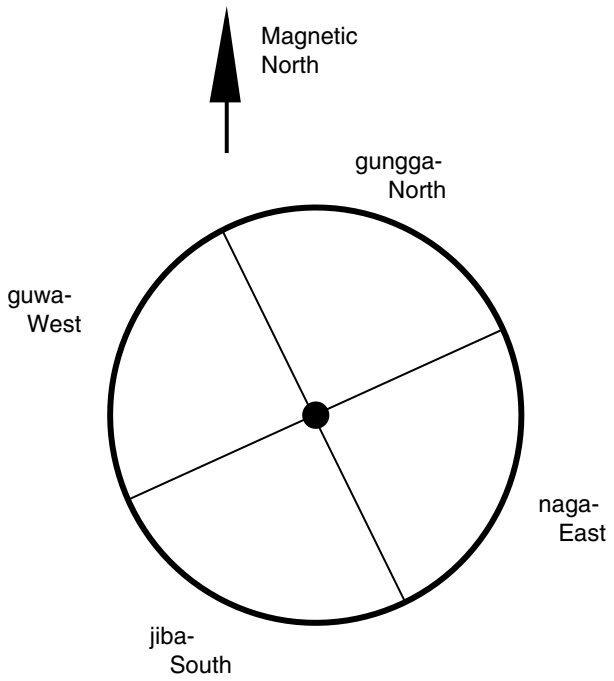

Figure 1: Guugu Yimithirr directional roots ((about here))

I have written elsewhere about the heavy use of the cardinal direction terms in GY talk about position, location, and motion, about the insistent sense of orientation that is a necessary concomitant of such linguistic usage, and about the coordination of

cardinal direction terms with gesture (Haviland 1993). Here I describe the semantic elaboration of these terms and the logic of their use, in combination with other linguistic resources.

2. MORPHOLOGICAL ELABORATION AND VIEWPOINT

Nominal roots in GY are inflected for case, and there are two specifically locational cases, LOC(ative)/ALL(ative) and ABL(ative) (Haviland 1979).

```
{12} Normal ABL and LOC/ALL forms (Wakook.trs)
gadii    thaluunh-ngaynh-gu manyjaal-bi
come+IMP sea      -ABL-EMPH mountain-LOC
```
Come from the ocean to the mountins!

By contrast, the set of four cardinal direction roots forms a special morphologically distinct subclass of nominals. Whereas ordinary nouns have only one LOC/ALL and one ABL form, the system of locational noun cases is hyper-elaborated with directional roots.[12] For a start, they produce three different LOC/ALL forms and four different ABL forms. I will illustrate with the root *naga* 'east,' although there are comparable forms for the other directional roots as well.

```
{13} LOCative/ALLative forms
naga       [0-form, 'East from a point']
naga-ar    [R-form, 'to a point East']
naga-alu   [L-form, 'East, over some point or obstacle']

{14} ABLative forms
naga-nun        [N-form, 'from a given point (East) to reference point']
naga-nu-nganh   [NABL-form, 'out of point East']
naga-almun      [M-form, 'from East towards reference point']
naga-almu-nganh [MABL-form, 'out of Easterly direction']
```

GY speakers who venture an opinion on the matter insist that the differences in meaning between these forms involve differences in the relative distance from the speaker to the reference point. For example, *naga* is said to mean 'a little way to the east,' *nagaar* 'a little farther to the east,' and *nagaalu* 'a long way east.' However, these same speakers' own conversational usage requires a quite different analysis, suggested by the rough glosses offered.

The various forms encode differences in perspective which anchor the geocentric system firmly in a reference point or origo, typically centered by default on the deictic origo of the speech event, and which often require the calculation of a second reference point, here called focus. Consider first the LOC/ALL forms. The 0-form[13] or 'departure-form' indicates an unmarked vector originating in the origo; especially by contrast with the other two LOC/ALL forms, it can appropriately be used to implicate setting out in some direction, or a vector originating at a given starting point (equal to the origo).

{15} bp2a
nyundu gathaa baawa-la naga
2SgNom bushfire burn-IMP East=0
You burn the grass to the East (from here).

The more highly marked R-form or 'arrival form,' by contrast, presupposes an endpoint, goal, or focus in the specified direction: heading for, thinking of, or getting to some specific location.

{16} boat2
gad-ii nagaar Wuuybu-ga-mi
come-IMP East=R Woibo-POSS-LOC
Come (let's go together) to Woibo's place in the East.

Finally, the L-form or 'remote form' suggests that the directional vector passes through some intermediate focus point.

{17} t828a
Wakooka nagaalu buurray-ay thambarr-in badiimbarr
East=L water-ALL throw-PAST down
Way to the East of Wakooka they threw it down into the water.

The folk interpretation that distinguishes these three forms according to the relative distance from origo can be seen to follow from a kind of (defeasible) implicature: correct use of the 'departure form' presupposes only the starting point of the vector (the origo), and thus can be seen to implicate only a short trajectory. The 'arrival' form presupposes a further specific endpoint, suggesting a vector somewhat longer, but still delimited. Finally, the 'remote' L-form involves an intermediate focus point through which the vector passes. Since the focus point may be a dip, rise, ridge, or something that renders the destination inaccessible, the L-form often implicates distance or remoteness (as in {17} where the speaker is talking about a water hole several hundred kilometers to the East from where he speaks), but it need not. In {18} the speaker recalls hunting beyond a small creek that was close to the reference point, a former camp. His choice of the L-form *nagaalu* encodes just this geography.

