

# FoR in Australian languages: an Overview of Absolute systems

*Dorothea Hoffmann*  
University of Chicago  
dorohoffmann@uchicago.edu

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Table 1: Compass/Sun-based systems (horizontal): Pama-Nyungan languages

Language	References	Notes
Guugu Yimithirr (PN <sup>1</sup> )	(Haviland, 1993) (Haviland, 1998, 29) (Levinson, 2003)	“GY terms assume quadrants rather than idealized points on the horizon. Thus, if something is <i>guwa</i> ‘westward’, it lies in the western quadrant of the space in which one is centered, rather than, say, on a vector running “due” west. The morphology of the GY terms suggests that the four-direction system results from superimposing two separate oppositions, <i>gunnga-ljiba</i> -‘north/south’ and <i>naga-lguwa</i> -‘east/west’” (Haviland, 1993, 5)
Warlpiri (PN)	(Laughren, 1978) (Swartz, 2012)	<i>kurlarra</i> ‘south’, <i>yatijarra/yatujumparra</i> ‘north/northern side’ <i>yatujumpayi</i> ‘distant north’, <i>kakarrara</i> ‘east’, <i>karlarra</i> ‘west’ <i>karlumpayi</i> ‘distant west’
Kayardild (PN)	(Evans, 1995, 206-227)	<i>ri-ya</i> ‘east’, <i>jirr-kara/jirr-kara-ya</i> ‘north’, <i>bath-i/bad-a</i> ‘west’, <i>ra-a/rar-a/ra-ya/rar-i</i> ‘south’
Bardi (PN)	(Bowern, 2012, 567f.)	<i>alang</i> ‘south’, <i>baanarr</i> ‘east’ and <i>goolarr</i> ‘west’ fairly similar to English counterparts, but <i>ardi</i> ‘north(east)’ is skewed to the east, terms based on wind directions with consistently changing endings depending on the time of year (Bowern, pc)
Arerrnte (PN)	(Wilkins, 2006)	<i>ayerre</i> ‘north’, <i>ikngerre</i> ‘east’, <i>anteckerre</i> ‘south’, <i>aturle</i> ‘west’ (Wilkins, 2006, 54)
Djaru/Jaru (PN)	(Tsunoda, 1995)	<i>kayirra</i> <sup>2</sup> ‘north’ (Nash, 1992)
Kugu Nganhcara (PN)	(Smith and Johnson, 2000)	
Kuuk Thaayorre (PN)	(Gaby, 2006)	
Burarra/Djinang (PN)	(Glasgow and Glasgow, 2011)	based on wind-directions <i>lunggurra</i> ‘northern wind/north’, <i>walaggat</i> ‘south/southeast / south wind’, <i>burrbennga</i> ‘east/come.out.from’ (used in context as ‘east’)
Djinang (PN)	(Waters, 2011)	<i>jinurru</i> ‘east/east wind’, <i>bulumu</i> ‘east wind’, <i>rawirrang</i> ‘east direction/sunrise’, <i>bir jalachangn-giri</i> ‘facing north’ <i>bir jalachangili</i> ‘facing south’ <i>biri ngungili</i> ‘facing that way’
Walmajarri (PN)	(Richards and Hudson, 2011)	<i>kakarra</i> ‘east’, <i>karla</i> ‘west’, <i>kurila/kurirra</i> ‘south’, <i>kayili/kayirra</i> ‘north’
Wik Mungkan (PN)	(Kilham et al., 2011)	<i>kuuw</i> ‘west’, <i>kaaw</i> ‘east’, <i>kungk</i> ‘north’
Pintupi (PN)	(Lewis, 1976, 255)	<i>kayili</i> ‘north’, <i>yulparra</i> ‘south’, <i>kakarra</i> ‘east’, <i>wilurarra</i> ‘west’
Alyawarre (PN)	(Nash, 1992)	<i>ayerre</i> ‘north’, <i>akngerrakw</i> ‘east’, <i>ante Kerr</i> ‘south’, <i>alturl</i> ‘west’
Kaytetye (PN)	(Nash, 1992)	<i>ayerre</i> ‘north’, <i>akngerrak</i> ‘east’, <i>anteyerr</i> ‘south’, <i>altemarle</i> ‘west’
Antekerpenhe (PN)	(Nash, 1992)	<i>arrayn</i> ‘north’, <i>ayerre</i> ‘east’, <i>akngerrakw</i> ‘south’, <i>anteckerre</i> ‘west’

<sup>1</sup>‘PN’: Pama-Nyungan language; ‘nPN’: non-Pama-Nyungan language.

