Talking about directions in Australian languages

Bill Palmer, Joe Blythe, Alice Gaby, Clair Hill, Dorothea Hoffmann, Maïa Ponsonnet

University of Newcastle, Macquarie, Monash, University of New South Wales/Western Sydney University, The Language Conservancy, University of Western Australia
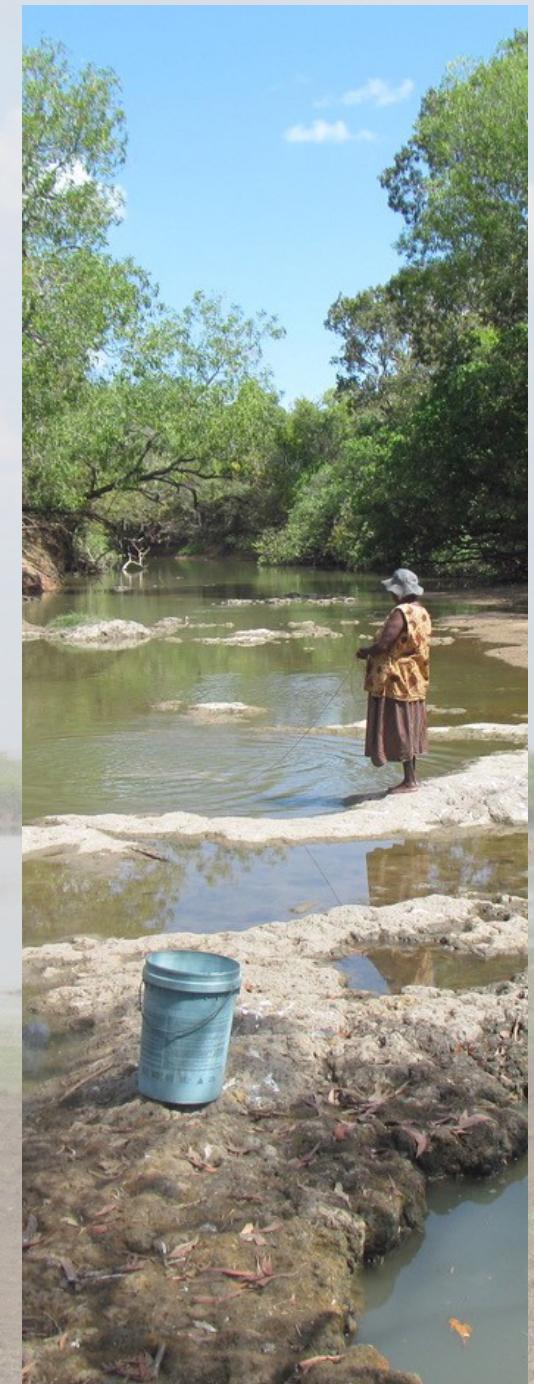
Photos: MalakMalak country; by Dorothea Hoffmann

1. Projective space: frames of spatial reference

Intrinsic

Direct:

Object-centred:

The box is **in front of** me.

The box is **in front of** the car.
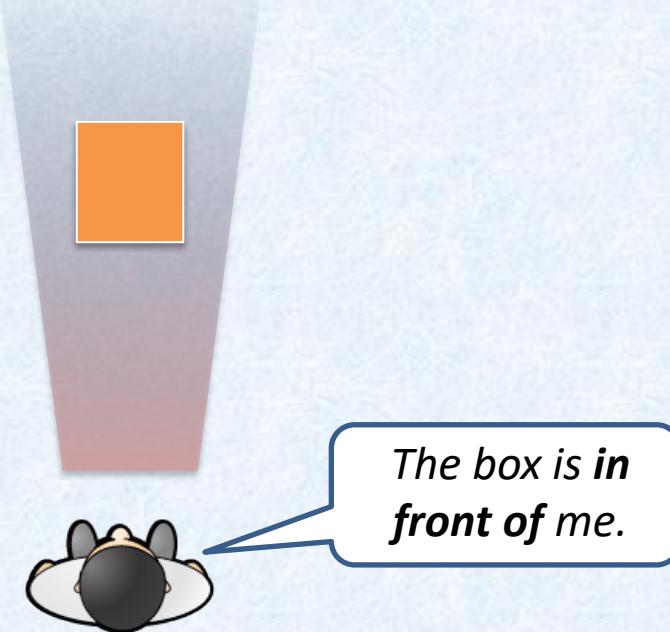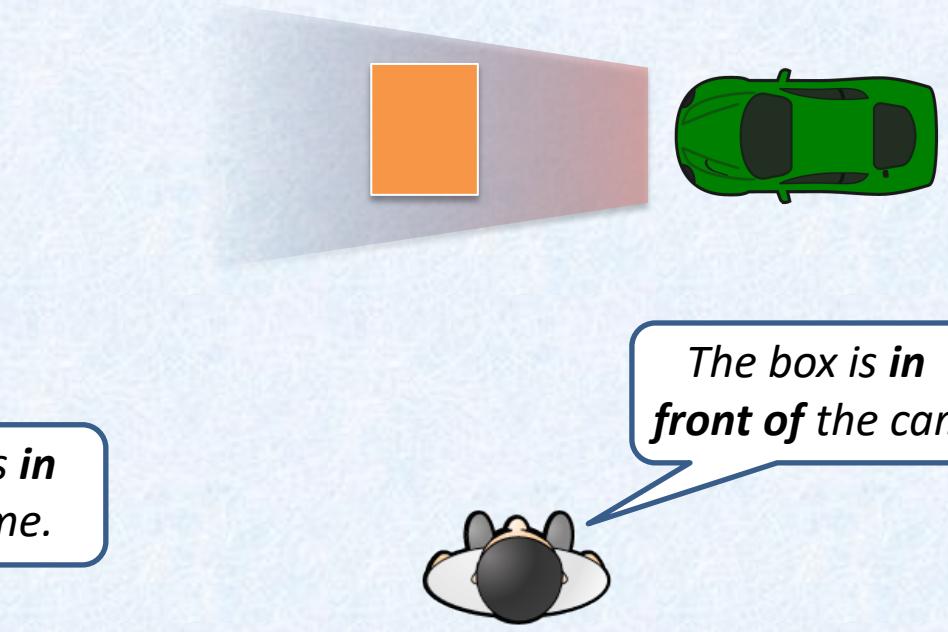
1. Projective space: frames of spatial reference