{18} t828a
nha-mu-nganh naga thadaara-y birri nagaalu bitha-way[14]
there-CAT-ABL East=0 go+REDUP-PAST river East=L small-ALL
We would go from there Eastwards, past that little creek to the East.

The ABL forms also record differences in perspectival presupposition. The N-form implies a definite location or focus point in the indicated quadrant from which motion or position is to be calculated. It is like the R-form in reverse.

{19} milbi14
waarigan guthiirra nhin.ga-y, gada-y nyulu naganun
moon two stay-PAST come-PAST 3SgNom East=N
He stayed [in that place] for two months, and then came from that point in the East.

The M-form presupposes an endpoint which motion originating in the indicated quadrant approaches; it is thus involves much the same configuration of reference points as the 0-

form, with the direction of the arrow switched (motion from, rather than towards, a focus in the indicated quadrant). In {20}, a missionary is instructing someone to bring a young boy from an Aboriginal camp to the mission station where he is.

```
{20} bp4a
nhangu diiga-la nagaalmun
3SgAcc send-IMP EAST-M
```
Send him from the East [to me, to here].

Both N- and M-forms can be further suffixed with the ordinary ABL suffix -*nganh* to describe not motion or orientation (starting in some quadrant, and with respect to a reference point) but origin: where something comes from or originates. Here is a typical example with the West=MABL form:

```
{21} t843b
ngathu biiba  galmba ngamu  guwalmunganh
1SgDat father also   mother West=MABL
```
My father's mother also came from the West.

There are thus several variables that a GY speaker must keep in mind to use such forms properly. Figure 2 shows the elements potentially involved in assigning a directional form.

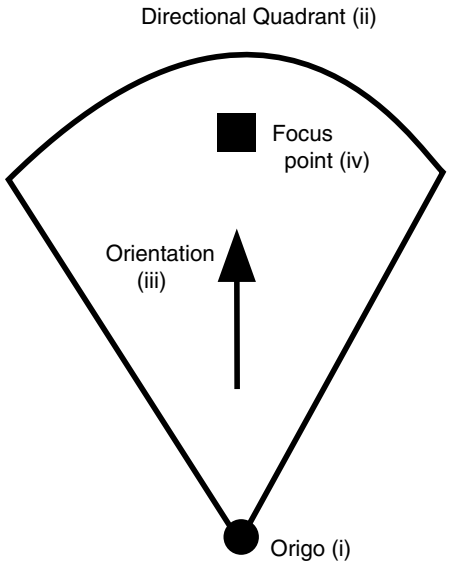

Figure 2: directional elements ((about here))

First, from a given reference point or origo (i) the appropriate directional quadrant (ii) must be identified. An orientation (iii) towards or from the indicated direction governs the selection of LOC/ALL or ABL forms. Finally, a presupposed focus point (iv) lying in the appropriate quadrant may also be involved. Given this machinery, we can diagram

the forms described as in Figure 3, where the circles represent origos and the squares presupposed or otherwise salient focus points. Anchoring or telic endpoints are filled in with black. (The naturalness of the folk interpretation of the LOC/ALL forms in terms of relative distance from origo is particularly clear in the illustration.)

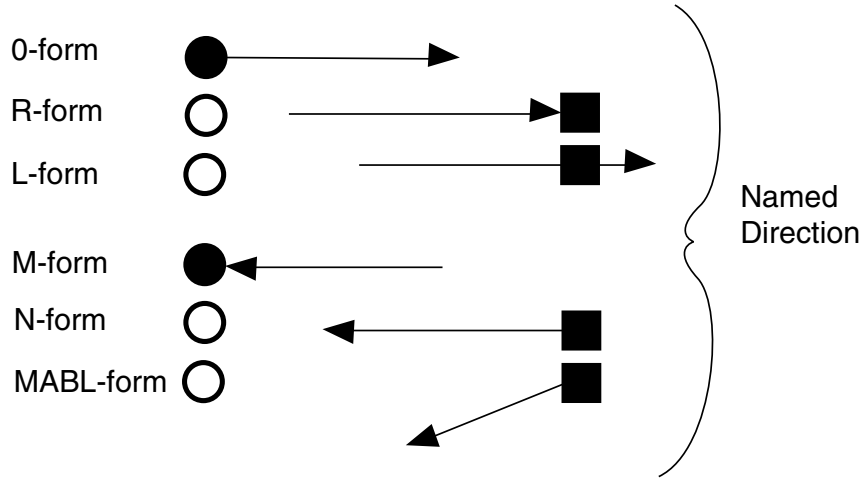

Figure 3: LOC, ALL, and ABL forms ((about here))

This is not the end of the morphology, however. There are also fully reduplicated forms of these roots (and in the cases of *naga* 'east' and *guwa* 'west' also partially reduplicated forms):

```
{22} Reduplicated forms
naga=naga  [REDUP-form, 'a bit east']
gunggaarr=gunggaarr [REDUP-form, 'a bit north']
naga=na    [HREDUP-form, 'on the east side']
guwa=gu     [HREDUP-form, 'on the west side']

{23} hv860718
naganaga   mana-ayi
EAST+REDUP INCHO-IMP
```
Shift a bit to the East!

```
{24} boatscl
nyundu yarrba nagana
2SgNom thus   East=HREDUP
```
You [jump into the water] that way, on the East [side of the boat].