<sup>2</sup>Same as Gurindji.

<sup>3</sup>including Martuthunira, Panyjima and Yindjibarndi

<sup>4</sup>in (Nash, 1992) for Martuthunira.

<sup>5</sup>of the Mitchell River, general trend is northwest.

<sup>6</sup>up the Mitchell River, general trend is southeast’

<sup>7</sup>*pam-kawrr*

<sup>8</sup>but **not** ‘downriver’, this is *biya*.

<sup>9</sup>For both MalakMalak and Matngele, there are also terms to encode ‘east’ *miri payjika* and ‘west’ *miri tyalk*, however, they appear to be calques from English or Kriol or neighboring languages.

<sup>10</sup>Similar observations have been made for many other Australian languages including Warrwa (McGregor, 2006, 127) and Arerrnte (Wilkins, 1989). Wilkins (1989, 314)

Table 2: Compass/Sun-based systems (horizontal) continued: non-Pama-Nyungan languages

Language	References	Notes
Garrwa (nPN)	(Mushin, 2013, 130-136) (Furby and Furby, 1976)	<i>langki</i> ‘north’, <i>bayungu</i> ‘west’, and <i>karrri</i> ‘east’, <i>kula</i> ‘south’
Warrwa (nPN)	(McGregor, 2006)	<i>yaday/yawan</i> ‘north’, <i>yalmaban</i> ‘south’, <i>banu</i> ‘east’, <i>kularr/wardiya</i> ‘west’
Iwaidja (nPN)	(Pym and Larrimore, 2011; Edmonds-Wathen, 2012)	<i>abaliban manyij</i> ‘sunrise/east/sun comes out’, <i>wurrying manyij</i> ‘west/sun goes into water’, <i>walim/makumbu</i> ‘south’, <i>anganyburrurtikiny/awalawal</i> ‘north’ (Edmonds-Wathen, 2012, 141-142) (Edmonds-Wathen, 2011, 4)
Tiwi (nPN)	(Lee, 2013)	<i>jiliyarti</i> ‘Darwin, place (in west) where dead thought to have gone, south’; <i>kapi pukwiyi ampi-ni-p-apurti</i> ‘east, Lit: where the sun comes up’
Nunggubuyu (nPN)	(Heath, 1984, 332-334)	<i>wunumbi</i> ‘north’, <i>wagay</i> ‘south’, <i>ramali</i> ‘east’ <i>argali</i> ‘west’

Table 3: River-based systems (horizontal)

Language	References	Notes
Jaminjung (nPN)	(Schultze-Berndt, 2006; Hoffmann, 2011)	<i>manamba</i> ‘upstream’ and <i>buga</i> ‘downstream’ (Ng. <i>buyagu</i> )
Ngangityemerri (nPN)	(Reid, 2011, 371)	<i>ganggi</i> ‘upstream’, <i>wariŋi</i> ‘downstream’ — terms are normally used in vertical descriptions, but can be extended to encode river-flow in directions
Wagiman (nPN)	(Harvey, pc)	<i>gangga</i> ‘upriver’ and <i>dubay</i> ‘downriver’
Warray (nPN)	(Harvey, pc)	<i>gibay</i> ‘upriver; vs <i>gijing</i> ‘downriver’
Mangarrayi(?) (nPN)	(Nash, 1992)	<i>kayarra</i> ‘west/upriver’

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argues that what links these notions might be ‘concealment’ or occlusion.

Table 4: Compass- and River-based systems (horizontal)

