Mapping Worlds: Frames of Reference in MalakMalak

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1. Introduction[*]

This paper presents an analysis of spatial language, in particular, 'Frames of Reference' (FoR) utilizing elicitation, stimuli and natural discourse in fieldwork settings. The language in question is MalakMalak, a non-Pama-Nyungan Northern Daly language with eleven identified remaining speakers mainly based in the Daly River Region in Australia.

1.1. The language and its speakers

MalakMalak is spoken in the Aboriginal communities of Woolianna on the Daly River, Peppimenarti, Belyuen, Fifteen-Mile, and Bagot in the Northern Territory of Australia. Almost all speakers are also fluent in at least the Daly variety of Kriol as well as Matngele, a related Eastern Daly Language.

1.2. Frames of Reference, Deixis and Cognition

Studies into FoR systems provide insight into the relationship between language and cognition, and highlight how landscape features are reflected in language use and vice versa. They have been widely discussed from a cross-linguistic

perspective. This includes the 'classic' three-part distinction between intrinsic, relative, and absolute FoR (Levinson, 2003; Pederson et al., 1998; Levinson, 1996). Additionally, some authors have argued to incorporate deixis (Danziger, 2003; 2010; Bickel, 2001; Burenhult, 2008) and gesture (Haviland, 1993) into the typology. Also, the notion of 'Orientation' (Terrill and Burenhult, 2008) accounts for instances where intrinsic facets of a figure are oriented in relation to a reference object[1]. Finally, Bohnemeyer and O'Meara (2012) claim that anchoring-types and vectors in particular provide a significant link between FoR and 'orientation' within FoR typology. Bohnemeyer (2013) furthermore argues that the use of a particular FoR can be diffused through language contact.

This paper aims to provide a detailed description of MalakMalak's Frame of Reference system addressing the intricate relationship between language, culture, landscape, and cognition described by one speaker as 'The language is like a map.'

2.   Frames of Reference in MalakMalak

All observations of MalakMalak's previously undocumented FoR system result from nine months of fieldwork between 2012 and 2013. The collected data comes from elicitation stimuli such as the 'Men & Tree' (M&T) task (Levinson et al., 1992), the 'Ball & Chair' (B&C) task (Bohnemeyer and Perez Baez, 2008), and examples from narrative and conversational discourse environments.

All three 'classic' FoR types are employed. There are distinct lexical items used for vertical intrinsic (*jalk/karrarra* 'underneath/on top of') and absolute FoR (*puyunduk/kanjuk* 'down/up'), and the same lexemes are used in relative and intrinsic FoR denotations (*elimirri/angundu* 'in front/behind'; *yanbarr/jalmiyen* 'left/right'). There is a cardinal-type system based on the directions of prevailing winds blowing from the sea (*nul*) and inland (*dangid*) and a solar-system utilizing directions of the setting (*miri jalk*) and rising sun (*miri baiga*).

Deictic terms are used to denote proximal (*kinangga*) and distal (*ngunanggi*) space over a boundary. This distinction has furthermore been conventionalized to encode the respective riverbanks of the Daly River ('northeastern/southwestern bank'). Additionally, related demonstratives are used with proximal (*ki/kinanggi* 'here/this side') and distal (*ngun/ngunanggi* 'there/that side') meanings.

Finally, two contrasting terms *keen* and *kaduk* are accompanied by pointing gestures, denoting not strictly proximity, but person-based reference and a contrast of 'here' and 'there' space.

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[1] The terminology in this paper follows Talmy's (1985, 2007) distinction between a Figure (the object to be located) and a Ground (the object in relation to which the figure is located). For examples involving 'orientation', I maintain Terril and Burenhult's (2008) terminology of distinguishing between a ground (in FoR) constructions and a reference object (in orientation settings).

2.1.   Strategies of spatial reference

Speakers freely switch between intrinsic (1) and (2) relative frames showing no clear preference for either.

(1)   *tyung*   ***angundu–na***   *muyu*
       tree   behind-LOC   3SG.neu*.stand.PST
       'the tree stood behind (the man)'(DH12_A23_07.145)

(2)   *yerra* ***jalmiyiny***   *dek   kanjuk purrat -ma   wuta*
       PART right/straight place up   jump-CONT   3SG.neu.go.PST
       'now (the ball) is on the right, jumping up (lit. jumping continuously in an upward place)' (DH12_A43_03.105)

Figure 1: Example (1)   Figure 2: Example (2)

Various body-part terms are used to orient figures with relation to reference objects (3), cardinal directions, or toponyms and result in noun incorporation with the complex predicate[2]. If no reference object is specifically named, the orientation of the figure is by default interpreted deictically.

