Usage Patterns of Spatial Frames of Reference and Orientation: Evidence from three Australian languages

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Spatial Frames of Reference (FoR) have been discussed from different angles including cross-linguistic variety, detailed individual language descriptions, considering the impact of landscape and cognition, and regional overviews. Little attention, however, has been paid to their usage patterns. Consequently, this paper analyzes a curious restriction on the use of different types of absolute directionals within FoR and Orientation settings in three Australian languages: MalakMalak, Jaminjung, and Kriol using original discourse- and stimuli-based data collected in fieldwork settings. The languages employ landmark-based absolute terms based on river-flow or wind restricted to Orientation settings and instances where the speaker is also the deictic center from which angles are projected. If a language also utilizes cardinal directionals based on the direction of the rising and setting sun or a prominent riverbank, no such restrictions are observed.

The aims of this paper are twofold: Firstly, to describe the use of Frames of Reference and Orientation in the three languages in detail. Secondly, to provide a usage-based analysis of the types of absolute FoR used in orientation and deictic as well as non-deictic FoR settings considering cognitive, morphosyntactic, semantic, and culturally specific approaches. This highlights how language-external features are reflected in language-use and vice versa.

Keywords: Spatial Frames of Reference; Spatial Orientation; Usage-based Approaches; Australian Indigenous Languages; Jaminjung; MalakMalak; Kriol

1 Introduction

Different aspects of Frames of Reference (FoR) have been analyzed in detail since the early 1990s. Researchers have studied cross-linguistic vaety (Levinson, 1996; Levinson and Wilkins, 2006b; Pederson et al., 1998), given detailed accounts of individual languages (François, 2003; Haviland, 1993; Hoffmann, 2011; Schultze-Berndt, 2006), considered the impact of landscape and cognition on FoRs (Bohnemeyer and O'Meara, 2012; Danziger, 2010; Levinson, 2003, 2008; Palmer, 2015), and provided regional overviews (Bohnemeyer, 2013; François, 2004, 2015; Hoffmann, prep).

Three 'classic' FoRs have been described, namely *intrinsic*, *relative*, and *absolute* (Levinson, 2003; Pederson et al., 1998). The distribution of these across languages, however, is not even. While intrinsic FoR appears to be an almost universal feature (Palmer, 2015, 211), languages typically favor either absolute or relative FoR, but not both (Levinson and Wilkins, 2006a, 22; Levinson and Wilkins, 2006c, 541-542). A number of studies (Meakins, 2011; Schultze-Berndt, 2006) have pointed out that the usage of different FoRs within one language is dependent on scale, where large-scale descriptions might utilize absolute terms, while small-scale (table-top) is reserved for intrinsic descriptions. For example, in English, it is acceptable to say *go two blocks east, then head north*, but ?*the cup is east of the saucer* is much less so. However, usage restrictions within absolute FoR settings considering have not, to my knowledge, been discussed in earlier work. An additional approach to spatial language was put forth by (Terrill and Burenhult, 2008) where *orientation* of a reference point (figure) determines the description as in *The man is facing east*.

As a result, the aim of this paper is to describe and analyze a curious restriction on the use of different types of absolute terms within FoR and orientation settings in three Australian languages MalakMalak, Jaminjung, and Kriol. All three employ landmark-based 'un-fixed' absolute terms based on river-flow or prevailing winds restricted to orientation settings and those where the the speaker is also the deictic center (ground) from which angles are projected. If a language also utilizes cardinal directions based on the direction of the rising and setting sun or a prominent riverbank, no such restrictions are observed.

The paper is structured as follows: After briefly introducing features of Jaminjung, MalakMalak and

Kriol in 1.1, I provide an overview of previous studies into FoR (1.2) and the methodology used in this paper (1.3). Following this, section 2 describes intrinsic (2.1), relative (2.2), and absolute FoR (2.3), as well as orientation (2.4) in the three languages. These offer detailed analyses of restrictive uses. Section 3 presents cognitive (3.1), morphosyntactic (3.2), semantic (3.3), and culturally specific analytic approaches (3.4) to the observed usage patterns. Finally, section 4 concludes the paper and summarizes all results and analyses.

1.1 *The Languages in Question*

Jaminjung is a non-Pama-Nyungan Jaminjungan language spoken in the Victoria River area of Northern Australia. Today, only a few dozen elderly speakers of Jaminjung remain (Schultze-Berndt, 2012). MalakMalak is a non-Pama-Nyungan Northern Daly language today spoken by only nine older people. Both languages exhibit 'free' word order with regards to syntactic ordering, are double-marking and ergative-absolutive with optional case-marking, and have complex predicates. MalakMalak furthermore has serial verb constructions. The two languages are no longer actively acquired by children.

Figure 1: The Location of Jaminjung and MalakMalak

Kriol is an English-lexified Creole spoken in different varieties across northern Australia by about 30,000[1] people (Obata and Lee, 2009; OShannessy and Meakins, 2016). All speakers of Jaminjung and MalakMalak are also fluent in Kriol. For this study, I refer to three varieties of Kriol, namely Roper Kriol (RK) spoken in Ngukurr, Westside Kriol (WK) from the Victoria River area, and Daly River Kriol (DK)[2].

1.2 *Frames of Reference, Deixis and Cognition*

Studies into Frame of Reference (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 (Bohnemeyer, 2013; Bohnemeyer and O'Meara, 2012; Burenhult, 2008; Danziger, 2010, 2003; Levinson, 1996, 2003; Levinson and Brown, 2009; Palmer, 2015, 2002; Pederson et al., 1998; Polian and Bohnemeyer, 2011; Terrill and Burenhult, 2008).

For this study I follow Levinson and Wilkins (2006b, 541) who, using Talmy (1983, 1985, 2000a,b)'s terminology, define FoRs as:

> coordinate systems whose function it is to designate angles or directions in which a **figure** can be found with respect to a **ground**, where the two are separated in space.

The examples in (1) can all be used to describe figurations of the toy men and the tree in a table-top setting as seen in Figure 2.

(1)   a. The tree is **in front of** the man (from the man's perspective).

       b. The tree is **left of** the man (from my/the speaker's perspective).

       c. The man and the tree are **in front of me**.

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[1]Estimating the number of Kriol speakers is not an easy feat. Dickson (2014, 26) comments that the numbers range from conservative census data of 6,781 speakers to 30,000 from religious organizations advertising the Kriol Bible translation.

[2]All Kriol examples include references to which variety is spoken.

    d. The tree is **south of** the man.

    e. The man is **facing** the tree.

Figure 2: Men and Tree Task for example (1)[3]

The 'classic' three-part distinction in the study of FoR systems is between *intrinsic* (1a), *relative* (1b), and *absolute* FoR (1d) (Levinson, 1996, 2003; Pederson et al., 1998). Additionally, some have argued to incorporate deixis (Bickel, 2000; Burenhult, 2008; Danziger, 2003, 2010) (1c) and gesture (Haviland, 1993) into the typology. Additionally, the notion of 'Orientation' (Terrill and Burenhult, 2008) accounts for instances where intrinsic facets of a figure are oriented in relation to a ground (reference object) and operates independently of and across Frames of Reference (1e).

In light of this multitude of possible expressions of spatial language, languages make choices. What determines this choice? Are there sole and preferred options? Previous studies (Meakins, 2011; Schultze-Berndt, 2006) pointed out the significance of scale.

The languages under consideration in this paper, distinguish between FoR and Orientation uses on a different level. In Jaminjung, Kriol and MalakMalak (2a) (2b) and (2c) are allowed, but (2d) is not.