There are two further forms usually also translated into English with the word 'side' and often explicitly accompanied by *walu* 'side, surface' or *gala* 'fork.'

```
{25} 'Side' forms
naga-n.garr   [G-form, 'on the east side or face']
naga-alnggurr (or naga-alnggarr)
              [LG-form, 'along the east side']
```

{26} t828a
bayan nagaalnggurr wuna-y bitha
house East=LG lie-PAST small
There was a small house along the East side [of the yard].

{27} t9215a1
nganhthanun galmba gala gunggan.garr
1PlDat also fork North=G
Our [clan estate] also is on the northern bank [of the river]

These 'side' forms portray the figure in question as being bisected by a (conceptually) one-dimensional line which cuts transversely across the named directional quadrant, as in Figure 4.

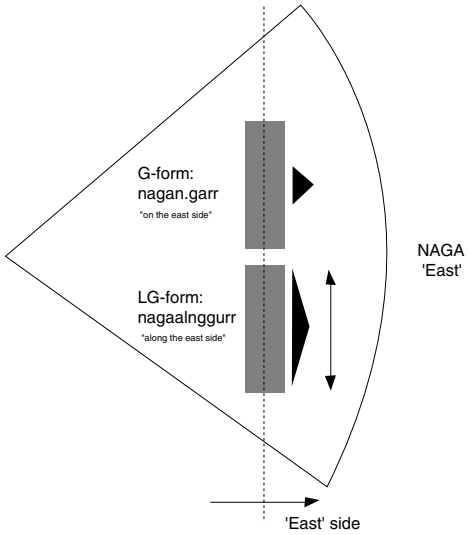

Figure 4: Side forms ((about here))

Finally, inflected forms of cardinal direction roots can, like many other nominal forms in GY, combine with further inflection, notably the emphatic suffixes *-:gu*,[15] *-:garra* and *-buthu*, the verbalizers *-mal* or *-mana-aya*, and even further case suffixes, including purposive and ergative. The conventional use of the emphatic *-:gu* to mean 'still (of such-and-such a character or condition)' and the verbalized forms (see example {23}) are especially frequent with cardinal direction roots.

{28} t842a
ngayu ngamu naga-aygu dubi
1SgNom mother East-EMPH leave+PAST
I left my mother still in the East.

I have laid out the morphology in some detail in order to make two observations. Levinson's abstract "frames of reference" strictly speaking are intended only to describe devices for computing "horizontal angles," i.e., the relations between the positions of Figure, Ground, (and sometimes Viewpoint) on a horizontal plane. However characterizing the GY directional system as a whole as "absolute" (Levinson 1992) is

misleading, since there are many locational resources in the language, excluding the cardinal direction terms, of a clearly relational ("deictic") or intrinsic nature in Levinson's terms. Moreover, even with the cardinal direction roots, the relational nature of the terms is inherent not only in their basic meanings ('quadrant X from a given reference point') but in virtually all of their morphological guises (cf., the elements of focus and orientation in Figure 2). Indeed, considered as complex lexical forms, the GY terms frequently combine the frames of reference that Levinson chooses to distinguish analytically. This is true, as Levinson himself notes,[16] for the GY 'side' terms, which lexically conflate the "Absolute" calculation of cardinal direction quadrant with an explicit "Intrinsic" characterization of the geometry of the reference object. More strikingly, the semantics of the allative/locative and ablative forms augment the "Absolute" binary relation between Figure and Ground with an explicit third or fourth term, distinctive in Levinson's typology of the "Relative" (ternary[17]) frame of reference: a focus point, and an orientation (which implies a viewpoint), variously calculated according to the precise morphological guise involved.

The following narrative fragment illustrates the points made in this section. It is an extract from a story about a man who abducts a woman and tries to take her back to his own country. She plots her escape and finally manages to run away when her would-be husband stops to build a fire. The crucial fact about the situation is the relative position of the two protagonists: both where they are sitting and which direction they are facing (i.e., Wilkin's "standing" and "facing" relations again). Especially notable here is the interaction of different GY (and English) devices--deictics, pronouns, cardinal directional roots, and lexically projected intrinsic geometries--to achieve the required spatial description. Thus, the narrator uses both explicit deictics and an alternation of pronominal forms and zero anaphora to track the two protagonists: the man making a fire, and his victim, sitting behind him. He orients the scene with cardinal direction roots, starting from the premise that the man lived in the west and was thus heading in that direction: the man is to the west in the lead, his wife to the east, following. The narrator finally exploits various intrinsic asymmetries: 'facing,' 'side,' *mugu-unh* 'at the back,' and even *nhaathiilthi* '[she] was watching [and thus facing] [him]' to complete the spatial scene.

```
{29)}[84/1a 394ff]=t841a.txt (lines 412-419)
  1      nha -=gala nyulu  yii  bulal      bagaalga  -=y
         that-EMPH  3SgNOM here firesticks poke+REDUP-PAST
         So that one was here twirling his firesticks.

  2      nyulu  was facing yarra  guwa=0
         3SgNOM "   "      yonder West
         He was facing that way to the west.

  3      nyulu  gabiirr nyulu  walu naga-:lnggurr
         3SgNOM girl    3SgNOM side East-PROXLOC
         The girl, she was on the east side.

  4      gaari walu naga-:lnggurr
         no    side East-PROXLOC
         Not on the east side.

  5      mugu-=:nh
```

back-ADJACENT
At [his] back.

6 nhangu nhaathiilthi-=0 nyulu
3sGEN/ACC see+REDUP -PAST 3SgNOM
She was watching him

7 nyulu yii bulal baga=-=y
3SgNOM here firesticks dig -PAST
as he was here twirling his firesticks.