Extrinsic egocentric

Relative:

Nearside-farside:

*The box is **in front of** the tree.*
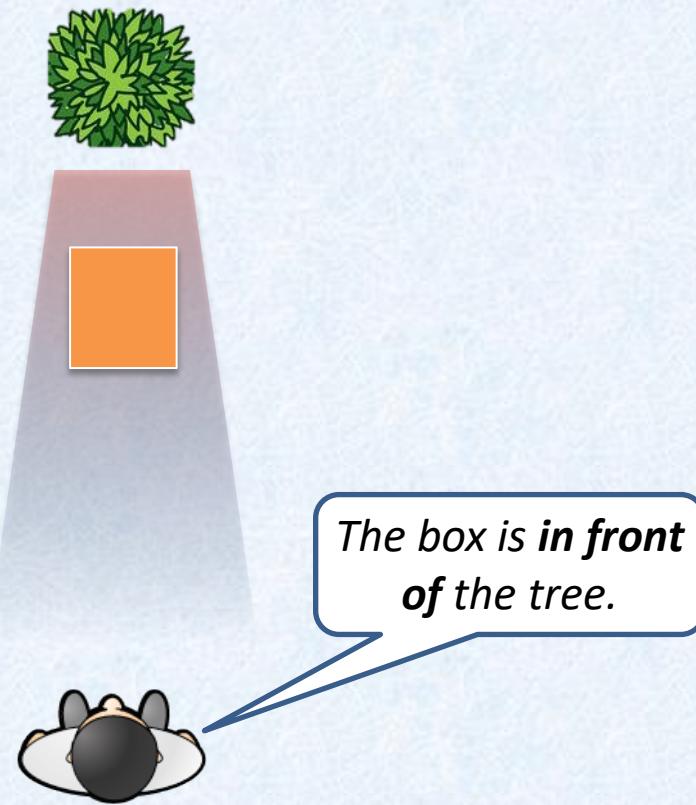
*The box is **on this side of** the tree.*
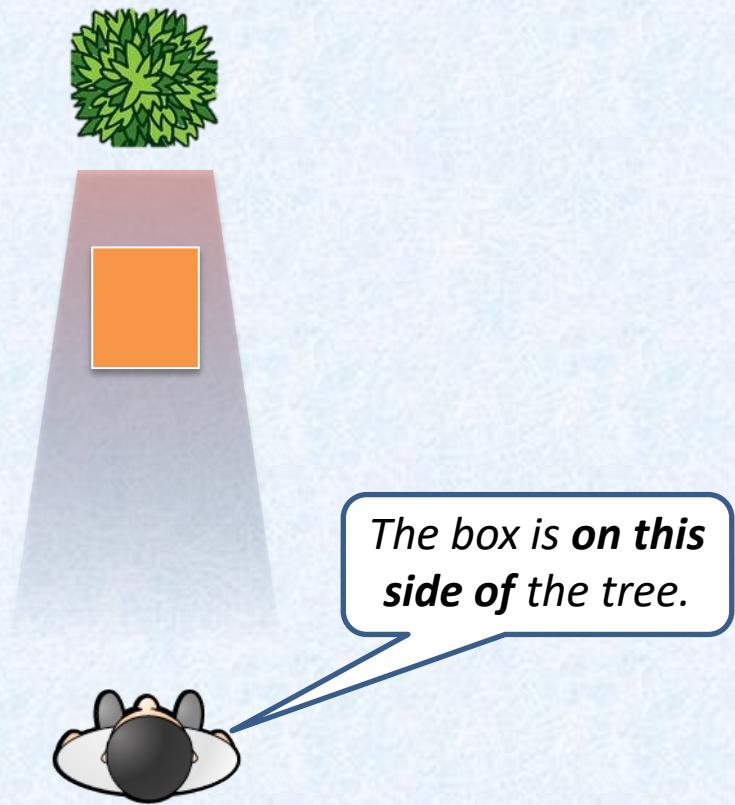
1. Projective space: frames of spatial reference