(2)   a. The man is downstream/south (of me).

        b. The man is facing downstream/windwards.

        c. The man is south/on the northeastern riverbank-side of the tree.

        d. *The man is downstream/windward of the tree.

The aims of this paper are twofold. Firstly, I will describe the use of Frames of Reference and Orientation in Jaminjung, MalakMalak and Kriol. Secondly, I provide a usage-based analysis of the types of absolute FoR used in orientation and deictic as well as non-deictic FoR settings considering cognitive, morphosyntacic, semantic, and culturally specific approaches. This highlights how language-external features are reflected in language-use and vice versa.

1.3 *Methodology*

For the MalakMalak data, the basis for this study are stimuli created by the Space and Cognition Group in Nijmegen (Levinson et al., 1992) for the (*Men & Tree*) and the *Ball & Chair* task developed to meet a number of restrictions arising out of the *Men & Tree* task (Bohnemeyer and Baez, 2008). Furthermore, I take into consideration the use of Frames of Reference and Orientation in narrative and communicative discourse utilizing my own data (Hoffmann, 2015a), unpublished data annotated by myself (Birk, 1974; Crocombe, 2010) and published sources (Birk, 1976; Hoffmann, 2013).

The data for Jaminjung and Kriol comes from a variety of sources. These include my own fieldwork on spatial and motion expressions in 2010 (Hoffmann, 2008) for which I developed a set of stimuli described in Hoffmann (2011). Furthermore, I utilize other published (Lee, 2014; Meakins, 2011; Sandefur and Sandefur, 1982; Schultze-Berndt, 2000, 2006) and unpublished material (Schultze-Berndt, 2008) which includes narrative and communicative discourse as well as stimuli from the Nijmegen group and some ad-hoc table-top stimuli using toy animals.

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[3]Note this is a sketch of the actual pictures which were photos of a toy man and tree. See Pederson et al. (1998, 564) for reproductions of the complete set of the *Man & Tree* pictures.

While there are no strictly comparable data from stimuli for all three languages available to me[4], I created a discourse corpus consisting of structurally similar mythological, historical and lifestyle narratives for all three languages. This corpus consists of about 26,734 (Jaminjung), 14,424 (Kriol), and 43,981 (MalakMalak) words respectively.

2 Frames of Reference and Orientation in Jaminjung, Kriol and MalakMalak

This section will briefly introduce intrinsic and relative FoR in the three languages under consideration, before providing a more detailed account of their absolute systems. The latter will include a systematic condensed overview of the variety of absolute systems found in Australian languages.

2.1 *Intrinsic FoR*

Intrinsic FoR is used in all three languages (3). It requires some kind of portioning of the ground object or landmark into named facets from which search domains can be projected (Levinson and Wilkins, 2006b, 20). It is the most commonly used FoR. In the MalakMalak spatial stimuli corpus, speakers chose to use intrinsic FoR 49% of the time, compared to 26% relative, 12% absolute, and 13% direct/deictic FoR. While some languages use relative, absolute and intrinsic, most make do with two in everyday communication. These are then either relative or absolute, but not both with intrinsic FoR being nearly always present (Levinson and Wilkins, 2006b, 22).

(3)   a. *Jaminjung*

birang <u>na</u>   ga-yu   gujarding-gina <u>na</u>   gurdij
behind NOW 3SG-be.PRS mother-POSS   NOW stand

'he is now standing behind his mother' (Schultze-Berndt, 2008)[5]

   b. *Kriol*

det gel slip-in   **biyainwei** langa yu
DET girl sleep-PROG behind   LOC 2SG

'the girl is sleeping behind you' (Lee, 2004) RK

   c. *MalakMalak*

tyung **angundu**-na muyu
tree   behind-LOC 3SG.N*.stand.PST

'the tree was behind (the man)'[6]

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[4]The data obtained from MalakMalak is based on *Men & Tree* sessions with only three groups of speakers, most of whom did not partake in the entire set of three. There is only very limited Jaminjung data from Eva Schultze-Berndt Schultze-Berndt (2008) who reported, in line with my own observations the difficulties in running the stimuli with speakers. The highly artificial setting was very uncomfortable for the speakers and often it was hard to explain the point behind the task. For Kriol, I do not have access to any data from comparable stimuli.

[5]Example references are unmarked when resulting from original fieldwork. The data from Jaminjung comes from (Hoffmann, 2011; Schultze-Berndt, 2000, 2006, 2008) and the author's original fieldwork in 2010 ((Hoffmann, 2008)).

Data to describe MalakMalak's previously undocumented FoR system result from over 12 months of fieldwork between 2012 and 2013 (Hoffmann, 2015a), data the author annotated from other sources (Birk, 1974; Crocombe, 2010) and published examples (Birk, 1976).

Kriol data is from various published sources, e.g. (Sandefur and Sandefur, 1982; Lee, 2004) and original fieldwork (Hoffmann, 2008).

[6]In all three examples, tabletop figures stand with their sides towards the speaker - so it cannot be relative FoR.

In all three examples in (3), the notion of 'behind' refers to the intrinsic sides of the figure (the person, the girl, the (toy) man) with regards to the ground and not to a relative viewpoint whereby the ground would be located behind the figure from the speaker's perspective.

2.2 Relative FoR

Relative FoR involves mapping from the observer's own axes (front, back, left, right) onto the ground object (Levinson and Wilkins, 2006b, 21). In example (4), a figure is located behind, in front of and to the right of a ground object from the speaker's perspective. These are complex tertiary mappings involving a triangulation of figure, ground and viewer.

(4) a. *Jaminjung*

   birang ga-yu   mawud-gi
   behind 3SG-be.PRS bottle-LOC

   'it is behind the bottle' (Schultze-Berndt, 2006, 109)

   b. *Kriol*

   kenguru bin   hop-hop en jendap **lida**   **la**   tri
   kangaroo AUX.PST RDP-hop and stand in.front LOC tree

   'the kangaroo hopped and stood in front of the tree' RK

   c. *MalakMalak*

   wuenduen   **elimirri** wuyu   chair=we
   3SG.N.SUBJ front   3SG.N.stand.PST chair=FOC

   'it (the ball) is in the front of the chair' RP

In Jaminjung and MalakMalak relative FoR is restricted to grounds without intrinsic sides and inanimate grounds. The Kriol data is not extensive enough to allow for similar generalizations. However, they hold true for the corpus used in this study.

2.3 Absolute FoR

The diversity and usage of absolute systems have been of particular interest to researchers of spatial language. Brown (1983); Levinson and Wilkins (2006c); Levinson (1998) argue that absolute systems are necessarily arbitrary and fixed which distinguishes them from unfixed landmark-systems. Terrill and Burenhult (2008) on the other hand make the case that this distinction between landmark-systems and absolute FoR does not hold true in many languages. Additionally, Palmer (2015, 210) proposes the 'Topographic Correspondence Hypothesis' which concludes that no absolute system is arbitrary, but "anchored in environmental cues".

Absolute FoR requires fixed bearings that are instantly available to all members of the community (Levinson and Wilkins, 2006b, 21). There is a wide variety of absolute systems in Australian languages, including compass- (e.g. Warlpiri (Laughren, 1978)), wind- (Kala Lagaw Ya (Stirling, 2011, 182; Bani, 2001)), river drainage- (Dyirbal (Dixon, 1972)), ocean- (Iwaidja (Edmonds-Wathen, 2011); Edmonds-Wathen, 2012, 142-143), and tide-based (Bardi (Bowern, 2012, 30)).