Ultimately the man gets so absorbed in his fire making that the woman is able to sneak away without his noticing.

3. DISCOURSE INDEXICALITY

A further observation is the essentially indexical nature of GY spatial discourse, since cardinal terms depend on the same sort of contextual fixing**,** and the same default choices as other indexicals to provide the reference points and perspectives demanded by their semantics.[18] The foremost anchor is the origo given by the speech situation, which is in turn susceptible to characteristic transpositions (see Bühler 1982, Hanks 1990, Haviland 1991)--it can, that is, be shifted to, e.g., narrated reference points.

One sort of evidence for this claim is distributional. Tokens of directional roots in discourse are frequently linked with the explicit deictic devices described at the outset. For example, in a 110 thousand word corpus of transcriptions which includes various sorts of GY conversation and narrative, of some 220 occurrences of the presentational *yarra* 'there (look!),' 55% are followed directly by a cardinal direction form.[19]

{30} t9208a1
nyulu yarra naga nhaamaalma
3SgNom yonder East=0 look+REDUP
He is looking that way East [describing a photo of a group of toy men].

More striking still, nearly 60% of all cardinal direction tokens[20] co-occur with such explicit deictic elements as *yii* 'here, this,' *nhaa* 'there, that,' *gadaa* 'come,' and *thadaa* 'go.' (See {16} and {18} for examples with inflected forms of *gadaa* 'come.') This high proportion suggests that cardinal directions are routinely anchored in the same sorts of spaces as explicit deictics; that is, their "directionality" is calculated by default from the viewpoint of the here-and-now of speakers and hearers (or transposed to narratively established viewpoints of a similar kind) rather than from some alternate anchor or viewpoint independent of the speech situation.

Finally, analysis of conversational narratives shows how different discursive perspectives combine with the vectors of direction to allow careful tracking of protagonists and events in space. The space inhabited by interlocutors as they speak provides a kind of mnemonic medium in which directions can be calculated and then projected to or laminated over various narrated spaces. By way of illustration, I present a short passage from a GY man's description of his clan estate.[21]

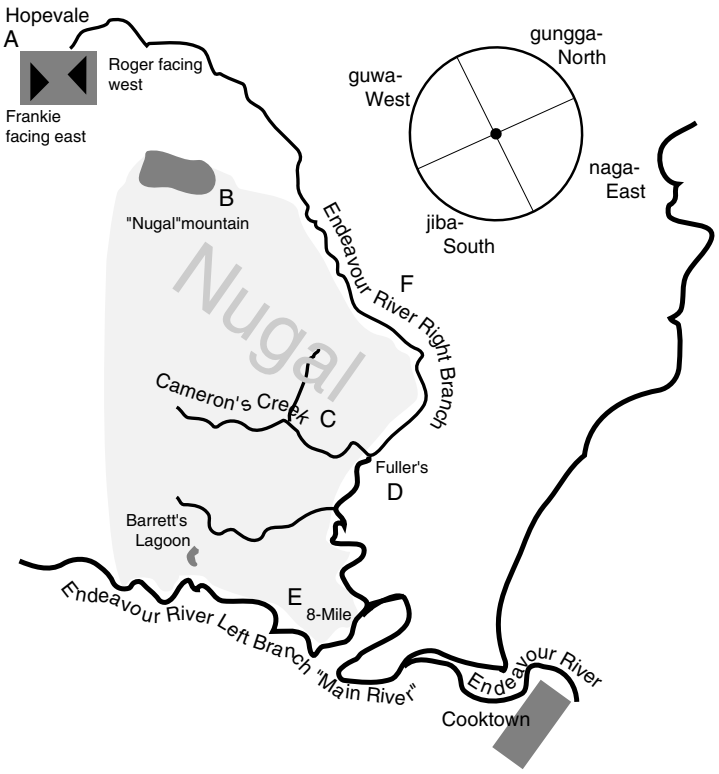

Figure 5. Map of Hopevale, Cooktown: *Nugal* area ((about here))

Frankie is explaining to me, with Roger as his interlocutor, how far his tribal territory, *Nugal*, extends. We all sit at Hopevale (see point A on the map of Figure 5), and Frankie is facing a bit north of *naga*, roughly east. Roger is sitting facing him, i.e., himself facing roughly west, *guwa*. Where they sit and how they are oriented will turn out to be of importance in interpreting the directional import of both their words and, as it turns out, their gestures. We all speak in the mix of GY and English characteristic of modern Hopevale discourse.

There are two major fragments of this interaction of interest here. In the first, the interlocutors must work out jointly how the Nugal territory relates to the main topographic feature of the area, namely the Right Branch of the Endeavour River. This is accomplished by an explicitly interactive combination of word and gesture.