(3)   *tyed*   ***mel-yen***   *wuyu*
       stand   calf-DIR   3SG.neu.stand.PRS
       '(the ball) is towards the calf (of the chair)' (DH12_V44_02_047)

MalakMalak employs two types of specialized terms for vertical intrinsic (4) and absolute FoR (5).

(4)   *dudyur-eli*   ***jalk***   *ali   wuyu*
       cause.lie-PART   underneath   leg   3SG.neu.stand.PST
       'it is lying in an angle from the legs, underneath (the chair)' (DH12_A43_03.114)

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[2] This is furthermore illustrated by varied word-order within the complex predicate in example (3).

(5)   **kinangga**   *wuyu,*   *puyunduk-na*
      PROX.side   3SG.neu.stand.PST   down–LOC
      '(the ball is) on this side, below/down' (DH12_A43_02.104-5)

Figure 3: Example (4)   Figure 4:Example (5)

This has also been observed elsewhere. In Roper Kriol, adverbial suffixes and prepositions *–ap/dan* 'up/down' are used in absolute FoR only, while the adverbs *ontop/andanith* 'on top/underneath' only occur in intrinsic encodings (Hoffmann, 2011: 108-110) and in Jaminjung absolute terms are converted into intrinsic ones by ablative suffixes (Schultze-Berndt, 2006: 107).

Some of the pictures in the M&T stimuli task lack grounds within the picture setup as seen in Figure 5. Then, speakers often make use of a set of horizontal absolute directional terms based on the direction of prevailing winds in the wet (*nul* 'northwesterly') and dry season (*dangid* 'southeasterly' (5)), as well as the rising (*miri baiga*) and setting of the sun (*miri jalk*). Orientation may be explicitly expressed in a body-part term or more implicitly in a directional case-suffix (6).

(6)   **nul-yen**   *wudyu=we*
      northwesterly-DIR   3PL.stand.PST =FOC?
      'they stood towards the northwesterly wind direction'
      (DH12_A15_03.012)

Figure 5: Stimuli setup for example (6)

Both types of directionals are used independent of season or time of day and may therefore be considered 'absolute' and abstracted in par with Levinson (2003). The map in Figure 6 illustrates the directionals.

Figure 6: Absolute directionals in MalakMalak
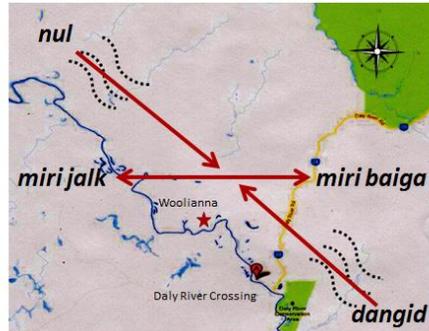
Speakers also often choose named places to orient figures in space as shown in (7). These types of expressions are, like absolute directionals, only used in orientation, but not location settings.

(7)   *pud*   ***Purrunyu-nen***   *nende*   *wuta=we*
        chest   place.name –DIR   person/thing   3PL.go.PST=FOC?
        'the people went (with their chests) towards Purrunyu'
        (DH12_A15_03.183)

2.2.   Deixis and referencing

In addition to intrinsic, relative and absolute terms, MalakMalak makes extensive use of deictics and demonstratives in spatial description. A system of boundary-based proximal and distal location (*kinangga/ngunanggi*) has been conventionalized to denote the respective riverbanks of the Daly River as seen in Figure 7. The traditional lands of the MalakMalak were located on both sides of the Daly River in the past, the majority of their settled land, however, used to lie on the *kinangga* side (Stanner, 1933; Birk, 1976; Harvey).

Figure 7: The riverbank system

The terms are used deictically and mostly maintain absolute orientation to the riverbanks. In example (8), in response to the setup in Figure 8 below, the speaker is facing the river which is close, but not visible. The figure (the toy man) is described as orienting itself towards the speaker and as being *ngunanggi*. The lexeme depicts a location on the 'other' side using the gathered toy pigs as a dividing item. However, the 'absolute' direction of *ngunanggi* in relation to the river itself from the speaker's deictic center is still maintained.