Usage patterns for these absolute directionals has only been tentatively described. It has been observed that non-Pama-Nyungan languages, such as Jaminjung and Warrwa use the absolute frame in small scale space only when other resources are not available, while Pama-Nyungan languages make widespread use of absolute systems in large- and small scale descriptions (Edmonds-Wathen, 2012, 90). One of the main objectives of this paper is to expand on these analyses in section 3.

2.3.1 *Absolute FoR in Jaminjung, MalakMalak and Kriol*

As briefly mentioned in the above overview of Australian absolute directionals in **??**, Jaminjung makes use of a river-flow-based system. It is not strictly cardinal in the sense of being fixed and arbitrary. Instead it is 'unfixed' and landmark-based on the course of the Victoria River *buya* 'downstream' and *manamba* 'upstream'. It also changes as the river does, can be applied to other salient waterways, and breaks down as a system outside the speakers' familiar territory (Schultze-Berndt, 2006, 88).

In MalakMalak there is a system based on the directions of prevailing winds blowing from the sea (*nul*) and inland (*dangid*) during the wet and dry season respectively. Additionally, a compass or solar-based system encodes the directions of the setting and rising sun. However, the latter system appears to have developed due to influences from other languages (including Kriol). The terms are almost exclusively used by speakers living outside the traditional MalakMalak lands. Furthermore, they are phrasal not (yet?) lexicalized as compounds; *miri payiga* 'sun go up/sunrise/east' and *miri tyalk* 'sun go down/sunset/west'. Similar observations have been made for the neighboring Daly language Ngan'gityemeri, where a river-based system exists alongside compass terms based on the rising and setting sun. However, the latter are greatly disfavored (Reid, 2011). In addition to the wind- and sun-based systems, MalakMalak employs terms referring to the respective banks of the Daly River (*kinangga/ngunanggi* 'northeastern/southwestern riverbank'). These are derived from distal (*ngun*) and proximal (*ki*) deictics, but may be used to encode the riverbanks as well as deictic locations across or within a perceived boundary. For a detailed argumentation for parallel usage of the directionals as deictic and absolute, refer to (Hoffmann, 2014).

Kriol's absolute terms are based on the course of the sun (*sanrais/sangodan* 'east/west') and, where applicable, riverflow[7] (*haidap/lodan* 'upstream/downstream') (Hoffmann, 2011, 106-122).

2.3.2 *Absolute deictic FoR*

With regards to deixis, two different types of absolute FoR exist. Those whose center is deictic and thus depicts a binary relation (*the cup is east of me*), and those whose center is not deictic depicting a tertiary relation (*the cup is to the east of the bottle*). Taking this basic distinction into consideration, Danziger (2010) argues for establishing a fourth frame of reference in addition to the classic three-way distinction. She calls it the 'Direct Frame' where the anchor is part of the ground in an egocentric setting (*the cup is in front of me*). Danziger logically acknowledges the existence of deictic vs. non-deictic absolute FoR without drawing any further usage- or cognition-based conclusions from it. My data presents evidence for the usefulness of further incorporating deixis into the FoR typology and acknowledging that it plays a role in determining how and when absolute directionals may be used.

In Jaminjung's river-flow-based system, the ground from which the figure is projected also needs to be the deictic center. In example (5), the speaker is sitting facing the river describing two toy men standing slightly apart and facing sideways. Similarly, in (6), the speaker's deictic center is the ground in relation to which the figure (*brij*) is depicted.

(5) *Jaminjung*

    buya   ga-yu,   thanyung **manamba** ga-yu
    downstream 3SG-be.PRS other   upstream   3SG-be.PRS

    'one is downstream, the other one is upstream' (Schultze-Berndt, 2008)

(6) *Jaminjung*

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[7]In RK and WK, but not in DK, where the substrate language does not employ a river-flow based system.

<u>brij</u>=biyang ga-yu=ni **manamba**, yinju, **manamba**
bridge=NOW 3SG-be.PRS=DS upstream PROX upstream

'the bridge is upstream (from here), here, upstream[8]'(Schultze-Berndt, 2008)

Indeed, in all expressions of absolute FoR in Jaminjung the ground has to be equivalent with the speaker. Speakers may not use the absolute terms "in order to locate a figure with respect to a ground which is not the deictic center, i.e. a ground that has to be made explicit as a reference point (as in 'the man is downstream of the tree')" (Schultze-Berndt, 2006, 106). Such restrictions place a significant cognitive constraint on the usability of absolute spatial terms. As a result, the absolute river-based terms only encode spatial setups with the ground and speaker coinciding in binary relations in FoR systems.
In Kriol, parallel to what has been observed for Jaminjung, the river-based terms may only be used with the deictic center as the ground (7).

(7) *Kriol*

ol deishen brabli **lodan** imin jidan bifo
old station probably downstream 3SG.AUX.PST stay/be/sit before

'the old station was probably downstream (from here) in the old days' WK (Schultze-Berndt, 2008)

This also holds true for those discourse settings where deictic shift occurs. In narrative settings where one location needs to be located with respect to another, such as (8), the speaker "locates" to a new deictic center(Zubin, 1995). In example (8) below, the ground is explicitly mentioned and simultaneous with the speaker's deictic center. This narrative technique is used to create a sense of participation for the listener during a story-telling event (Segal, 1995, 15). In other words, the speaker may decide to take him/herself or one of the protagonists of the story world as origo, i.e. the origin of the co-ordinates of the personal, spatial and time dimension of utterances in speech situation (Bussmann, 2006, 232).

(8) *Kriol*

haidap burrum Galyi na ol jidi
upstream from Galyi LOC old jetty

'upstream from Galyi, is the old jetty' WK (Schultze-Berndt, 2008) WK

The sun-based terms, on the other hand, may occur in non-deictic settings where the ground is not equivalent to the deictic center. However, MalakMalak's disfavored sub-based system is only used in settings where the ground and the deictic center are the same.
In MalakMalak, the same restriction as in Jaminjung is observed where absolute FoR is only used in settings where the ground is equivalent to the deictic center. In example (9), in a parallel construction to (5) the speaker as deictic center describes the location of two toy men standing side by side from the speakers perspective.

(9) *MalakMalak*

miri tyalk-ma yina, yina **miri baiga-ma** yina
sun go.down-CONT this this sun go.up-CONT this

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[8]Instances of code-mixing or -switching are marked in examples as <u>underscored</u>.

'this one is west and this one is east' 2012

MalakMalak's wind-based directionals cannot be used in any Frame of Reference settings, be they deictic in nature or not. Instead, they are restricted to atelic motion and orientation descriptions. The riverbank-based terms, on the other hand, may occur in non-deictic absolute FoR settings. This will be discussed further in section 2.4 and 2.3.3 respectively.

Table 1 provides an interim summary of the findings for absolute FoR with the speaker as deictic center.

Table 1: Absolute FoR with deictic origo

In all three languages, the absolute terms appear bare, i.e. without any case-marking. One could argue that this makes this setting the unmarked default occurrence. It suggests that the lexemes are inherently deictic. For Jaminjung and Kriol, this type of FoR is the only one that allows their river-flow-based directionals to be used. Similarly, for MalakMalak, the disfavored sun-based system is restricted to this type of FoR.

2.3.3 *Absolute non-deictic FoR*

As discussed above in 2.3.2, in Jaminjung and Kriol the river-flow-based directionals never occur in absolute FoR setting without deictic origo. Kriol's cardinal directions, however, based on the course of the sun can be used with an explicitly mentioned ground that is not the deictic center. An example is provided in (10). This is possible only when a locative suffix -*said* is used.