Geocentric (extrinsic allocentric)

landmark-based; geomorphic; absolute
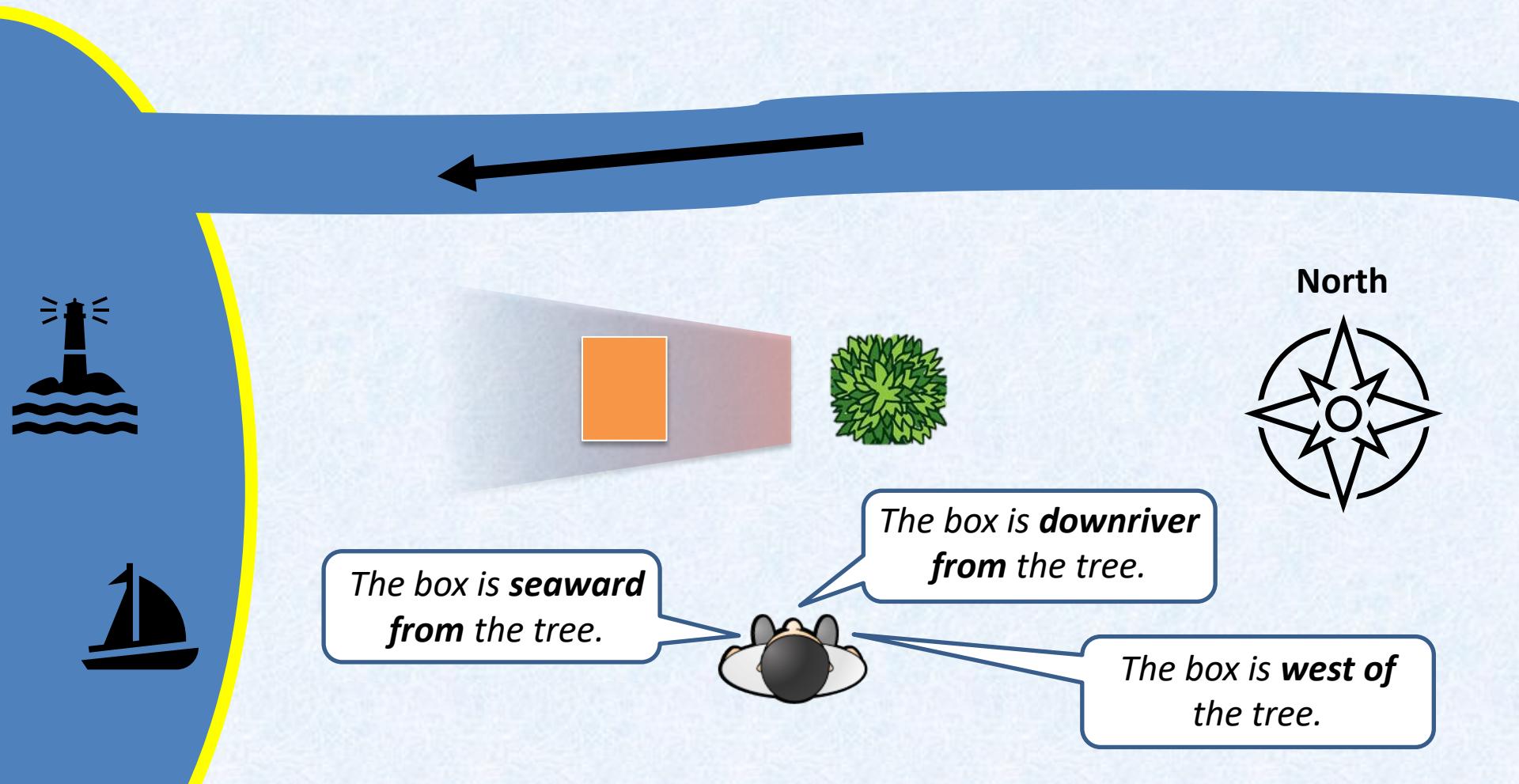
2. Well-known "facts" about Australian languages

- They don't use <u>relative</u> frame of reference (e.g. 'in front of')

- They prefer abstract <u>absolute</u> frame of reference (e.g. 'west of')