3.1 INTERACTIVE DIRECTIONAL TRANSPOSITION

Frankie delimits his territory as “all the way this side” of the Right Branch of the Endeavour River, gesturing to show that he means the side <u>toward his present position</u> at Hopevale (i.e., West, or *guwa*). It is important to see exactly how he makes his gesture. He reaches out to the east with his right hand, palm face down, and pulls the hand rapidly back west (and a bit south) three times, each time to accompany the English words “this side” or “this way.”[22]

{31} a....

```
  1  f;   all the way this side birri
                                  river
```
all the way this side of the river

a: RH out from body, palm down, S, W

```
{32}                        b.......
  3  f;   nhaathi  this side birri all the way
          see+PAST           river
```
You see, all the way along this side of the river.

b: RH folds down, back W

```
{33}                   d.......
  8  f;   all the way this way
```

d: LH moves SW, flat, palm down

For these gestures, [a,b, and d] in the transcript lines in fragments {31-33}, to make sense in conjunction with Frankie's words and the geography in question, we must understand them as follows: take Frankie's hand in its outward (eastward) trajectory to be moving out to represent the *birri* 'river,' i.e., the Right Branch of the Endeavour River (F on the map). The west/south trajectory of his subsequent gestures thus represents the 'side' of the river that corresponds to Frankie's home estate. Note that the west/south trajectory of his gesture would be wrong if calculated from his actual present position at A, the Hopevale community, which itself lies west of the territory he is describing. He thus appears to be gesturally depicting 'west <u>from the river</u>.'

At line 11, Roger reformulates what Frankie has said in GY, using an explicit partially-reduplicated directional or side-form (which imposes the proper sort of conceptual geometry on the territory he is describing; see again Figure 4). He also gestures west with the outstretched fingers of his left hand, suggesting that if he imagines himself at the river, Frankie's country lies '<u>on the west</u> side.' Once again, only if we imagine Roger transposing himself to the river (see Figure 6) can the direction of his gesture correspond with his words ('on the west side') and the actual lay of the land: otherwise his gesture would be somewhere out to the west of their current position at Hopevale, and would indicate an area actually <u>west</u> of the westernmost edge of the territory they are discussing.

```
{34}                          e............
 11  r;            gala guwagu     -=gu
                   fork W+SEMIREDUP-EMPH
```
On the Western side.

e: LH fingers outstretched W

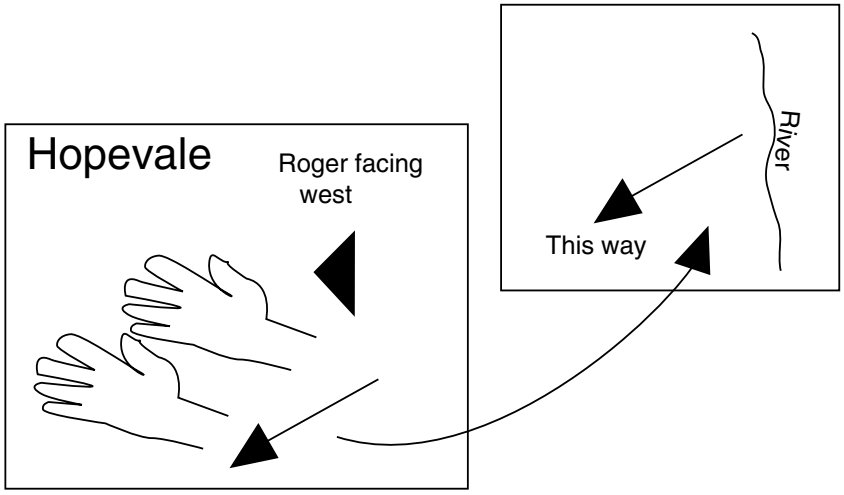

Figure 6 Roger "projects" himself to the river.7

Frankie accepts Roger's spoken GY formula and repeats it with an expansive sweep of his left hand across his body to the south and back to the west (Figure 8): it is the west bank of the river--the area bounded inside the river course to south and west--that is his land. Having once again transposed himself conceptually to the river, he gesturally traces the verbalized narrated geography in the immediate space of the interaction.

```
{35}     f......            g.................
 12  f;  gala guwagu      wulbu yii  gala guwagu      yi
         fork W+SEMIREDUP all   here fork W+SEMIREDUP continuing
```

Everything on the Western side

f: LH sweeps across body N to S and back to W

g: LH repeats the gesture in smaller form

Figure 8: "On the western side" ((about here))

It is a commonplace of pragmatic analysis that ordinary indexical elements such as pronouns, deictics, and tenses must "shift" (Jakobson 1957) referentially under transposition. Indeed, it is precisely the need to hold certain indexical relations constant when referential shifts have occurred which forces interlocutors to "transpose" or recalculate contexts. For example, what must be held constant in the correct use of the English pronoun *I* is a relationship between (virtual) speech and a (virtual) speaker, but the "identity" of the speaker to be associated with (referred to by) a given token of *I* will have to shift to preserve this relationship (see Urban 1987). Consider "I am cold." vs. "He said, 'I am cold.'" vs. even "When I was in Alaska 30 years ago I was always cold" or "... I thought, 'Gee, I'm cold.'" Frankie's interaction with Roger demonstrates that the GY cardinal directions terms are similarly indexical in the sense that the vantage points from which they must be calculated also shift, in order to preserve--in this case--the "absolute" directions which are apparently conceived as flowing uniformly over the whole map.

3.2 SERIAL TRANSPOSITION: TRACING THE TERRITORY

Now, in the second section of the interaction to be examined--starting at line 20 of the transcript--Frankie turns to describing the far boundary of his land. To do so he must move conceptually across the terrain, tracing a route which allows him to "point out" the boundaries. The Nugal territory continues from a place called Fuller's Landing (D on the map) right to where the Right Branch joins the "main" Endeavour River (shown as the Endeavour River Left Branch on the map), near Eight-Mile (E on the map). Once again, to make sense of his gestures and his words together we (along with Frankie's interlocutors) must understand him to be conceptually relocating or projecting himself serially to the very spots he is describing. In example {36}, he places his body, as it were, at the conflation of the two branches of the Endeavour River.