(10) *Kriol*

    a. det ka bin   ran en   stap **sangodan-said** langa det haus
        that car AUX.PST run and stop west-side.LOC   LOC   that house
        'the car went and stopped on the western side of the house' RK

    b. but not:
        *det ka bin   ran en   stap **haidap-said**   langa det haus
        that car AUX.PST run and stop upstream-side.LOC LOC   that house
        'the car went and stopped on the upstream side of the house' RK

In MalalMalak, neither the wind- nor the sun-based directionals may be used in absolute FoR settings without a deictic ground. However, the deixis-derived riverbank terms may do so. In example (11) the speaker refers to the absolute direction denoted by the term *kinangga* 'northeastern riverbank'. This lexeme is a lexicalized expression of *ki-na-ngga* 'PROX-LOC-DIST.DIR' and as a result is inherently locative.

(11) *MalakMalak*

    duk puyunduk **kinangga**   yide   <u>chair</u>=we
    place underneath north.eastern.bank/this.side 3SG.masc.go/be.PRS chair=FOC

    'it is underneath, on the northeastern bank's side, of the chair' 2012

Figure 3 depicts the stimuli setup for the *Ball & Chair* task. In the example, the location of the ball is described as being towards the *kinangga* side. If the term where used deictically, this would imply the location of the ball being towards the speaker; not separated from them by the chair. However, here, the use of the directional clearly relates to a location on the other side of the chair. It 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 side the speaker is located on while facing away from the riverbank. As a result, this is a clear example of using these directionals within an absolute Frame of Reference system.

Figure 3: Stimuli Setup for example (11)[9]

Table 2: Non-deictic absolute FoR

Table 2 provides an interim summary of this section's discussion. It shows that absolute FoR without the deictic center as ground are the most restricted of absolute FoR settings. Only sun- and riverbank-based directionals may be employed and they also need to be locative-case-marked or include a locational suffix. Both types of directionals depict tertiary relations.

Not allowed in this setting are Jaminjung's and Kriol's river-flow-based systems and MalakMalak's wind-based terms. The latter are inherently binary relations and, as a result, cannot be used in non-deictic absolute FoR. Additionally, the wind-based terms are inherently directional and atelic[10].

2.4 *Orientation*

Terrill and Burenhult (2008, 99) define orientation as follows: An orientational proposition provides information as to how a figure is oriented in relation to something (a ground or reference point), but it provides no information as to which of the four possible positions the figure is placed in with respect to the ground. As a result, orientation expressions are based on an intrinsic frame of reference in the sense that they semantically incorporate an intrinsic feature of the figure. In all three languages, orientation terms are based on body-part lexical items. For example, MalakMalak's orientation coverbs are all compounds of body-parts with or without the coverb *ang* 'give': *pud* 'chest' or *pudang* 'chest+give', *payagang* 'back+give' and *deling* 'hip+give'. At the same time orientation itself can, in principle, be indicated (i) with respect to an absolute direction, as in (12), (13a) and (14a), (ii) with respect to a (named) landmark (14c), (iii) with respect to a relative frame of reference[11] (14b), or (iv) with respect to a ground (14d) which may also be the deictic center (14e) (Schultze-Berndt, 2006, 109).

(12) *Jaminjung*: Absolute Orientation

mayi=biya jirrama bunthu-yu, janungbari ngiyina-wurla ga-yu=ni **juwiya**,
man=NOW two 12PL-be.PRS other PROX-DIR 3SG-be.PRS=DS nose
janyungbari **manamba-ngining** ga-yu
other upstream-L/ALL 3SG-be.PRS

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[9]Note that this is a sketch of the actual pictures which were photos of a ball and chair in different configurations. See Bohnemeyer (2013) for a complete set of the *Ball & Chair* pictures.

[10]This is different from what has been described for Garrwa where compass and vertical directionals are inherently allative and adding a directional suffix encodes telic events (Mushin, 2013, 138)

[11]This is not found in the Jaminjung data (Schultze-Berndt, 2006).

'there are two men, one has his nose this way, the other is facing upstream' (Schultze-Berndt, 2006, 107)

(13) *Kriol*

    a. Absolute Orientation

      laik im tubala wok-in   det-wei, dei **fes**-in   **sanrais**
      like 3SG DU   walk-PROG that-way 3PL face-PROG east

      'they both walk that way, they are facing east' DK (2012)

    b. Absolute Motion

      yu go sangidap-wei hiya
      2SG go east-way   here

      'you go east to here'

(14) *MalakMalak*

    a. Absolute Orientation/Motion

      yinya nende **dangid-en**   **pud** wurrunguny, **miri-nen**
      man thing/person southeasterly-DIR chest 3PL.go/be.IPFV, sun-DIR
      payiga-ma
      change.location-come-CONT

      'there are two people, they are facing/walking towards the southeasterly wind direction, towards the east where the sun comes up' 2012

    b. Relative Orientation

      pud tyalmiyen   wurruma yuyu
      chest right.hand/straight stand.CONT 3SG.M.stand.PST

      'he had his chest towards the (my) right hand side' 2012

    c. Toponym Orientation

      ki   wuyu   **Wunellen-na**
      PROX 3SG.N.stand.PST place.name-LOC

      'it was standing towards Wunellen?' 2012

    d. Ground orientation

      yawug ki **payagang** tyedali   yuyu,   **tyung-yinnga**
      other PROX face.away stand.PART 3SG.M.stand.PST tree-LOC

      'this other one was facing away, the man with regards to the tree' 2012

    e. Deictic Ground orientation

      alginmity   pi agun **payagang** tyed-ali   yuyu
      young.person move where back.give stand-PART 3SG.M.lie.PST

      'where is the boy going? He is facing away (from me)' 2012

This spatial reference frame is used in Jaminjung, Kriol and MalakMalak in small-scale descriptions with absolute directionals, where the ground is not the deictic center. All directionals have either directional or locative case-marking. Similarly, for Warrwa McGregor (2006, 151f.) observes that "when objects are located with respect to a different centre from the speaker, the directional forms are used, thus invoking as it were figurative or metaphorical motion from that centre towards the figure." However, those grounds reference objects grounded in the real-world such as named landmarks and objects that are part of the

stimulus setup add locative case-marking. This clearly marks them as telic projections that refer back to a fixed space or place. Furthermore, it distinguished them conceptually from atelic directionals based on wind- and river-flow without such fixed endpoints. In MalakMalak, the wind-based terms can only be used in orientation, but not in Frames of Reference settings.

Table 3: Orientation

Table 3 summarizes the use of absolute directionals in the three languages. In orientation and motion settings, in MalakMalak and Jaminjung case suffixes need to be employed on all absolute terms. MalakMalak's wind-based system is exclusively used in this and motion settings. In Jaminjung a special locative/allative-directional suffix is employed to indicate that an event is a case of orientation or motion rather than location. My Kriol data for orientation settings is very limited. Example (13a) is the only clear instance of orientation usage in my data. Motion expressions as in (13b) are more common. The lack of a directional suffix *-wei* in (13a) is unexpected and could be explained by *sanrais* referring here to the actual rising sun with a conceptually perceived endpoint, instead of the direction of 'east'. Thus, it would be expected that all utterances in orientation settings generally require atelic case marking in the three languages.