(8) **ngunanggi**-*many*   *pudang*
     other.side/southwestern.bank-ABL   chest.give
     tyedali   *yuyu*
     stand.CONT   3SG.masc.stand.PRS
     'he is facing (towards me) from the other side' (DH12_A15_04.086)

Figure 8: Stimuli setup for example (8)
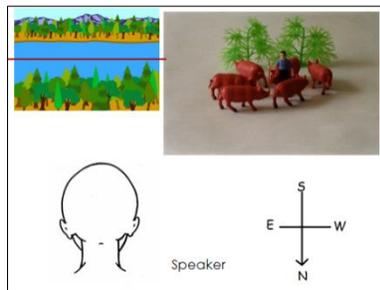
Maintaining this absolute orientation with respect to the riverbank may sometimes override the original deictic meaning of the terms. In example (9) below, the speaker refers to the absolute locations denoted by the term *kinangga*. The location of the ball as shown in Figure 9 is described as being on the *kinangga* side. Here, this relates to a location on the other side of the chair and is thus separated by it from the speaker. In absolute terms, however, the ball is located towards the *kinangga* side of the river, the same way the speaker is facing.

(9) *duk*   *puyunduk*   **kinangga**   *yide*   *chair=we*
     place   underneath   north.eastern.bank   3SG.masc.go.PRSchair=FOC
     'it goes underneath, on this side, of the chair' (DH12_V44_04.103)

Figure 9: stimuli setup for example (9)
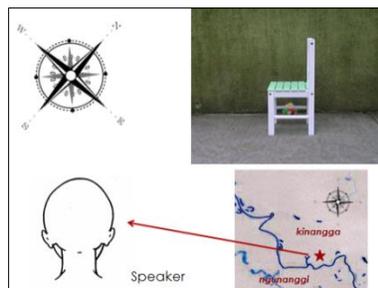
This type of pattern where a deictic contrast may also involve geographical or environmental features has also been described for Dyirbal, which employs demonstrative modifiers contrasting upriver/downriver distinctions with uphill/downhill ones (Anderson and Keenan, 1985; Dixon, 2003: 85).

A closer look at the usage patterns for these riverbank terms reveals a tight connection between the place of utterance and denoting deictic vs. absolute location. In my collection of M&T as well as B&C recordings, I could only find one instance of absolute usage of speakers outside of Woolianna and at the same time only one example of a deictic use without maintaining the river reference for speakers within Woolianna. This suggests that the transition from deictic to absolute may be directly linked to movement patterns and resettlement of MalakMalak speakers outside their traditional homelands.

As I have shown above, these terms then, for the Woolianna location, are not abstract and fixed in Levinson's (2003) sense. Instead, they denote concrete directions bound to the landscape and a non-abstracted course of the river. This represents evidence for the type of close-knit relationship between the geomorphic features of the traditional lands and language use by its speakers.

Additionally, there are distal and proximal demonstratives derived from *kinangga* and *ngunanggi*. In (10) the location of the sticks the two toy men hold is encoded in the deictic term *kinanggi* and refers to the side the speaker is located on.

(10) *wangarri*   **kinanggi**   *pud*   *jalmiyen*
2SG   this.side   chest right.hand
'to you (referring to the matcher in the Men &Tree game) (they are oriented), (the stick is) on this side (towards me, with the chest to the right)' (DH12_A24_02.089)

Figure 10: Stimuli setup for example (10)
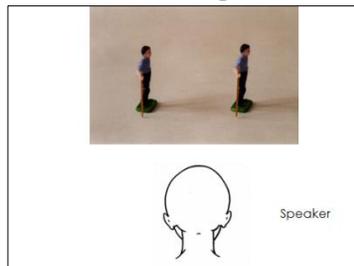
The deictic terms may be analyzed as exemplified in (11) below. Birk (1976: 87-88) describes two (albeit verbal) deictic suffixes that denote movement or orientation towards (*-nggi*) and away from the deictic center (*-ngga*). This kind of split semantic analysis only holds true for the abstracted deictic terms, but not for the absolute riverbank terms. The interpretation is also overturned if explicit body-part terms are used to orient the figure.