- They don't make much use of grammaticised geomorphic or landmark systems

- The norm is abstract cardinals

  [In Australian languages] there is typically a closed class of spatial nominals, which includes four cardinal direction terms… (Levinson 2003:75)

  [M]ost of the Australian languages make essential use of such [cardinal] systems with the exception of those in the Daly River area, where 'upriver', 'downriver' notions may take their place. (Levinson 2003:336)

- But… there is considerable under-reported diversity

3. Intrinsic frame

Sagittal (front-back) axis:

(1) a. **Elimiri** *wabag-ali* *e-nu* *pawurrk.* [MALAKMALAK]
in.front put-PART   1SG.S-sit.PAST ground
'I put it **in front** [of me] on the ground.' (Hoffmann fieldnotes)

   b. *Tjung* ***angundu**-na* *mu-yu.*
tree   behind-LOC   3SG.N.S-stand.PAST
'The tree stood **behind** [the man]' (Hoffmann fieldnotes)

Transverse (left-right) axis (rare):

(2)   *Pi* *e-nue* ***yanbarr**-en.* [MALAKMALAK]
go   1SG.S-sit.PRES   left.hand-TOWARDS
'I go left.' (Hoffmann fieldnotes)

- Many languages have intrinsic sagittal but not transverse

(3)   ***Fangu*** *yaga   girribem   **wembem=nide**.*   [NGAN'GITYEMERRI]
FRONT   DEM   3SGS.PRES.stand   house=LOC
'He is standing **in front of the house**.' (Hoddinott & Kofod 1988:187)

(4)   *Barp-pa   g-a-ni   **nganung   jumbany**.*   [WAGIMAN]
hunker-NPFV   PRS-3-be   1SG.OBL   behind
'He is hunkering **behind me**.' (Harvey fieldnotes)

4. Extrinsic egocentric – relative

Sagittal axis:

(5) a. *Wuendueny* **elimiri** *wu-yu* *chair=we.* [MALAKMALAK]
 3SG.N in.front 3SG.N.S-stand.PAST chair=FOC
 'The chair is in front [of the ball] .' (Hoffmann fieldnotes)

 b. *Nga=we* **angundu** *yi-de* *yinya*
 1SG=FOC behind 3SG.M-go/be.PRES man

 'For me, the man is behind [the cow].' [on far side of...] (Hoffmann fieldnotes)

Transverse axis (rare):

(6) a. *Futbol =we* *tjin* **tjalmiyen**-*many=na* *wu-yu.* [MALAKMALAK]
 football=FOC bottom right.hand-ABL=FOC 3SG.N.S-stand.PAST
 'The football is at the bottom **on the right hand side** [of the chair].' (Hoff.)

 b. **Yanbarr**-*en* *mu-yu* *mi* *nende.*
 left.hand-TOWARDS 3SG.S.N-stand.PAST veg.food thing/person
 'The food is **towards the left**.' (Hoffmann fieldnotes)

- Some languages lack relative

- Most with it have sagittal but no transverse

(7) a. *Magu   yerdengh-a=giwu   g-a-ba-yu=guju* **wir-laying jumbany.** [WAGIMAN]
FARDIST   be.hidden-NPFV=DU PRS-3-NSG-be=DU tree-LOC   behind
'Them two are out of sight over there **behind the tree**.' (Harvey fieldnotes)

   b. *Magu   wir-laying   g-a-yu   dup-pa,   **yonggorn-a**=wu.*
FARDIST   tree-LOC   PRS-3-be   sit-NPFV   be.in.front-NPFV=FOC
'She is sitting over there by the tree, **at the front** [of the tree].' (Harvey fieldnotes)

- No projective left-right

5. Extrinsic egocentric – nearside-farside

- A.k.a. SAP-landmark (Polian & Bohnemeyer 2011)

(8) a. *Mudiga madi-**kin=ninggi** ngariny-fi-tyat.*   [NGAN'GITYEMERRI]
   car   chest-PROX=INSTR   1SG.SUBJ.PFV.poke[3SG.OBJ]-manipulate-place
   'I put it down **on this side** of the car.' (Reid 1990:369)

   b. *wamanggal nyin   ngarrnguweri-nyine wiri-pe,*
   wallaby   ANAPH   middle-FOC   3SG.S.IRR-sit-FUT
   That wallaby will be in the middle,

   *nyinyi   **werrfe=ninggi**...*
   2SG   NRDIST=INSTR
   'you **just on the far side** [of him]...' (Reid 1990:368)

   c. *Fepi minbadi=nide madi-**wun=ninggi** fepi wagarri   widdibemgu.*
   hill big=LOC   chest-FRDIST=INSTR hill two   3PL.SUBJ.PRES.stand.DU.SUBJ
   '**On the other side** of Peppimenarti hill, there are two (other) hills.'
   (Reid 1990:369)