To conclude, one can divide the different types of absolute directionals in MalakMalak, Jaminjung and Kriol into two sets, *restricted* and *unrestricted*. The former are limited to only one or two uses, while the latter occur in all three (deictic + non-deictic FoR and orientation settings). Jaminjung's and Kriol's river-flow-based terms and MalakMalak's wind- and disfavored sun-based terms are restricted. On the other hand, Kriol's sun-based terms and MalakMalak's riverbank-based directionals are unrestricted.

After providing this overview of the spatial reference system in Jaminjung, Kriol and MalakMalak, the following section 3 takes a variety of approaches to explain the observed usage patterns.

3   Usage Patterns of Absolute Directionals

3.1   *Cognitive Approaches*

Many studies of Frames of Reference systems have focused on cognitive approaches taking into account conceptual perceptions and the notion of different types of relations. In the following overview I briefly introduce a number of such approaches and how they relate to the type of data described in section 2.3.

Firstly, Palmer (2002) distinguishes between *unbounded* and *bounded* axes with regards to absolute Frames of Reference. While the former has no conceptual endpoint and terminates outside the map range, the latter has an endpoint in the speakers' mind. This approach allows to explain differences between unrestricted and restricted types of absolute directionals.

The cardinal-type expressions based on the directions of the setting and rising sun in Kriol as well as the riverbank-based system of MalakMalak are of the bounded type. The sun-based systems are bounded in referring to a relatively fixed point on the horizon[12] and the riverbank system with regards to specific physical landmark points on the river. These types are the most flexible (unrestricted) in my data set in allowing for use in orientation and any kind of absolute FoR settings.

On the other hand, MalakMalak's wind-based terms are unbounded in a sense of restricted appearances

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[12]As mentioned above, MalakMalak's sun-based system is highly dis-preferred by speakers on traditional lands and not fully lexicalized. Its usage in a bounded axis in restricted settings is therefore not surprising.

at different times of the year and having no physical landmark-base in a strictly spacial sense. Jaminjung's and Kriol's river-flow systems are unbounded and restricted as well in depicting the course of the moving river, not a specific point on it. These types of directionals are restricted to orientation settings alone, in the case of the wind-based system, and to orientation and deictic absolute FoR settings for the river-based system.

Secondly, one can distinguish between *abstracted* and *landmark-based* systems (Bohnemeyer and O'Meara, 2012; Levinson, 2003). This type of distinction has been the subject of criticism (Palmer, 2015). For the three languages under consideration, I argue that the unrestricted sun- and riverbank-based systems are abstracted. When used in absolute settings, they may encode a quadrant rather than idealized points as has been observed for the Guugu Yimithirr cardinal direction system (Haviland, 1993, 5) and others. The wind- and river-flow-based systems on the other hand are landmark-based. Svorou (1994, 30) notes that "certain entities within the environment of a community may be so important that they are used as major orientation points, as landmarks with movements or (locations) oriented with respect to them." "Atmospheric features such as wind direction and weather patters appear to fall into this category" (Stirling, 2011, 198). The winds are tied to a specific time of year and thus physically defined. The river-flow system is not abstracted, but follows the exact course of the Victoria River and may be transposed onto any salient waterway. Furthermore, speakers of all three languages also make extensive use of toponyms (which are also landmark-based). For example in (15), an absolute directional and a toponym are used to describe a stimuli setup in the *Men & Tree* task. As a result, they are functionally, conceptually and structurally parallel to one another. Additionally, like the wind-based terms, toponyms are only used in orientation (and motion) settings and to refer to specific locations, but not at all in FoR descriptions of the type *the man is on the WaliWali side of the house*.

(15)   *MalakMalak*

Waliwali-nen pudang   tyedali   yuyu   **nul-yen**   pudang
Daly.River-DIR face.towards stand.PART 3SG.M.stand.PRS northwesterly-DIR face.towards
tyedali   yuyu
stand.PART 3SG.M.stand.PRS

'one is facing the river and the other one is facing northwest' 2012

Interestingly, ad-hoc landmarks based on *generic* objects in the real world are never used as reference points in MalakMalak. Instead, *named* landmarks (16a) or (rarely) person-based landmarks (16b) are used in the same way as absolute directionals. For Jaminjung on the other hand, Schultze-Berndt (2006) observes that, in small-scale descriptions, ad-hoc landmarks are preferred over absolute directionals as in (17). Both observations are an indication that landmark- and weather- (aka changeable) based directionals are treated in the same manner as named or ad-hoc landmarks.

(16)   *MalakMalak*
   a. **Mirriny**-en   wutangga
      placename-DIR 3PL.go/be.PST.DIST.DIR
      they (the toy men) are (facing/going) away towards Mirriny billabong' 2012
   b. **Jigbala**-nen nuenue-yen   wutangga
      name-DIR   3SG.F.sit.PRS-DIR 3PL.go/be.PST.DIST.DIR
      'they (the toy men) are (facing/going) away towards where Jigbala is sitting' 2015

13

(17) *Jaminjung*

nindu:, janggagu langiny-gi **langa** *rivasaid* mung   gayu
horse   above   tree-LOC   LOC   riverside look.at 3SG-be.PRS

'a horse (is) up at the tree, it is looking to the river' (Schultze-Berndt, 2008)

Thirdly, Danziger (2010, 168) distinguishes FoR between *binary* and *tertiary* relations. These are related to the notion of *anchor* defined as "the zero point from which a vector is calculated that narrows the search space from ground to figure. It is treated as fixed in relation to other entities." In binary relations, the anchor is part of the ground. It includes, intrinsic and deictic absolute FoR as well as orientation settings. In my language sample, the most restricted (landmark-based) absolute directionals (wind- and riverflow) are binary. In tertiary relations on the other hand, the anchor is not the ground. These include relative and non-deictic absolute FoR settings. In my sample, all unrestricted (abstracted non-landmark-based) terms (riverbank- and sun-based) are tertiary. Again, this approach provides an explanation for the use of the river-flow-and wind-based systems in restricted and of the sun- and riverbank systems in unrestricted settings.

Fourthly, Bohnemeyer and O'Meara (2012, 220) distinguish between *angular-* and *head*-anchored FoRs. In the former the axes are derived through transposition or abstraction from the axes or gradients of the anchor (*the ball is uphill from the chair*) and depend on the orientation of the anchor. In the latter, on the other hand, the axes point towards the anchor (*the ball is seaward of the chair*) and depend on the location of the anchor. In the Mayan languages Seri and Yucatec, angular-anchored FoRs dominate in locative descriptions, while head-anchored FoRs dominate in orientation descriptions. Bohnemeyer and O'Meara (2012, 247) state that "in languages such as Seri and Yucatec, in which the use of intrinsic FoRs is more common than that of absolute or relative FoRs, head-anchored strategies dominate in orientation descriptions due to the absence of the most important intrinsic strategy for locative representations, the use of object-centered FoRs. Object-centered FoRs are unavailable with orientation representations because entities cannot be oriented on themselves." In my sample, incorporating absolute directionals, the restricted river-flow- and wind-based terms are head-anchored while the unrestricted riverbank- and sun-based terms are angular-anchored.