(11)

ngun	*-an*	*-nggi*	*ngun*	*-an*	*-ngga*
DIST	-LOC	-DIR.towards	DIST	-LOC	-DIR.away

'being in a distant location orienting/moving towards the deictic center' | 'being in a distant location orienting/moving away from the deictic center'

ki	*-an*	*-nggi*	*ki*	*-an*	*-ngga*
PROX	-LOC	-DIR.towards	PROX	-LOC	-DIR.away

'being in a proximal location orienting/moving towards the deictic center' | 'being in a proximal location orienting/moving away from the deictic center'

Finally, *ngun* and *ki* are demonstratives denoting distance in terms of general visibility (proximity) and invisibility (distance) as in (12) only, as similarly observed for Yucatec Maya (Hank, 1990).

(12) **ki-man**   *pi-ma*   *wutangga*   **ngun**
      PROX –ABL   move-CONT 3PL.go.PURP   DIST
      anu   *purrarr*
      1SG.excl.sit.PST   go.round
      'from here where I sat, the water goes and becomes whirly (500 m away and invisible)' (DH12_A15_04.321)

Table 1: Terms along the deictic continuum

Proximal		Distal	
ki	'here/this one'	*ngun*	'there/that one'
kinanggi	'this side'	*ngunangga*	'that side'
kinangga	'this side closer to me, northeastern riverbank'	*ngunanggi*	'that side away from me, southwestern riverbank'

This type of 'boundary' deixis has also been described for other languages. In Cherokee a pair of verbal prefixes attaches to dynamic and static event utterances and encodes locations within and outside a visible/experienced environment (Koops, 2013) which may be analyzed as a deictic boundary-based distinction[3]. Another example involves the Bantu language Mushunguli which has a set of three locative prefixes that attach to nouns in referential expressions (Barlew, 2013). Finally, in Belhare, a system of demonstratives encodes conceptual

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[3] Eve Danziger suggested this kind of parallel distinction during the discussion section of the paper given at BLS39 which followed the author's own presentation on MalakMakak.

boundaries in spatial discourse and in a social/cultural context where the concept of 'boundary' is a significant rhetorical device (Bickel, 2001: 241).

The demonstratives *ki/ngun* refer to space in the general vicinity or distance to the speaker. They are never used in orientation settings. Boundary-related terms, on the other hand, denote specific locations.

Haviland (1993: 10) observes that in his corpus of Guugu Yimithirr 60% of all cardinal direction tokens co-occur with inflected forms of such explicit deictic elements as 'here', 'this', 'there', 'that', 'come' and 'go'. This high proportion suggests that cardinal directions are anchored in the same ways as deictics. In MalakMalak, for absolute terms based on the course of the sun, a similarly high proportion (57%) occurred with deictic terms. This hints at a correlation between absolute terms and deictic anchoring as observed for Guugu Yimithirr. Interestingly, this kind of correspondence was not found for the other absolute term pair *nul/dangid*. Only 16% of tokens co-occurred with deictic terms while the riverbank lexemes *kinangga/ngunanggi* (if used absolutely) were never accompanied by deictic terms. These observations suggest that the wind-based terms function differently from the ones based on the sun in terms of anchoring. When accompanied by deictics, the sun-terms are more often anchored in the speech situation in denoting the time of day with regards to light situations and time references. The wind-terms, on the other hand, are independent of current wind directions at the time of utterance. Additionally, the absence of riverbank terms with deictic elements suggests that these are inherently deictic themselves which allows for the type of meaning abstraction from deictic to absolute described above.

2.3. On the interplay of gesture and spatial reference

There are two deictic lexemes which may act as discourse markers to establish a space within which speakers interact and/or which speakers converse about. These denote specific locations mostly accompanied by gesturing. While *kaduk* 'DIST' occurs in opposition to *keen* 'PROX' only, *keen* may also act as a kind of discourse marker placing the narrative space in the here and now. In example (13) the term is accompanied by a gesture and draws the orientation of the toy figure from the speech situation towards the direction of the named place that serves as the reference object in this spatial setup. Burenhult (2008: 109-110) argues that coordinate systems invoked by demonstratives involve the projection of a search domain from the deictic center (the ground) along the axial asymmetry in order to relativize the referent (the figure). These asymmetries can be fully abstract (cardinals), or locally dependent on geophysical features (e.g. river profile). This kind of analysis is underlined by findings in MalakMalak and extends the semantic range of demonstratives to stretch from directional to deictic meanings.

(13) *ki=we*   **keen-en**   **pudang**   *tyedali*
PROX=FOC? PROX –DIR   chest.give   stand.CONT
yuyu   *Wag Purrarr*
3SG.masc.stand.PRS   place.name
'this one he is facing towards Wag Purrarr' (DH12_A15_04.198)

Examples (14) and (15) occurred in the same recording session in succession to one another and are descriptions of the same stimuli picture by two different speakers in a setup visualized in Figure 11.