6. Extrinsic geocentric frames

Abstract cardinals

(9) a. *Itne   apwerte-nge   **alturle**(-le) ane-me.*   [CE ARRERNTE]
   3PL.SUBJ   rock/hill-ABL   west(-LOC)   sit/stay-NPAST.PROG
   'They live **west** of the hill.' (Wilkins 2006:56)

   b. ***Antekerre**-werne-atheke-kemparre   petye.*
   south-ALL-WARDS-FIRST   come[IMP]
   'First come **southwards**.' (Wilkins 2006:59-60)

   c. ***Ayerrere**-werne-theke alh-aye!   Kele anteme **ikngerre**-theke-irre.*
   north-ALL-WARDS   go[IMP]-EMPH OK   now   east-WARDS-INCH[IMP]
   'Go **northwards**. OK, now **turn east**.' (Wilkins 2006:59)

Path of the sun

Non-transparent

(10) a. *Ke-ba-na*   *kana*   ***meyakka****.*   [NA-KARA]
         3MIN.SUBJ-go-PAST   NR.DIST   sunrise.way
         'He went off **eastwards**.' (Eather et al 2005:69)

     b. *Ngay-kardabiya*   ***kanuba***   *mayawa.*
         1MIN.SUBJ.IRR.go.down   sunset.way   coast
         'I'm going **westwards** down to the beach.' (Eather et al 2005:30)

Transparent

(11) a. ***Miri***   ***tjalk-ma***   *wuru-ma*   *wu-ta*   [MALAKMALAK]
         sun   go.down-CONT   stand-CONT   3PL.SUBJ-go/be.PAST
         'They were standing sun setting.' (*'and the sun was setting') (Hoffmann 2019:12)

     b. *Yinya*   *nende*   *dangid-en*   *pud*   *wu-runguny,*
         man   thing/person   SEwind-DIR   chest   3PL.SUBJ-go/be.IPFV
         'The men are facing towards the southeast wind direction,

         miri-nen   ***pai-ka-ma****.*
         sun-TOWARDS   change.location-come-CONT
         towards sun rising.' (Hoffmann 2019:12)

Path of the sun/weather

Cross axes

- Many path of sun axes have no cross axis (e.g. Na-Kara)
- Some do:

(12) *miri kantjuk*   'north, zenith, midday' ('sun be.on.top')   [MalakMalak]
(Hoffmann fieldnotes)

(13) *jirrka(ra)*   'north' ('middle(?)')   [Kayardild]
(Evans 1992:57,306-307)

(14) *dhadhin*   'south' ('shade, shadow')   [Yuwaalaraay /Gamilaraay]
(Ash et al 2003)

(15) *pirn-ang nyawi*   'east, sunrise' ('rise-PRES.PART sun')   [WembaWemba]
partikal-ang nyawi   'west, sunset' ('?-PRES.PART sun')   (Hercus 1992)
pari-wil   'north' ('heat-having')
puyikal-ang tern   'south' ('drip.down-PRES.PART frost')

Watercourse

River flow (geomorphic)

(16) a. **Malang** *yirri-w-ijga,*   **buya**   *yirri-w-ijga.*   [JAMINJUNG]
across   1PL.EXCL-POT-go   downstream   1PL.EXCL-POT-go
'We will **cross** (the river), [then] we will go **downstream**.'

     b. **Manamba** *ba-jga, laginy ba-jga,* **jamurrugu** *na* **jid**.
upstream   IMP.go   turnoff   IMP.go   down   now   go.down
'Go **upstream**, take the turnoff, then **down downwards** (towards the river).'
(Schultze-Berndt 2006:106)

River flow (abstracted)

(17) a. *Gana* **biya**   *ŋi-rla-rni.*   [MANGARRAYI]
but   downstream   1EXCL.NSG.SUBJ-PL.SUBJ-sit.PAST.CONT
'But we were camping **downriver**...' [i.e. **to the east**] (Merlan 1989:16)

     b. *Nanangganawa*   *ngi-rla-yi-nyi-wa*   **gawarr**.
there   1EXCL.NSG.SUBJ-PL.SUBJ-go-PAST.COMPL-NARR   upstream
'Then we went **upstream**.' [i.e. **to the west**] (Jilkmingan Community & Merlan 1996:47)

River bank

(18) a. *Raak   woocorrm   nhumpa-ni-rr   ii-**kan**.*   [KUUK THAAYORRE]
place   sacred[ACC]   disturbed-v^-P.PFV   there-Nbank
'[You] stirred up that story place **on the north riverbank**.' (Gaby 2017:347)

b. *canoe yokunman-ak ngancn   cross-m   rirk-m   ii-th-**ipan**.*
canoe likewise-DAT   1PL.EXCL[NOM]   cross-VBLZ do-P.IPFV   there-ALL-Sbank
'We would cross **to the south bank** in the same kind of canoe.' (Gaby 2017:348)