Fifthly, (Levinson and Wilkins, 2006c, 549) argue influentially that absolute FoR is more likely to be used: (1) To provide facing (orientation) information rather than standing (placement) information; (2) to describe motion rather than static location; (3) to describe static figure-ground relations as the separation between them increases; and (4) to describe large-scale space rather than 'tabletop' space. These generalizations are implicational scales: if a language uses the absolute frame for standing, it will use it for facing information, if it uses it for static description, it will use it for motion, if it uses it when figure and ground are close to each other, it will use it when they are distant, if it uses it for small-scale description, it uses it for large-scale description.
In my language sample, only one type of absolute directionals, namely MalakMalak's wind-based system is restricted to orientation and motion settings. The river flow-based system of Jaminjung, on the other hand, can be used in orientation and motion settings as well as deictic absolute FoR descriptions. Finally, the unrestricted types of absolute directionals, riverbank- and sun-based, may be used in any type of FoR, motion or orientation setting. As a result, Levinson and Wilkins (2006c)'s view fails to explain the differences of absolute directionals usage with regards to deixis and for different types of absolute terms in MalakMalak, Jaminjung and Kriol.

In summary, the cognitive approaches proposed by Bohnemeyer and O'Meara (2012); Danziger (2010); Levinson (2003); Palmer (2002), but not those based on typological studies by Levinson and Wilkins (2006c) provide valuable explanations for the types of usage distinctions observed in my dataset. Bounded, abstracted, tertiary, and head-anchored absolute directionals based on the course of the setting and rising sun as well as the riverbank are of the least restricted type and may occur in any FoR and orientation or motion setting. Unbounded, landmark-based, binary, and angular-anchored directionals which are wind- and river-flow-based are restricted in only allowing for orientation and motion and, in the case of river-flow, deictic FoR settings. This generally strengthens the validity of each proposal. However, this paper is, to my knowledge, the first time the approaches are linked to one another. Additionally, some of the typological conclusions drawn by Levinson and Wilkins (2006c) regarding the nature of absolute directional usage patterns need to be expanded to take intra-language variation into account.

3.2 *Morphosyntactic Features of Absolute Directionals*

There are a number of morphosyntactic restrictions governing how different types of absolute directionals are used. The restricted types, the wind- and river-flow lexemes are nominals. The les restricted sun-based terms, on the other hand, are phrasal calques. MalakMalak's unrestricted riverbank terms share features of multiple word classes. They are demonstratives (*ki/ngun* - PROX/DIST) with locative case-markers (nominal: *-na* 'LOC') and directional deictic suffixes (verbal: *-ngga/-nggi* 'DIST.DIR/PROX.DIR'). In conclusion, this set of morphosyntactic features can be used to distinguish restricted (nominal) from unrestricted (mixed/phrasal) absolute directionals.

With regards to morphosyntactic marking, the unrestricted and restricted absolute directionals in Malak-Malak, Kriol and Jaminjung, receive distinct treatment from one another. Hill (1996, 319) observes for the Austronesian language Longgu that only one directional term *asi* 'sea/seaward' can take a locative preposition, while all others (inland, east, west) are inherently directional and cannot be used to refer to landmarks or specific places. MalakMalak has a distinct set of directional *-(y)en* and locative case markers *-yinnga/-(na)na*. They are (usually) optional. The use of the directional suffix on absolute terms is restricted to orientation as in (15) above and atelic or future motion event descriptions. All static location and FoR as well as telic motion events take locative case-marking.

MalakMalak's restricted wind-based directionals never occur without the directional suffix *-(y)en* unless they refer to the wind itself not the direction. Their inherently dynamic nature is furthermore underlined by the fact that they cannot take locative or ablative case-marking. As a result, they are perceived as unbounded (see above) without either a beginning or endpoint. Similar morphological distinctions have been observed for languages of the North Pacific Rim where some systems allow for shared roots for wind-based directionals and wind terms only if they have morphological means to mark the distinction (Fortescue, 2011, 13). The sun-based compass terms, on the other hand, may occur with or without the directional suffixes, with only the latter option allowing for use in deictic absolute FoR. They too, cannot take locative or ablative case-marking.

While the wind-based absolute terms in MalakMalak are directional, the riverbank-based terms are inherently locational and may never attach a directional suffix. The locative case-marker *-na*, clipped from *-yinnga*, is lexicalized in these terms. Therefore, they may be used in all types of spatial relations including orientation and deictic and non-deictic FoR and with ablative case-marking as in (18). They are bounded in nature and may encode a beginning or endpoint.

(18) *MalakMalak*

ngunanggi-many   pud-ang   tyed-ali   yuyu
south.western.bank-ABL chest-give stand-PART 3SG.M.stand.PST

'this one is facing (away) from the other side of the river'

In Jaminjung, the river drainage terms as well as directionals based on verticality take specialized allative *-ngining* as in (12) and ablative case-marking *-yun* (Schultze-Berndt, 2000, 48). The allative case-marker is optionally used in motion as well as orientation settings thus morphosyntactically further distinguishing the absolute directionals from other types of nominals. However, the ablative marker has been attested for motion, but not for orientation settings. Even in orientation settings, other types of lexemes take the 'usual' case marking (19).

(19) *Jaminjung*

juwiya **ngunggina-bina** ga-yu
nose   2SG:POSS-ALL   3SG-be.PRS

'he is (facing) towards you (with his) nose' (toy man) (Schultze-Berndt, 2000, 59)

The river-flow-based directionals never take locative case-marking. In FoR settings, the terms remain unmarked as in (20), while other place-denoting nominals are locative case-marked (*thanggad-gi*). As a result, these, similar to the MalakMalak wind-based terms, are inherently directional. They allow for unbounded interpretations as directions with allative case-marking, but cannot denote a specific place with locative marking.

(20) *Jaminjung*

nga-yug-ba **manamba** nga-gba,   **thanggad-gi**
1SG.=NOW upstream   1SG-be.PST junction-LOC

'I was upstream, at the junction (fishing trip story 2nd half) (Schultze-Berndt, 2008)

In Kriol, the allative/locative preposition *la(nga)* and the ablative preposition *from/burrum* never precede absolute directional terms in spatial descriptions. This is true for all adverbials in the language, such as *dijey* in (21). Only (pro)nominals and (pro)nominal phrases (*yuwei*) allow for locative marking .

(21) *Kriol*

buliki seim-wei olabat luk **dijey**,   luk-in-at,   langa   **yu-wei**
cow   same-way 3PL   look PROX.DIR look-PROG-out LOC/ALL 2SG-DIR

'all the cows look this way, they look out, towards you' RK 2010

However, there are two spatial suffixes *-said* and *-wei* that may attach to absolute directionals. The locational suffix *-said* may occur in absolute FoR settings (usually) with the sun-based compass terms in non-deictic absolute FoR (10), but also (very rarely) within the river-based system in deictic FoR settings. In this latter setting the suffix encodes directionality rather than location as in (22).

(22) *Jaminjung*

wi bin   nid tu go **haidap**-said na
1PL AUX.PST need to go upstream-side NOW

'we needed to go upstreamwards then' WK (Schultze-Berndt, 2008)

In Kriol, orientation settings only allow bare unmarked cardinal terms (13a). Only the sun-based terms may attach the directional suffix -*wei* in motion descriptions with (23b) and without Frames of Reference (23a).