Language	References	Notes
Pilbara lgs <sup>3</sup> (PN)	(Dench, 1995, 127f.)	<i>yawurru</i> ‘west/downriver’, <i>jinkanyu</i> ‘east/upriver’ <sup>4</sup>
Yir Yoront (PN)	(Alpher, 1991, 64-67)	<i>kuw</i> ‘west, downstream’ <sup>5</sup> , coastal region as opposed to inland, <i>kawrr</i> ‘east, upstream’ <sup>6</sup> , inland from coast <sup>7</sup> , (Nash, 1992)
Ngarinyman (PN)	(Jones, 1994)	
Gurindji (PN)	(McConvell, 1982; Meakins, 2011; Meakins et al., 2013)	<i>kaarrangkarr</i> ‘east and down’, <i>karlarra</i> ‘west’, <i>karlarra</i> ‘south’, <i>kayirra</i> ‘north’ / <i>kankapa</i> ‘upstream’, <i>kanimparra</i> ‘downstream’
Bilinarra (PN)	(Meakins and Nordlinger, 2014; Meakins, 2013, 196-202)	<i>gurlarra</i> ‘south’, <i>gayirra</i> ‘north’, <i>gaarnirra</i> ‘east’, <i>garlarra</i> ‘west’ / <i>ganimbarra</i> ‘downstream’, <i>gan.garra</i> ‘upstream’
Wardaman (nPN)	(Merlan, 1994, 150-153)	<i>jongon</i> ‘north’, <i>gorro</i> ‘south’, <i>yiyanggu</i> ‘east’, <i>namanya</i> ‘west’, <i>gangga</i> ‘upstream’, <i>beye</i> ‘downstream’
Gooniyandi (nPN)	(McGregor, 1990, 156-162)	<i>biddi</i> ‘north’, <i>ngiji</i> ‘south’, <i>ngila</i> ‘east’, <i>liya</i> ‘west’
Bunuba (nPN)	(Rumsey, 2000)	
Ngandi (nPN)	(Heath, 1978, 66)	<i>nguri</i> ‘north’, <i>bakay</i> ‘south’, <i>rawara</i> ‘east’, <i>ngani</i> ‘west’ / <i>wala-</i> ‘upriver’, <i>gadi</i> ‘downriver’
Dalabon (nPN)	(Ponsonnet, pc, 2013)	<i>roHrrormng</i> ‘RDP: east’, <i>karri</i> ‘west’
Mangarayi (nPN)	(Merlan, 1989, 117f.)	<i>gayara</i> ‘upriver/west’, <i>biya</i> ‘downriver’, <i>gayanya</i> ‘sunrise/east’ <sup>8</sup> , <i>ngariman</i> ‘south’, <i>bujba</i> ‘north’ — <i>dinjalin</i> ‘west/sunset, direction in which spirits are first sent with songs, associated with red ochre’; <i>mauvur</i> ‘east/sunrise, direction in which spirits are sent away for good’
Kriol (N/A)	(Hoffmann, 2011; Lee, 2014)	<i>sangidap/sangidapwei/sanraisaid/sanraiswei</i> ‘east’, <i>sangodan/sangodanwei</i> ‘west’, <i>noth</i> ‘north’, <i>sauth/sauthsaid/sauthwei/ haidap</i> ‘upstream’, <i>lodan</i> ‘downstream’

Table 5: Wind-based systems (horizontal)

Language	References	Notes
Kala Lagaw Ya (PN)	(Stirling, 2011; Bani, 2001, 182)	<i>pun</i> ‘pertaining to the direction the wind is blowing to at reference point (leeward, downwind)’; <i>pay</i> ‘pertaining to the direction the wind is blowing from at reference point (windward, upwind)’; <i>ngap(a)</i> ‘in between these directions, off to the side from the line made by the path of the wind at reference point’ — changing, depending on current wind conditions (historically), system becoming stagnant with younger generation
Adnayahamathanha (PN)	(Nash, 2013, 64)	<i>vurrgu</i> ‘north-(west)’, <i>varpa</i> ‘south-(east)’ + composite terms for ‘east’ (sunrise), ‘west’ (sunset), ‘west-northwest’, and ‘southwest’
Lardil (PN)	(Nash, 2013, 64)	leewards and windward sides of Mornington Island
Eora/Dharruk (PN)	(Nash, 2013, 65)	<i>buwan</i> ‘northwest’, <i>buruwi</i> ‘northeast’, <i>banyinari</i> ‘southwest’, ( <i>gunajima</i> ) ‘southeast’
Djinang (PN)	(Waters, 2011)	<i>warti miman</i> ‘noun. wind direction.’; <i>wartinganyi gurpigi</i> ‘phrase. point into the wind, head in the direction of the oncoming wind.’
Iwaidja (nPN)	(Pym and Larrimore, 2011) (Edmonds-Wathen, 2012, 142-143)	<i>jimurru</i> ‘south-easterly trade wind’, <i>barra</i> ‘northwest wind’ - loan words from the Malay language spoken by the Macassans (Evans, 1992)
Maung (nPN)	(Hewett et al., 2013)	<i>jimurru</i> ‘south/south-east trade winds’
MalakMalak (nPN)	(Hoffmann, 2013)	<i>nul</i> ‘northwesterly’ <i>dangid</i> ‘southeasterly’ <sup>9</sup> — abstracted, aka unchanging system, regardless of the time of year and current wind conditions
Matngele (nPN)		<i>kurruwa</i> ‘northwesterly’ and <i>dangarr</i> ‘southeasterly’