Elevation

High country vs lowlands

(19) a. ***Wolok*** *ba-ya-nginy galh-ma, garradin.*   [WAGIMAN]
HIGH   NSG-go-?   climb-NPFV hill
'They climbed **up to the top**, of the hill.' (Harvey fieldnotes)

   b. *Galh-ma   ng-a-ya-nggi,*
   climb-NPFV   PST-1SG-go-?

        let   ng-a-nanda-yi, ***munyalan,*** *bawort   ng-a-ge-ng, lahan.*
        look PST-1SG-see-?   LOW   look.over PST-1SG-?-? country
   'I climbed up and looked **down** over the country.' (Harvey fieldnotes)

Coast

Coast vs inland

(20)a. *A-wunubaryi-nyu-wala*   *wini-ya-nggi*   **lhiribala**-*wuy*.   [WUBUY]
OBL.N-W.-?-ABL   3MDU.NOM-go-PAST   downward-ALL
'From Wunubaryi they went **down toward the coast**.' (Heath 1980:145)

  b. *Ngi-gaa-'yung*   *an-uwa-gaa-'la*   *ardaba*   *ngi-ya-nggi*   **arwi**-*yaj*.
3FSG.NOM-?-?   TOP.N-DIST-?-ABL   then   3FSG.NOM-go-PAST   upward-ALL
'As for her, she came **up (toward the inland hills)**.' (Heath 1980:151)

Landward-seaward

(21)a. *Kiiki*   *thathi*   *nga'a-lu*   **kaaway**   *puntha-na*.   [KUUKU YA'U]
look.IMP   island   that-DM   seaward   emerge-NFUT
'Look those islands emerge **off to the east**.' [i.e. **out to sea**] (Hill f.c.)

  b. *Electric post*   *paa'ii-na*   *yi'achi*   *engine*   *ngungku*   **kaaway**   *kachin*.
electric post   stand-NF   in.centre   engine   MIDDIST   seaward   long.way
'The electric post stands in the centre of power plant, over there
long way **to the south**.' (Hill 2002:82)

Parallel to coastline

(22) a. *Koo, ngamp   melnkelnkarr ii-th-**iparr**   therk.*   [KUUK THAAYORRE]
    oh   1INCL.PL[NOM] tomorrow   there-ALL-south return.NPAST
    'Okay then, we'll return [**to Pormpuraaw**] tomorrow.' [**down the coast from Weipa**] (Gaby 2017:100)

    b. *Peln   Friday yup therk   ii-l-**ungkarr**.*
    3PL[NOM] Friday   soon return.NPAST   there-ABL-north
    'They'll come back from **the North** [**Weipa**] on Friday.' (Gaby 2017:219)

Wind

Upwind-downwind

(23)a. *Kurlarta-tjarra   parta-ra   ngarra-pai   palkarra-ngka.*   [PITJANTJATJARRA]
　　　spear-WITH　　　wait-ANT　stand-HAB　hide(N)-LOC
　　　'The ones with spears would wait behind cover.

　　　　Ka   arnangu   kutjupa   parra-pitja-pai
　　　　and   people   other   around-come-HAB
　　　　And someone else would go around

　　　　*kanyarla   ngurlu-ntjikitja **warlparra**-nguru.*
　　　　euro   scare-PURP   upwind-ABL
　　　　and scare the euros from **upwind**.' (Goddard & Defina 2020:226)

　b. **Minuru**   *nyina-rra, puyu-ngku kuru-ngka tjarrpa-rra kaltirrpu-ngkupai.*
　　　downwind sit-ANT   smoke-ERG eye-LOC   enter-ANT   make.sting-HAB
　　　'If you sit **downwind** [of a fire] the smoke gets in your eyes
　　　　　　　　　　and makes them smart.' (Goddard & Defina 2020:46)

Seasonal wind: windward-leeward

(24) a. *Peter* *kay-**pun*** *Darwin-nu.* [KALA LAGAW YA]
    P. NVIS-LEEWARD D.-LOC
    'Peter is in Darwin.' [to **leeward** - said on Mabuiag] (Stirling 2011:189)

   b. *Waru* *kay-**pay**-pa* *guythuya-n.*
    turtle[NOM] NVIS-WINDWARD-DIR escape-NFUT
    'The turtle has escaped there **upwind**.' (Stirling 2011:190)

Seasonal wind: dry season–wet season wind

(25) a. *Keen* *p-e-nung-ga* ***dangid-en**.* [MALAKMALAK]
    PROX move-1SG.SUBJ-go.FUT-THITH SEwind-DIR
    'I, myself will go there **towards *dangid*** [i.e. the southeast].' (Palmer et al 2021)

   b. ***Nuly-en*** *pud-ang* *tjed-ali* *yu-yu.*
    NWwind-DIR chest-give stand-PART 3SG.M.SUBJ-stand.PAST
    'He is facing the ***nuly* direction** [i.e. the northwest].' (Palmer et al 2021)

Tidal flow

- *joordarrarr*   'with the tide'
- *arrinar*   'against the tide'

(26) ***Joodarrarr***   *a-ng-arr-gal~al-ij*   *Bawoordoo-ngan.*   [BARDI]
with.the.tide   1.SUBJ-PAST-AUG-move~PL-PRF   B.-ALL
'We went **with the tide** to Bawoordoo.' (Bowern 2016, pers. com.)