With his left hand Frankie traces the right branch moving east and south, as his right hand comes up to represent the main river coming up from the southwest to join it (Figure 9).

```
{36}          l.............................                m.......
 21      Fullers-=nganh bula   join-=mana-:ya       gurra birri=
         "      -ABL    3DuAbs "   -INCHO-REFL+NONP more  river
         From Fuller's Landing, the two (creeks) join up to the main river
         (m).........    n.........
 22      =warrga nhaathi  yarrba
         big    see+PAST thus
         ...you see, this way.
```

l: LH curves N to S, moving E

m: RH up

n: RH sweeps forward E to join LH

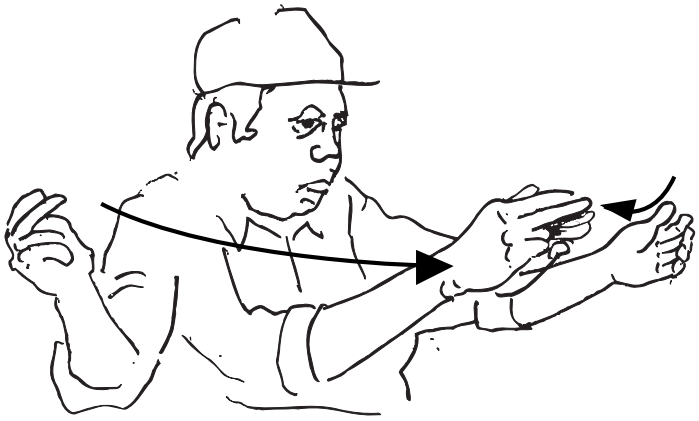

Figure 9. “The creeks join up.” ((about here))

Frankie now points east three times in quick succession (Figure 10), first when he mentions Eight-Mile (the junction point East of Fuller’s, E on the map), second when he remarks that the river continues *naga* ‘east 0-form’ (i.e., east <u>from</u> Eight-Mile), and again at *bada* ‘down(stream?).’

```
{37}          o.................            p.........
 24  f;   8-mile nguba   ngaanaarru      naga thada-=nhu
          8-mile perhaps whatchamacallit East go   -PURP
```

At 8-Mile or whatchacallit, and it goes East from there

o: RH up to pointing gesture E

p: LH up to pointing gesture E

```
25        bada
```

Down

q: LH rises slightly, still pointing E

Figure 10. “Eight-mile, east” ((about here))

Frankie has now reached the endpoint of his description--the far boundary of his clan estate. From there the river continues east. He portrays himself, gesturally, standing at his own boundary and watching the main river flow on to the east.

CONCLUSION

Frankie and his interlocutors inhabit local spaces whose directional orientation they clearly track with great acuity. GY cardinal term morphology exploits this directional awareness and in all probability mutually reinforces it. In the immediate space of interaction, deictic elements, named landmarks, and the complex relations between points in the landscape denoted by morphologically inflected cardinal direction terms are all expressions of interlocutors' shared orientation to space: such verbal signs (and their gestural companions) are interpretable only against the assumption of such a shared orientation.

The directions thus made immediately available can be used to help reconstruct the geography of other spaces. Just as the deictic 'here' of the here-and-now is typically transposable onto a different 'there-and-then', the 'east' and 'west' of the place where interlocutors sit must often be transposed to another place, a different set of landmarks, suggesting that the cardinal point terms can be abstracted from particular terrain, that they are conceived as remaining constant across territories. This is the only sense in which the system of GY cardinal directions is "absolute": it assumes that the directions remain the same over wide--possibly discontinuous--expanses of real country. Still, the GY cardinal direction system has as well a thoroughgoing relative character. Frankie can de-couple the linguistic directional system from the immediate deictic origo and attach it to (or laminate it over) narrated spaces which are thus immediately calibrated, by virtue of the common application of the cardinal terms, against the here-and-now of the speech situation.

The apparently effortless conceptual operations required to employ these short and ubiquitous cardinal direction terms are complex, requiring not only a highly developed "sense of direction" (and memory for terrain, routes, landmarks, etc.), but a simultaneous merging or juggling of what appear to be separate frames of reference (in Levinson's sense) embedded in even single lexical forms, which maintain the "absolute" orientation which is in principle independent of particular terrain or of any given reference point or orientation, with the "relative" calculation of origos and focus points, with the "intrinsic" geometries of natural landmarks and their orientations in space.

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APPENDIX: TRANSCRIPT

In the following rough transcript, gestural extents are marked above verbal lines, and explained in subsequent indented paragraphs. RH and LH are abbreviations for right and left hands; the gestures are perfromed by the speakers of the coresponding words except where noted.

```
                          a....
 1  f;   all the way this side birri
```

a: RH out from body, palm down, S, W

```
 2  r;   yeah
                          b.......
 3  f;   nhaathi  this side birri all the way
         see+PAST           river
```

You see, all the way along this side of the river.

b: RH folds down, back W

```
         c........
 4       bada galmba ngaanaarru     -:gu
         down also   whatchamacallit-EMPH
```

down to whatchamacallit.

c: RH in downward point out to E

```
 5  r;   Fuller's
```

(to) Fuller's (Landing).

```
 6  f;   Fuller's
```

(to) Fuller's.

```
 7  r;   aa
                    d.......
 8  f;   all the way this way
```

d: LH moves SW, flat, palm down

```
 9  r;   oh yeah
10  f;   nha -=gala  guwaalu
         that-INTENS West+L
```

From right there, then Westwards.

```
                   [
                          e............
11  r;             gala guwagu     -=gu
                   fork W+SEMIREDUP-EMPH
```

On the Western side.

e: LH fingers outstretched W

```
         f......            g.................
12  f;   gala guwagu      wulbu yii  gala guwagu      yi
         fork W+SEMIREDUP all   here fork W+SEMIREDUP continuing
```

Everything on the Western side

```
                           [
13  r;                     yeah
```

f: LH sweeps across body N to S and back to W

g: LH repeats the gesture in smaller form

```
14       jibaalu Barrett's lagoon
         South+L           "
```

South right past Barrett's Lagoon.