Table 6: Tide-based systems (horizontal)

Language	References	Notes
Bardi (PN)	(Bower, 2012, 30)	change every 6 hours: <i>joodarrarr</i> ‘with the tide’ and <i>arrinarr</i> ‘against the tide’, mainly used by older speakers

Table 7: Ocean-based systems (horizontal)

Language	References	Notes
Kala Lagaw Ya (PN)	(Stirling, 2011; Bani, 2001, 182)	<i>pun</i> ‘pertaining to the direction the wind is blowing to at reference point (leeward, downwind)’; <i>pay</i> ‘pertaining to the direction the wind is blowing from at reference point (windward, upwind)’; <i>ngap(a)</i> ‘in between these directions, off to the side from the line made by the path of the wind at reference point’ — changing, depending on current wind conditions (historically), system becoming stagnant with younger generation
Maung(nPN)	(Hewett et al., 2013)	<i>wungjalk</i> ‘The sea, ocean is to the North of Goulburn Island and thus <i>wungjalk</i> is to the north’
Iwaidja (nPN)	(Edmonds-Wathen, 2011) (Edmonds-Wathen, 2012, 142-143)	<i>nimarrk</i> ‘deep ocean’ and <i>manandi</i> ‘mainland’ <i>warrin</i> ‘inland, bush’

Table 8: No attested systems (horizontal)

Language	References	Notes
Murrinh-Patha (nPN)	(Gaby and Singer, 2014)	

Table 9: Vertical systems: Pama-Nyungan languages

Language	References	Notes
Guugu Yimithirr (PN)	(Haviland, 1993) (Haviland, 1998, 29) (Levinson, 2003)	<i>wanggaar</i> ‘up’, <i>bada</i> ‘down’
Warlpiri (PN)	(Laughren, 1978) (Swartz, 2012)	<i>kankarlarra</i> ‘up’, <i>kankarlu</i> ‘up, upward direction, high’, <i>kankarlarra-kari</i> ‘upwards orientation or motion’; <i>kanunju</i> ‘down’, <i>kaninjarra-kari</i> ‘downwards direction’
Kayardild (PN)	(Evans, 1995, 206-227)	<i>walmu</i> ‘up/on top of/high’, <i>walmathi</i> ‘high’, <i>kirnkirn-da</i> ‘overhead’, <i>nal-iya</i> ‘on top/top’, <i>yark-a</i> ‘bottom/underneath’, <i>dalkida</i> ‘low off the ground’
Bardi (PN)	(Bowern, 2012, 567f.)	no elevation terminology, but the overall difference in elevation across the area is about 30ft (Bowern, pc)
Arrernte (PN)	(Wilkins, 2006)	<i>akertne</i> ‘top/above/over/up/upwards’ <i>kwene</i> ‘bottom/below/under/down/downwards’ (Wilkins, 2006, 35)
Djinang (PN)	(Waters, 2011)	<i>ngurr jirrjirr</i> ‘downhill, point downwards’, <i>rnami</i> ‘on top, high, loudly (of speech), sky, Heaven’
Walmajarri (PN)	(Richards and Hudson, 2011)	<i>kaniny</i> ‘down’, <i>kankarra</i> ‘up’
Wik Mungkan (PN)	(Kilham et al., 2011)	<i>ninthan-ngaanh</i> ‘high places e.g. high ridge, high bank’
Gurindji (PN)	(McConvell, 1982; Meakins, 2011; Meakins et al., 2013)	<i>kankarra</i> ‘towards higher country, (going) upstream, ‘high up’ (in Kriol)’, <i>kanjurr</i> ‘down, below. This term is also used to refer to Kalkaringi when you are traveling from Daguragu’
Bilinarra (PN)	(Meakins and Nordlinger, 2014; Meakins, 2013, 196-202)	<i>gan.gula</i> ‘up/above’, <i>ganjurr</i> ‘down’, <i>ganjgal</i> ‘down/bottom’
Kala Lagaw Ya (PN)	(Stirling, 2011; Bani, 2001, 182)	<i>ka</i> ‘landwards/land up’; <i>gu(y)</i> ‘seawards/sea down’