Aside – no overt ground

- Aside - overt ground object is impossible on many Australian axes

- Typically:
  - implicit ground is speaker (27a), or
  - if two objects are located, each is the other's ground (27b)

(27) a. *Brij=biyang*   *ga-yu=ni*   **manamba***.*   [JAMINJUNG]
bridge=now   3SG.SUBJ-be.PRES=DS   upstream
'The bridge is **upstream** (from here).' (Hoffmann 2019:9)

     b. **Buya**   *ga-yu*   *thanyung* **manamba** *ga-yu.*
downstream 3SG.SUBJ-be.PRES   other   upstream   3SG.SUBJ-be.PRES
'One (toy man) is **downstream**, the other is **upstream**.' (Hoffmann 2019:9)

7. Topographic correspondence – multiple systems

- Most languages have multiple geocentric systems (Hoffmann et al f.c.; Palmer et al 2021)

- Correlating with multiple salient environmental features (Palmer 2015; Palmer et al 2017)

barra 'northwest wind, wet season wind'

nimarrk 'deep ocean, middle'

Croker Island

warren 'inland, bush'

Minjilang

Iwaidja

jimurru 'south-easterly trade wind,'

Cobourg ...la

anganyburrurtikiny 'north'

manandi 'mainland'

wurying manyij 'west, sun goes into the water'

jirtbirdan 'east, dawn'
abalkban manyij 'sunrise, east'

walim, makumbu 'south'
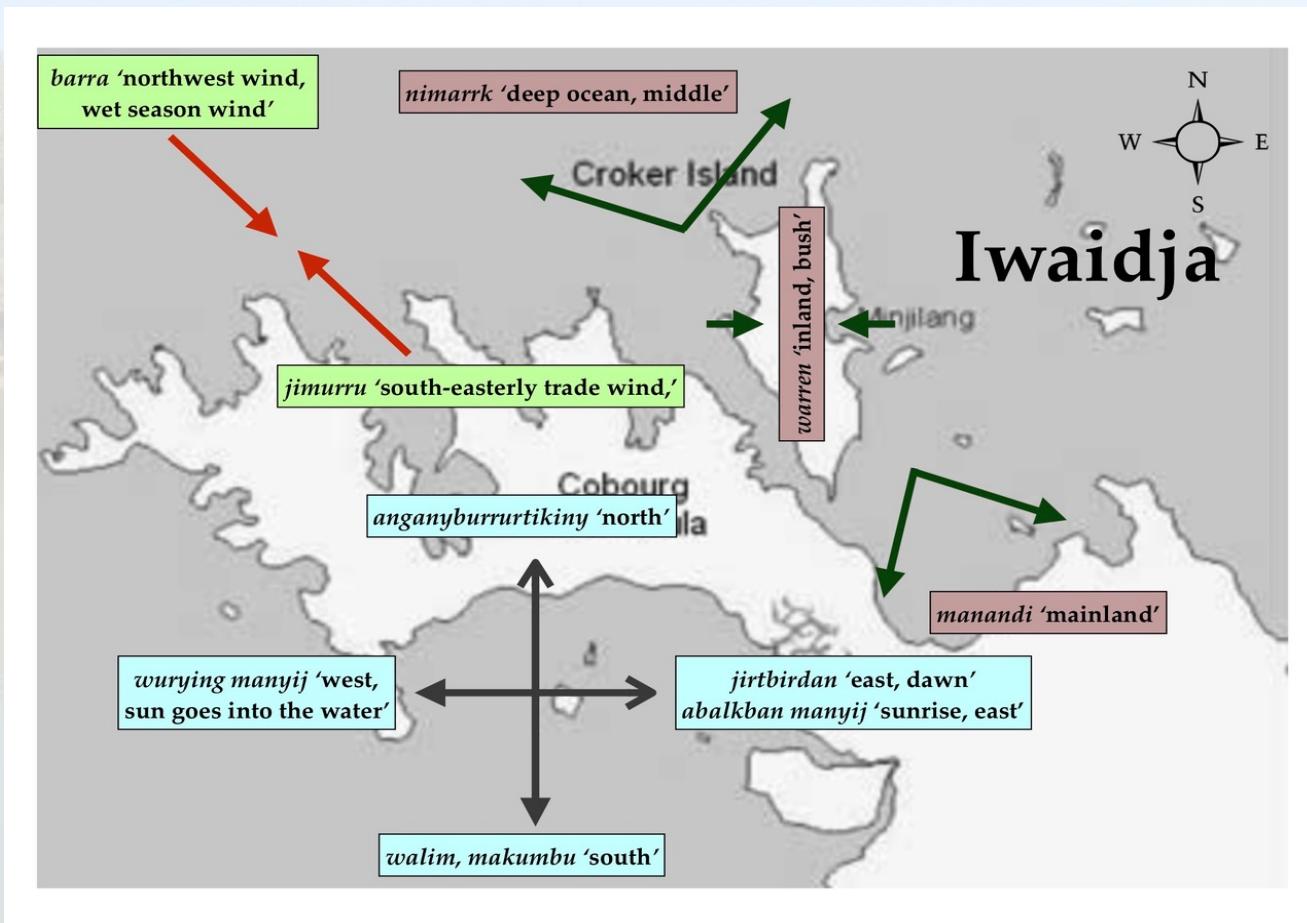
(Edmonds-Wathen 2012; Hoffmann et al f.c.)