(23) *Kriol*

    a. det bot bin   go **sanrais-wei**, la   det riva, andanith   langa det brij
        that boat AUX.PST go east-DIR   LOC that river underneath LOC that bridge
        'the boat went eastwards, on the river, underneath the bridge' RK (2010)

    b. imin   ran sangodan wan-said, wan-said **sangodan-wei** la   det haus
        3SG:AUX.PST run west   one-side one-side west-DIR   LOC that house
        '(the car) drove to the west on one side, on one side towards the west of the house' RK (2010)

In all three languages, deictic absolute FoR triggers no case-marking and the nominals remain bare. MalakMalak's wind-based terms always occur with the directional suffix and cannot take locative or ablative case-marking. Similarly, the sun-based terms do not allow locative and ablative case, but may attach directional marking. The riverbank-based terms have lexicalized locative-case marking and cannot occur with the directional suffix, but may attach the ablative case-marker. The riverflow terms in Jaminjung take special ablative and allative case marking. They never attach locative case. In Kriol, finally, the absolute directionals are adverbials and never allow for locative or ablative prepositions to precede. However, the directional and locational suffixes are almost exclusively limited to use with the sun-based directionals. Additionally, in orientation settings, all directionals are bare.

This section provided an overview of specialized morphosyntactic features of the absolute directionals in Jaminjung, MalakMalak and Kriol. The following section sheds light on some possible underlying semantic principles for these features.

3.3 *Semantic Features*

As pointed out above in section 3.2 the absolute terms based on prevailing winds in MalakMalak and river-flow in Jaminjung and Kriol are inherently dynamic and directional. They do not allow for locative, as well as, in the case of the wind-based terms, for ablative case-marking. While Jaminjung's river-flow-based terms may encode a location in deictic absolute settings (necessarily) without a case-marker, MalakMalak's wind-based directionals cannot denote any static spatial event. On the other hand, Malak-Malak's riverbank- and Kriol's and MalakMalak's sun-based terms encode static locations. They may occur in motion and orientation settings. However, unlike the dynamic terms above, these may encode endpoints of motion or fixed locations. As a result, these may add locative case-markers, but the former ones do not.

Edmonds-Wathen (2012, 141) observes that in Iwaidja absolute FoR is used for both standing and facing information. Schultze-Berndt (2006, 107) and Levinson (2006, 186) on the other hand note for Jaminjung and Yélî Dnye that orientation or facing information is given in absolute terms while locational or standing information uses intrinsic FoR in small-scale descriptions. This paper has argued that in addition to that, there are distinctions within absolute directional terms with regards to usage in frame of reference and orientation settings. While Jaminjung and Kriol allow their river-flow-based directionals to be used in orientation and deictic FoR settings only, MalakMalak employs three separate sets of directionals for orientation only (wind), orientation and deictic FoR (sun), and all orientation and FoR settings, including non-deictic FoR (riverbank). In Kriol, only the sun-based terms can be used in orientation and both FoR settings alike and Jaminjung never employs absolute directionals in non-deictic FoR settings.

3.4 *Culturally Specific Approaches*

In order to understand, why absolute directionals are not used outside of deictic settings in my language sample, one must ask the question: When are absolute FoR without the ground as deictic center generally used? They might occur in way-finding and direction-giving or to locate places in relation to one another in narratives. I will briefly look at both scenarios in turn.

Route descriptions are not a 'natural' type of discourse for the MalakMalak and Jaminjung peoples. The land itself is home, hunting ground, and myth. Therefore, people are maximally familiar with landscape features of their traditional (and neighboring) lands. This makes giving directions or describing locations of landmarks with regards to one another almost obsolete. The speaker community only requires location descriptions for immediate context. In fact, all route descriptions in my corpus are elicited and the speakers were usually rather hesitant to provide these descriptions. However, Blythe (pc) points out for Murrinh-Patha that route descriptions occur naturally when speakers discuss several travel options to get to a specific place. In the case of Murrinh-Patha the resulting descriptions makes extensive use of deictics accompanied by gestures since there are no absolute directionals in the language. Based in my available corpus and observations from Bowern (2016) for Bardi, similar descriptions in languages with absolute directionals would most likely result in using a string of toponyms for reference. If absolute directionals are used, the speaker remains the deictic center as in the Kriol example (8) above and in Jaminjung (24).

(24) *Jaminjung*

manamba bajga::, laginy bajga. jamurrugu na jid.
upstream IMP-go turnoff IMP-go below now below

'go upstream, take the turnoff, then down downwards' (Schultze-Berndt, 2008)

This observation furthermore underlines the interconnectedness between a speaker's deictic center and the use of absolute directionals. This is a case of direct FoR in Danziger (2010)'s sense.

A second potential use of absolute terms outside of a deictic setting is in relation to the spatial settings within the story-world of a narration. As argued elsewhere (Hoffmann, 2015b), Aboriginal narratives defy Western Labovian narrative structure conventions which place strong emphasis on recapitulating *past* experiences, strict temporal ordering, and established elements of narrative structure: abstract, orientation, complicating action, evaluation, result or resolution, and coda (Labov, 1972, 360-363). In Aboriginal dreamtime narratives, spatial may take precedence over temporal order of events within the story told. Narrations center around a fixed location, often the place of the story-telling or a significant place nearby which is utilized as the deictic center. Any absolute directional within the story world is subject to this location as deictic center via actual physical speaker location (26) or deictic shift (25). However, in a small and targeted corpus search[13] of Jaminjung, MalakMalak and Kriol mythological, historical and bush narratives very few such examples of absolute directionals are found.

(25) *Jaminjung*

a. **ngiyiya** mulurru-ni ganu-ngany
   PROX old.woman-ERG 3SG:3SG-leave-PST

   'here the old woman had left it'

b. **manamba** ga-jgany jalbud wuju mulurrurr-yulu gani-ngawu
   upstream 3SG-go:PST house small old.woman-INAL 3SG:3SG-see.PST

   'he went further upstream and saw the old woman's small house' (Schultze-Berndt, 2008)

---

[13]Consisting of 26,734 words (Jamininjung), 14,424 words (Kriol), and 43,981 words (MalakMalak)

(26) *Kriol*

    a. ya streit dan la wada, weya dei pampimat wada, yuno,
       yes straight down LOC water where they pump.out:TR water you.know
       'yes, straight down at the water where they pump out water you know'

    b. **dijey jangitapwei**
       this.way sun.get.up.way
       'this way in the east' WK (Schultze-Berndt, 2008)

In the entire MalakMalak corpus all absolute directionals are the unrestricted kind referring to the respective riverbanks (of the Daly River or any other salient waterway) (27). The wind-based system appears to be highly specialized when used in spatial expressions (as in the orientation settings of the *Men & Tree* task. When the terms are used in discourse, they tend to encode times of day or year as in (28) rather than directionality.

(27) *MalakMalak*

    a. Dyamalagany pi nuguta ...
       place.name move 2PL.go.PST [pause]
       'you went to Dyamalagany'

    b. dek **kinangga** ada
       place northeastern.bank 1SG.go.PST
       'I stayed here on this side'[14] 2012

(28) pi wuta, **nul** taty-ma wuwunduny=na
     move 3PL.go.PST northwesterly hit-CONT 3SG.M.do.SBJV=FOC
     'they went when the afternoon wind was blowing' (Birk, 1974)

Deictics and toponyms are the most prominent spatial reference in discourse. Figure 4 shows the configuration. All three languages are remarkably similar. The relatively high proportion of absolute directional terms in Jaminjung is due to a selectional bias. The corpus was specifically chosen for its abundance of spatial and motion expressions[15], while the MalakMalak and Kriol corpora are less selective.

Figure 4: Usage of Spatial Terms in Discourse

Examples (29) below show the usage of toponyms and deictics in mythological (dreamtime) narratives. Place names are almost always accompanied by deictics.