15 f; a nhayun
yes that
That's right.

i...........
16 r; gaari Parrots' lagoon dagu yii nguundu
not thing here this_way
Not "Barrett's Lagoon," more towards here...

[
17 f; gaari . gaari ganaa
no no allright
No, that's not it.

i: Roger's LH index finger bends back S

j......... k....
18 a nguundu yii nhaathi nhayun bula yii
yes this_way here see+PAST that 3DuAbs here
Yes, closer to here, you see those two...

j: LH tracing W to E vector, curving S
k: then retracting to start position

19 r; Cameron's Creek
20 f; aaa

l..... m.....
21 Fullers-=nganh bula join-=mana-:ya gurra birri=
" -ABL 3DuAbs " -INCHO-REFL+NONP more river
From Fuller's Landing, the two (creeks) join up to the main river

(m)..... n.....
22 =warrga nhaathi yarrba
big see+PAST thus
...you see, this way.

l: LH curves N to S, moving E
m: RH up
n: RH sweeps forward E to join LH

23 r; yeah

o..... p.....
24 f; 8-mile nguba ngaanaarru naga thada-=nhu
*** perhaps whatchamacallit East go -PURP
At 8-Mile or whatchacallit, and it goes East from there

o: RH up to pointing gesture E
p: LH up to pointing gesture E

q....
25 bada
Down
[
26 r; yeah

q: LH rises slightly, still pointing E

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[1] My description is based on work, from 1971 to 1995, with the oldest speakers of GY, and the corpus of conversation from which my examples are drawn reflects their speech. In general my research involved men in their sixties and older, virtually all of whom had lived some part of their lives "in the bush"--that is, outside of the Lutheran Mission formerly in charge of the community--and who spoke GY either as a first language or as a language they had acquired as youngsters after having been brought from other parts of Queensland. Younger GY speakers at Hopevale, recently studied especially by Lourdes de León (1992, 1994) display a vastly changed system of cardinal directions (as well as considerably simplified grammar) which surviving older speakers ridicule somewhat fatalistically. This paper began as a short presentation at the Invited Session "Your space or mine," organized by Eve Danziger, Annual Meetings of the American Anthropological Association, Dec. 3, 1992, San Francisco. Work on GY in 1989 and 1992 was supported by the Cognitive Anthropology Research Group at the Max Planck Institute for Psycholinguistics, and in 1995 by Reed College and a fellowship from the John Simon Guggenheim Memorial Foundation. Some of the material here has appeared in a different context in Haviland (1993). I am especially indebted to Steve Levinson and Lourdes de León for collaboration and shared fieldwork at Hopevale in 1992. Both also graciously commented on an earlier draft of this essay, along with Eve Danziger, Balthasar Bickel, and David Wilkins, although I have not everywhere taken their good advice.

[2] GY supplements this system with a lexicalized verticality opposition--routinely also transposed onto the horizontal plane--between *bada* 'down, below' and *wanggaar* 'up, above.' These two roots also display some of the same morphological complexities characteristic of cardinal direction roots, notably reduplicated forms and some elaboration of locational cases. Preliminary cross-sectional studies by de León of acquisition of both English and GY among Hopevale schoolchildren suggest that when they describe the immediate area of Hopevale they make increasing use of the 'up/down' lexical roots in locative expressions, partly supplanting the cardinal direction system on which I focus here.

[3] If one supposes a cultural tradition in which the tree has itself no intrinsic left or right, then the left/right dimension must be projected from some other object, typically the speaker, from whose viewpoint one can calculate what region 'right of the tree' denotes. The viewpoint can be conventionally or discursively assigned (not only to speaker but also to hearer ["to the right of the tree from where you stand"] or to some other observer ["Steve found the ball to the right of the tree"], and it can itself be projected onto the Ground object in various ways. Levinson (1994) provides considerable detail about such possibilities.

[4] It seems possible to reanalyze Levinson's "Relative" frame of reference as essentially derivative from a more basic "Intrinsic" frame, now projected from a viewpoint to an otherwise "unfeatured" or symmetric ground. That is, we could understand the "Relative" frame as a kind of routinization of the "Intrinsic" frame which chooses the observer herself as the asymmetric ground ("to my right/left"), but now projecting this standard viewpoint onto an otherwise unfeatured ground ("to the right of the tree = if I were the tree, it would be to my right"). That the "Relative" frame is an elaboration or abstraction of the "Intrinsic" frame would explain the empirical fact that languages seem never to display the former without the latter. More relevant to the present argument, it would also explain a recurrent feature of linguistic systems which on Levinson's account would appear accidental, namely that the same linguistic devices are routinely used in both his "Intrinsic" and "Relative" frames of reference, often with considerable potential ambiguity. (Consider the possible readings, in English, of "the car was parked to the right of the building," given a variety of discursive contexts and ways of calculating whose right one means.)