Figure 11: stimuli setup for examples (14) and (15)

(14) *nen*   *kagak*   *muyu*   **keen**-*en*
thing/person   far   3SG.neu*.stand.PST   PROX -DIR
'the ball was far away (from the chair) (standing) towards here'
(DH12_V44_02.298, speaker RP)

(15) **kaduk**-*en*   *muyu*
DIST-DIR   3SG.neu*.stand.PST
'the ball stood towards there ' (DH12_V44_02.299, speaker BL)

While RP in (14) describes the location of the ball as being in a location proximal to herself with *keen*, speaker BL in (15) responds to this with *kaduk* to indicate that the ball is in a location away from herself and towards RP. This indicates that these terms also encode a type of person deixis[4] where *keen* denotes a location close to first person and *kaduk* to second person singular in a speech situation. Such a system has been described for Mopan Maya (Danziger, 1994). Another option (viable in situations with only one speaker) is the type of spatially elastic and contextually and pragmatically dependent perimeter anchored in the speaker as 'here-space' (*keen*) and 'there-space' (*kaduk*) (Enfield, 2003).
In discourse[5], these terms are accompanied by directed pointing[6] and gesturing. Example (16) is a direct speech act from a traditional narrative about a Tree

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[4] Thanks are owed to Eve Danziger pointing out this possibility to me.
[5] From memory and fieldnotes, pointing also accompanies these terms in stimuli setups such as the B&C game with *kaduk* usually accompanied by a continuous gesture indicating greater distance

Monitor that asks the Blue-Tongue Lizard to join him in his hole to seek shelter from a King Brown snake. Since the speaker is impersonating the Tree Monitor's speech at the moment of utterance, the location of the hole is with her and this is also where she is pointing at in a repeated downward motion of the hand with the fingers oriented downwards. In example (17) on the other hand, the speaker replies to a question the researcher has just asked about the location of a dreaming place where the story about a dingo and a Ladybug eating cheeky yam is taking place. Here, she points in the absolute direction of *ngunanggi* (the southwestern riverbank) and a location at quite some distance from the utterance location. Her fingers are pointed and a flicking movement of the hand furthermore indicates a relatively greater distance of the place described.

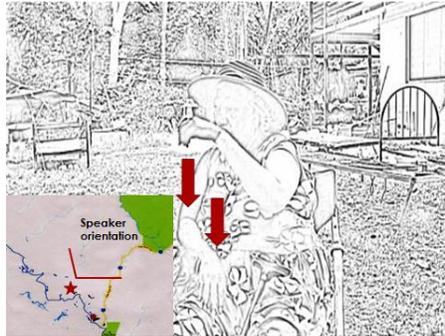Figure 12: Speaker orientation and gesture for example (16)

Figure 13: Speaker orientation and gesture for example (17)

(16)	*dim*	*__keen__*	*nga-na*	*tyurrk*	*pakang*	*nunguny*
	hole	PROX	1SG.excl–ALL	go.inside	sit.give	2SG.go.IMPF

'you are coming and sitting down here with me in my hole'
(DH12_V36_05.085)

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and *keen* supported by smaller gestures indicating proximity. However, I do not have any video-recordings to confirm these observations at the time of writing.

[6] In fact, *kaduk* might be seen as a being semantically similar to what Bickel (2001: 234) describes in Belhare for the term *ina* which is semantically restricted to distal pointing.

(17) *dek   ngunanggi   **kaduk***
     camp   south.western.bank   DIST
     'the place is on the southwest side, over there' (DH12_V36_03.194

In line with example (17) above, (18) also illustrates the use of *kaduk* and *keen* in larger scale spatial descriptions. The speaker explains the direction of the river flow during outgoing and incoming tides. The choice of *keen* to denote the outgoing tide might be interpreted in terms of a stereotypical or default situation since the turn of the tides is not realized during the wet season when the water always flows from the TopEnd towards the sea. *Kaduk* is also used less frequently than *keen*[7]. As a result, this might be accounted for by Levinson's pragmatic M-Principle stating that a marked expression (*kaduk*) indicates a non-stereotypical event/situation and an unmarked one (*keen*) the stereotypical one (Levinson, 1983: 136-137).