References

Ash, A., J. Giacon & A. Lissarrague. 2003. *Gamilaraay, Yuwaalaraay and Yuwaalayaay dictionary*. Nambucca Heads: IAD Press.

Bowern, Claire. 2016. Giving directions in Bardi. https://anggarrgoon.wordpress.com/2016/04/14/giving-directions-in-bardi/

Eather, B., J. Kalamirnda & Yurrbukka Community. 2005. *A first dictionary of Na-Kara*. Winnellie: Maningrida Arts & Culture.

Edmonds-Wathen, C. 2012. *Frame of reference in Iwaidja: Towards a culturally responsive early years mathematics program*. PhD thesis: RMIT University.

Evans, N. 1992. *Kayardild dictionary and thesaurus.* Melbourne: Department of Linguistics and Applied Linguistics, University of Melbourne.

Gaby, A. & Kuuk Thaayorre language experts. 2017. *A Grammar of Kuuk Thaayorre* Berlin: de Gruyter.

Goddard, C. & R. Defina. 2020. *Pitjantjatjara/Yankunytjatjara to English dictionary:* (2nd edition). Alice Springs: IAD Press.

Heath, J. 1980. *Nunggubuyu myths and ethnographic texts.* Canberra: Australian Institute of Aboriginal Studies.

Hercus, L.A. 1992. *WembaWemba dictionary*. Canberra: Australian Institute of Aboriginal and Torres Strait Islander Studies.

Hill, C. 2002. *Coding of spatial relations in Umpila/Kuuku Ya'u.* MA thesis: University of Sydney.

Hill, C. forthcoming. The irrelevance of scale and fixedness in landscape terms in two Australian Aboriginal languages. *Linguistics Vanguard.*

Hoddinott, W.G. & F.M. Kofod. 1988. *The Ngankikurungkurr language (Daly River area, Northern Territory).* Canberra: Pacific Linguistics.

Hoffmann, D. 2019. Restrictions on the usage of spatial frames of reference in location and orientation descriptions: Evidence from three Australian languages. *Australian Journal of Linguistics* 39(1):1-31

Hoffmann, D., B. Palmer & A. Gaby. forthcoming. Geocentric directional systems in Australian. *Linguistics Vanguard.*

Jilkmingan Community & F. Merlan. 1996. *Big river country: stories from Elsey Station.* Alice Springs: IAD Press.

Levinson, S.C. 2003. *Space in language and cognition: Explorations in cognitive diversity.* Cambridge: CUP.

Merlan, F. 1989. *Mangarayi.* London: Routledge.

Palmer, B. 2015. Topography in language. Absolute Frame of Reference and the Topographic Correspondence Hypothesis. In R. de Busser & R. LaPolla (eds.) *Language structure and environment.* London: Benjamins. 179–226

Palmer, B., A. Gaby, J. Lum & J. Schlossberg. 2017. How does the environment shape spatial language? Evidence for a Sociotopographic Model. *Linguistic Typology* 21(3):457-491

Palmer, B., D. Hoffmann, J. Blythe, A. Gaby, B. Pascoe & M. Ponsonnet. 2021. Frames of spatial reference in five Australian languages. *Spatial Cognition and Computation.*

Polian, G. & J. Bohnemeyer. 2011. Uniformity and variation in Tseltal reference frame use. *Language Sciences* 33(6):868–891.

Reid, N.J. 1990. *Ngan'gityemerri. A language of the Daly River region Northern Territory of Australia.* PhD thesis: ANU

Schultze-Berndt, E. 2006. Sketch of a Jaminjung grammar of space. In Levinson and Wilkins (eds.) 63–113.

Stirling, L. 2011. Space, time and environment in Kala Lagaw Ya. In B. Baker, I. Mushin, M. Harvey & R. Gardner (eds.). *Indigenous language and social identity: Papers in honour of Michael Walsh.* Canberra: Pacific Linguistics. 179-203

Wilkins, D.P. 2006. Towards an Eastern Arrernte grammar of space. In Levinson and Wilkins (eds.) 24-62