It is furthermore far from clear that the nature of reference objects is, in practice, independent of choice of frame of reference, as certain sorts of reference objects seem to lend themselves more readily (or make more or less convenient) one frame or another.

[5] The comitative form of this root, *yimithirr* (or *yimuthirr*) 'with this' or 'this way,' is part of the language name: *guugu yimithirr* 'this kind of language' (or, perhaps, 'language with [i.e., which uses] the word *yii*').

[6] Examples are from conversational transcripts. The new practical orthography, sporadically in use at Hopevale, differs from previous published material on GY in using *th* for a laminal-dental stop, and *j* for a lamino-palatal stop.

[7] Strictly speaking, *gadaa* seems to denote marked motion towards the presupposed deictic origo, whereas *thadaa* denotes unmarked motion, whose deictic orientation ("away from 'here'") may be implicated by contrast with *gadaa*. See Wilkins and Hill (n.d.), although I have not attempted systematic elicitation in GY using the "scenes" they describe.

[8] Strictly speaking, Levinson's frames of reference crosscut the standard psycholinguistic distinction between linguistic resources encoding "topological" (e.g., 'in') and "projective" (e.g. 'in front') relations.

[9] A possible underlying model suggests motion or position along an oriented path, with a front or leading part (*thagaal*), a rear (*gurriir*, or sometimes *buga* 'hind end'), and a position in between (*gaarbaarr*). The expression *thagaal-bi* 'front-LOC' also has the temporal meanings 'first' and 'a long time ago' (compare English *before*). See Laughren (1992) for a similar system in Warlpiri. Whether such terms can be projected from a viewpoint to an otherwise unoriented ground--i.e., whether they can be employed using Levinson's "Relative" frame of reference--is unclear for GY, though my own corpus of recorded GY speech produces no such examples.

[10] Wilkins proposes an alternate typology in which "location" is decomposed into "standing" relations (where something "stands" with respect to something else) and "facing" relations (how something is oriented with respect to something else, which direction it is "faces"), both of which are often involved in natural locative descriptions, and which also lend themselves to solutions in terms of different "frames of reference" in Levinson's sense.

[11] There is a formal asymmetry between the morphologically simpler 'east'/'west' terms (which have a CVCV shape in root form), and the slightly more complex 'north'/'south' roots (which display a final long vowel and final *-rr*, CVCV:*rr*), suggesting that the two perpendicular coordinates developed independently from one another historically. I ignore these morphological details in the current exposition.

[12] The ABL forms of a few other nominal roots display some similar elaboration. For example, the root *gathii* 'far away [place]' displays two ABL forms, parallel to the M- and M-ABL forms described for cardinal terms.

[13] The infelicitous terminology here reflects the underlying shapes of the case inflections involved: the '0-form' (or 'zero-form') is morphologically unmarked, employing only the bare root without further inflection. The 'R-form' appends a suffix *-arr* (which has a slightly different shape with other roots), and the 'L-form' a suffix *-alu*.

[14] Note the constituency here. It is typical for only the last word of a continuous constituent to bear case inflection for the whole, suggesting that *nagaalu* ought properly to be construed as part of the constituent *birri bitha-wi* 'to the little creek.'

[15] A colon preceding a suffix indicates that, in the appropriate phonological context, the suffix engenders lengthening on the previous syllable. See Haviland (1979), pp. 144 ff.

[16] Levinson (1994, footnote 34).

[17] There are, of course, logically ternary spatial relations--e.g., *between* in English--that do not obviously involve Levinson's "Relative" frame of reference, or in which, at least, the third relatum is not "Viewpoint."

[18] To repeat, Levinson (1994) in proposing his typology is careful to separate the choice of frame of reference from the setting of Ground or Viewpoint.

[19] Another 13% are followed by a form of *bada* 'down,' and nearly all the rest are combined with personal references, e.g., *yarra Bowen* 'that fellow Bowen (over there).' Notably, a speaker of GY in his late twenties reports that when he learned GY as a child he thought for many years that an expression like *yarra naga* meant nothing more than 'over there (look!)'--regardless of the cardinal direction. It was only as an adult that he realized the four cardinal terms were in contrast. Lourdes de León (1994) suggests tentatively that children learning the GY system progress from understanding a word like *naga* as a deictic, to associating it with particular places (e.g., the beach, from the vantage point of Hopevale), to associating it with a specific region containing such places, and finally to establishing an abstracted directional contrast with other terms in the set. Unfortunately, it becomes increasingly difficult to learn about the acquisition of the cardinal term system as it falls into disuse and is displaced by mixed devices from English in modern Hopevale speech.

[20] As a rough measure of frequency, out of the 110 thousand tokens of about 9600 distinct inflected word types in my corpus of GY text, just over 2000 (or one word in about 55) are inflected forms of one of the four cardinal direction roots.

[21] Legislative changes in 1991 and 1992 have provided new possibilities for Aborigines in Queensland to lay claim to Aboriginal lands, reawakening interest in traditional land and kinship ties at Hopevale and elsewhere, and prompting many discussions of which the current fragment is an example.

[22] He also characterizes his territory as going *bada* 'down' (with a corresponding slight downward pointing gesture toward the east) at line 5. Presumably 'down' coincides with the downriver flow of the river, also generally eastward as the map shows, apparently a conventional association at modern Hopevale (i.e., 'down' = 'east').