(18) ***keen**-en   tity   pi   yunguny   **kaduk**-en*
     PROX?-DIR   go.out move 3SG.masc.go.IMPF   DIST-DIR
     im   blanga   ontop
     3SG   LOC   on+top
     'the water goes out (towards the sea in outgoing tide) and it goes to the Topend over there (when the tide is coming in)' (DH12_A05_01_0148)

Adding to this kind of interpretation is an explanation offered by a speaker associating *keen* with the *dangid* wind direction and *kaduk* with the *nul* direction of the wind at the beginning of June when a strong *dangid* wind was blowing during the recording session making this the unmarked and (at the time) dominant wind direction. In light of these two observations, the meaning of the terms then becomes directly associated with climatic, cultural, and landscape features of the speakers' environment.

3.   Conclusions

Notably, the absolute terms based on prevailing wind directions are only used in orientation settings, but never in absolute FoR of the type 'the chair is *nul* of the ball'. Additionally, my corpus so far only revealed one example where the terms based on the course of the sun may be interpreted as absolute FoR ('the chair is to the east of the ball').

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[7] In a search of 33 recordings, *kaduk* was found 62 times in 61 annotations. *Keen* on the other hand occurred 246 times in 237 annotations in the same number of recordings. While this is not a representative or systematic sample, the numbers indicate a usage preference for *keen* based on functionality.

While the spatial terms *elimirri/angundu* and *jalmiyen/yanbarr* for horizontal direction may be used for both intrinsic and relative settings interchangeably, only the latter (albeit rarely) allow for orientation setting. For vertical direction, there is a clear distinct use of terms for absolute and intrinsic settings.

Spatial term	Translation	Type of FoR[8]				
		I	R	A	O	D
dangid/nul	southeasterly/northwesterly wind	X	X	X	√	X
miri jalk/miri baiga	west/east	X	X	(√)	√	X
elimirri/angundu	in front/behind	√	√	X	X	X
jalmiyen/yanbarr	right/left	√	√	X	(√)	X
kanjuk/puyunduk	on top/underneath	X	X	√	√	X
karrarra/jalk	down/up	√	X	X	X	X
ngunanggi/kinangga	southwestern river bank/the other side/that side – northeastern river bank/this side	X	X	√	√	√
ngunangga/kinanggi	that side/this side	X	X	X	√	√
ngun/ki	there/here	X	X	X	X	√
kaduk/keen	'over there'/'over here'	X	X	X	√	√

Table 2: Spatial terms and FoR usage

I argued that the boundary-type terms *kinangga/ngunanggi*, may be used in absolute as well as deictic readings. The fundamental difference between these terms and their related counterparts *ngunangga* and *kinanggi* lies in an analysis including the deictic suffixes *–nggi* and *–ngga* as denoting orientation towards and away from the deictic center respectively. Additionally, while all these terms crucially entail a type of boundary located between the speaker and the figure, *ngun* and *ki* only denote distal and proximal location in relation to a deictic center regardless of interference or specific location, but in terms of person-reference and visibility constraints.

Finally, *kaduk* and *keen* are accompanied by pointing or a specifically expressed spatial term. While *keen* depicts the location of figures in relative proximity to the speaker, *kaduk* is reserved for more distant locations. However, distance is clearly not such a relevant factor in distinguishing these terms as is person-based deixis

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[8] The abbreviations in this column are as follows: I 'intrinsic FoR'; R 'relative FoR'; A 'absolute FoR'; O 'orientation'; D 'direct FoR/deixis'

with *keen* referring to the 1st person (speaker) and *kaduk* to the 2nd person (addressee) as seen in smaller scale descriptions.

Interestingly, while there are many named places used in spatial reference, there are no 'ad-hoc' landmarks of the kind 'the man is looking at that rock' attested in the data so far. This observation is in line with results from wordlist elicitations showing a lack of generic landscape terms which has also been observed for other languages such as Lao (Enfield, 2008) and Yélî Dnye (Levinson, 2008). Consequently, there is a culturally significant usage pattern for toponyms.

So far, this analysis of Frames of Reference in MalakMalak leaves a number of questions unanswered. Future research aims to include a broader discourse sample and to conduct a more fine-grained gestural analysis. Additionally, it is worthwhile exploring whether there is a semantically or morphosyntactically distinguishable difference between landmark-based and cardinal-type directionals. Including, an analysis of usage patterns could reveal important insights into the relationship between directions and places, directionals and toponyms in small- as well as large-scale descriptions.

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