(29) a. *Jaminjung*

       barnka biyang ga-rdba-ny **tharriya**, **Gayitinginy**
       stand.up.to.be.speared now 3SG-fall-PST that.way.DIST place.name
       'he stood up to be speared there, at Gayitinginy' (Schultze-Berndt, 2008)

    b. *Kriol*

       wi bin hab-um ol fam **deya** langa **Lolebul**, dijan la **Katharrain**
       1PL AUX.PST have-TR all farm there.DIST LOC place,name this+one LOC place.name

---

[14]talking about a fishing trip the speaker did not accompany us on. Here, *kinangga* does not refer to the northeastern bank of the Daly River, but the bank of a minor creek that needs to be crossed to reach Dyamalagany.

[15]to be used in a dissertation study on motion expressions in Jaminjung (Hoffmann, 2011).

'We used to have an old farm there at Low Level. It was in Katherine' (Sandefur and Sande-fur, 1982)

c. *MalakMalak*

Yinindelik ende   **pi**   yida,   tyerriny=ye
placename person/thing move.DIST 3SG.M.go./be.PST goanna=FOC

'the goanna went (away) to Yinindelik' 2013

By far the most prominent usage of spatial reference in discourse is with deictic terms as exemplified in (30). They are utilized to reference previously overtly or covertly indexed places. In stimuli-based narratives not placed within the speakers' familiar environment such as the *Frog Story* (Meyer, 1969), deictics are used exclusively in all three languages[16].

(30)   a. *Jaminjung*

Jarrinyiny=biya **ngiyiya**, ga-gba
Devil.Dog=now PROX   3SG-be.PST

'here is where the Devil Dog stayed' (Schultze-Berndt, 2008)

b. *Kriol*

diya bin   ran, en det dog bin   rijimbat   im **hiya**
deer AUX.PST run and that dog AUX.PST chase-TR-CONT 3SG here

'the deer ran and the dog chased it to here' 2010 RK

c. *MalakMalak*

ki-na   **ngun**-many kanggi   yida
PROX-LOC DIST-ABL   come.dir.PROX 3SG.M.go.PST

'maybe he came from there to here' 2012

Referring to specific place names rather then directionals makes sense given the abundance of places of significance in Aboriginal culture, myth and narrative. Bowern (2016) observes that in Bardi, giv-ing directions involves providing a chain of place names between the speaker's current location and the goal rather than using the language's absolute directional systems. All dreamtime beings travel along well-known routes establishing important places along the way and naming the country in the process. Additionally, since speakers are maximally familiar with the location of any significant place, their di-rection with regards to one another is known and mentioning it can be viewed as redundant.

In addition to these culture-specific restrictions with regards to the use of absolute directionals in dis-course, Hill (1996, 317) has argued for the Oceanic language Longgu that its two sets of directional terms function differently. While those intimately connected with the people's lives (sea-inland) are used to refer to directions within the land area of the Longgu, the reference points (sunrise(east)-sunset(west)) are perceived as being beyond the scope of the region and therefore refer to directions and locations out-side of it. Similar observations based on cultural preference can be made for the three languages under investigation.

Schultze-Berndt (2006, 104) remarks for Jaminjung that the river drainage "system breaks down for ref-erence beyond the drainage system which includes the territory that the speakers are familiar with." Fur-thermore, terms can be metaphorically extended as *manamba-ngining* 'upstream-L.ALL' and *buya-wun*

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[16]The *Frog Story* is a picture children's book(Meyer, 1969) that has been used extensively in crosslinguistic research on the typology of motion expressions, e.g. (Berman and Slobin, 1994; Strömqvist and Verhoeven, 2004). There are six Frog Story narrations on Jaminjung, seven in Kriol and one in MalakMalak in my corpus.

'downstream-L.ABL' to encode top (shirt) vs. bottom clothes (skirt); as opposed to *thamirri-gina* 'down-POSS': (under)pants and *thanggayun-gina* 'up-POSS': coat (Schultze-Berndt, 2014). In this meaning, the center of a person's body is seen as the center from which up- and downstream clothing project. This is an anchored point from which the directions project outwards. As a result, this is in line with the parallel motion/orientation observation and might explain why the landmark-based terms only allow for projected uses - as orientation and motion or from a deictic center, whereas the compass-/abstract terms allow for different types of extension without an anchor in the 'real world'. Because of this, non-deictic FoR settings are ruled out when the speaker cannot project a deictic center.

MalakMalak's wind-based terms are of high cultural significance in denoting seasonal winds that introduce radically different lifestyles during the wet and dry seasons. Therefore, their usage is restricted to settings within the familiar regions of the speakers. The reference point of orientation and origin of atelic motion needs to be located within a familiar region and cannot be projected elsewhere. The maximally unrestricted riverbank terms, on the other hand, allow for abstraction to any deictic setting involving a boundary. In fact, the specification for usage with regards to the river itself in an absolute setting is a recent development from more general deictic terms (Hoffmann, 2014). Therefore, their specific cultural significance can be seen as less restrictive than the wind-based terms. Furthermore, the MalakMalak refer to the very edges of their tribal boundaries with terms denoting the origin of the Daly River in the high country to the south-east (*kantyuk/menyiken* 'upstream/throat-way') and the river's mouth to the west (*matyanen* 'foot-way, downstream'). These are never used in any abstracted way to denote absolute directions within MalakMalak country. Their far-away location forbids it.

In conclusion, with regards to usage and cultural significance, the restrictive nature of some of the discussed absolute terms can be seen in a new light. In non-salient route descriptions, speakers employ deictic shift to denote absolute directions. Traditional narratives and discourse rely heavily on the usage of toponyms rather than directionals to re-tell the ancestral path of the dreamtime beings. Finally, culturally significant systems break down outside the traditional lands and, as a result, cannot by used without a deictic origin.

4 Conclusions

Jaminjung, Kriol and MalakMalak consistently employ separate sets of directionals and/or morphosyntactically specialized case-marking to encode absolute FoR with or without deictic origo, and orientation. Table 4 below summarizes the main findings of this paper[17].

Table 4: Summary of Results

All three languages are unique in their respective detailed uses of absolute directionals. However, this paper has shown that a number of cognitive, morphosyntactic, semantic and culturally-specific features provide the tools to group some absolute directionals together and to provide explanations for their usage in discourse. In addition to being bound to cognitive prerequisites, the use of absolute terms outside deictic settings is blocked by cultural and usage-based restrictions regarding direction-giving, narrative practice, and semantic properties. Furthermore, the various types of absolute directionals may morphosyntactically be treated differently from one another (MalakMalak) or from any other nominal in the language (Jaminjung).

A number of authors (Meakins, 2011; Schultze-Berndt, 2006) have argued that scale is a deciding factor

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[17]The language names are abbreviated as Mal 'MalakMalak', Jam 'Jaminjung' and Kri 'Kriol'.

in the usage restrictions of frames of references. This paper aimed to develop this discussion further in shedding light on usage patterns within a single FoR system and across three languages spoken in the same cultural area. While some usage patterns are unique to each language, others allow for inherent features of different absolute terms to be grouped together to explain their use in discourse. Additionally, I have argued that some usage patterns are based on the either inherently dynamic or static nature of the absolute terms that are supported by morphosyntactic features.

In conclusion, this paper provides additional discussion points for a debate that has been aimed at expanding Pederson et al. (1998)'s and Levinson (1996)'s original typological classification of spatial Frames of Reference. Usage-based restrictions of several parallel absolute systems within one language are grounds to further develop the the typology beyond incorporating gesture (Haviland, 1993, 1998), deixis (Bickel, 2000; Burenhult, 2008; Danziger, 2003, 2010), and orientation (Terrill and Burenhult, 2008).

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