Table 10: Vertical systems continued: non-Pama-Nyungan languages

Language	References	Notes
Nunggubuyu (nPN)	(Heath, 1984, 332-334)	<i>aruar</i> ‘up’ <i>lhiribala</i> ‘down/inside’
Iwaidja (nPN)	(Pym and Larrimore, 2011; Edmonds-Wathen, 2012)	<i>yurrgud</i> ‘up high, the top’ (Used as a positional - follows noun); <i>warnidi</i> ‘be on top’
Tiwi (nPN)	(Lee, 2013)	<i>kuluwani</i> ‘low/down’; <i>yarti</i> ‘ground, earth, place, low, down’; <i>kuriguwu</i> ‘above, up, high, on top’
Jaminjung (nPN)	(Schultze-Berndt, 2006; Hoffmann, 2011)	<i>thangga</i> (Ng. <i>janggagu</i> ) ‘up’ and <i>thamirri</i> (Ng. <i>jamurrugu</i> ) ‘down’
Ngangityemerri (nPN)	(Reid, 2011, 371)	<i>ganggi</i> ‘high/up/on top’, <i>warrifi</i> ‘low/beneath’
Wagiman (nPN)	(Harvey, pc)	<i>wolok</i> ‘high, top’ vs <i>munya</i> ‘below’
Warray (nPN)	(Harvey, pc)	<i>wayiskan</i> ‘top, open, exposed, high’ vs <i>ngunung</i> ‘low country’
Gooniyandi (nPN)	(McGregor, 1990, 156-162)	<i>laandi</i> ‘above/up’, <i>naadiddi</i> ‘below/down’
Ngandi (nPN)	(Heath, 1978, 66)	<i>garkala</i> ‘above’, <i>garakadi</i> ‘below’
Garrwa (nPN)	(Mushin, 2013, 130-136) (Furby and Furby, 1976)	<i>kingkarri</i> ‘up’ and <i>wayka</i> ‘down’: used also for indicating direction towards and away from lower land masses (e.g., <i>wayka</i> indicates ‘towards a riverbank’ and <i>kingkarri</i> indicates ‘away from the river’). These forms are mostly used to express direction with geographic terrain sloping up (e.g., away from watercourses and up hills) or sloping down (towards or at a watercourse and down hills) — <i>yundu</i> ‘top’, <i>kala</i> ‘under’ may also be used to refer to general landscape features such as a road
Warrwa (nPN)	(McGregor, 2006)	<i>jimbini</i> ‘down/inside’, <i>kalbu</i> ‘up/above’
Burarra (nPN)	(Glasgow and Glasgow, 2011)	<i>jorrryjurra</i> ‘higher ground; shore (in contrast to in/on the water); inland from the coast (used to refer to secret ceremony site, which is always further inland from the camp)’
Wardaman (nPN)	(Merlan, 1994, 150-153)	<i>galul</i> ‘up/above’, <i>barrwa</i> ‘down/below’
Dalabon (nPN)	(Ponsonnet, pc, 2013)	there are terms for up and down, and like in English, up and down are also used for upstream and downstream — comment: “inside” and “under water” are the same word while “outside” and “out of water” are the same - I see it as modeling inside and outside on the basis of the river bed <sup>10</sup> (Ponsonnet, pc)
Mangarayi (nPN)	(Merlan, 1989, 117f.)	<i>gawar</i> ‘high up/on top, upriver’
MalakMalak (nPN)	(Hoffmann, 2013)	<i>kantjuk</i> ‘up/on top’, <i>menyiken</i> ‘upstream’; <i>matya(nen)</i> ‘bottom/downstream’
Matngele (nPN)		<i>merrinyi</i> ‘downstream/bottom’ and <i>menginyi</i> ‘upstream/up/on top’
Maung (nPN)	(Hewett et al., 2013)	<i>yurrg</i> ‘high up, on top of’ / <i>wumarrk</i> ‘below’
Kriol (N/A)	(Hoffmann, 2011; Lee, 2014)	<i>ap/ontop/antap</i> ‘up, on top’ <i>dan</i> ‘down’



Table 11: Spatial Reference Frame used

<b>Language</b>	<b>Intrinsic FoR</b>	<b>Relative FoR</b>	<b>Absolute FoR</b>	<b>Reference</b>
Iwaidja	x	(x)	x	(Edmonds-Wathen, 2011, 4)
MalakMalak	x	(x)	x	
Kriol	x	x	x	
Jaminjung	x	(x)	(x)	(Majid et al., 2004, 112) (Schultze-Berndt, 2006)
Warrwa	x		x	(Majid et al., 2004, 112)
Arrente	x		x	(Majid et al., 2004, 112)
Guugu Yimithirr	x		x	(Majid et al., 2004, 108)

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