

A Cross-Linguistic Quantitative Survey of Associated Motion and Directionals

Daniel Ross

University of Illinois at Urbana-Champaign

djross3@gmail.com

International Workshop on Associated Motion

ALT 2017: 12th Conference of the Association for Linguistic Typology

December 15th, 2017, Canberra, Australia

Data Handout

- Presentation based on online data handout:

<http://hdl.handle.net/2142/96282>

- Please refer to the handout for details about the systems and morphemes of individual languages (and sources)
 - *Some language-specific details will be updated in final published version of this study; slides are consistent with handout; see handout*

Associated Motion (AM)

- Relatively under-studied phenomenon
 - *especially cross-linguistically (around the world)!*
- Terminological variation in descriptions
- Definition (Guillaume & Koch workshop description):
*Verbal grammatical category, separate from tense, aspect, mood and **direction** whose function is to associate, in different ways, different kinds of translational motion to a verb event.*

AM vs. Directionals (DIR)

Generally

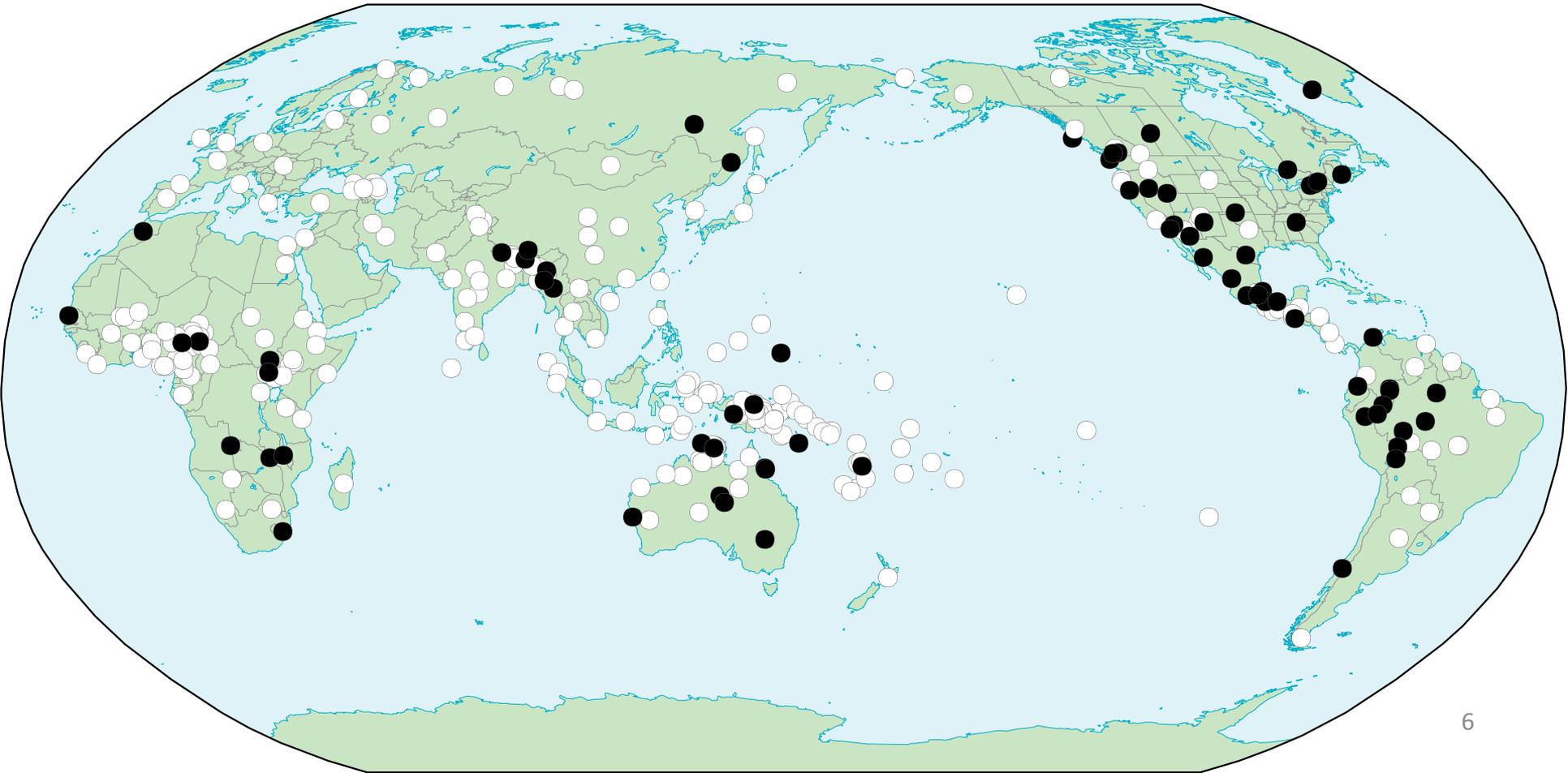
- AM adds motion to non-motion verbs
- DIR indicates the trajectory of motion verbs
- Sometimes there is overlap, unknown extent
 - Seems to vary regionally
 - Descriptive overlap/confusion also
- To address this: **worldwide quantitative survey**

Survey methodology

- *WALS*-style worldwide survey
- **325**-language balanced sample
 - See data handout for list and details
 - See also: Ross et al. (2015), Ross (2016a, forthcoming)
- Sources:
 - Descriptive Grammars & Secondary Materials
 - As needed: personal communication (fieldworkers, speakers)
- Only **morphological** encoding (for available data)

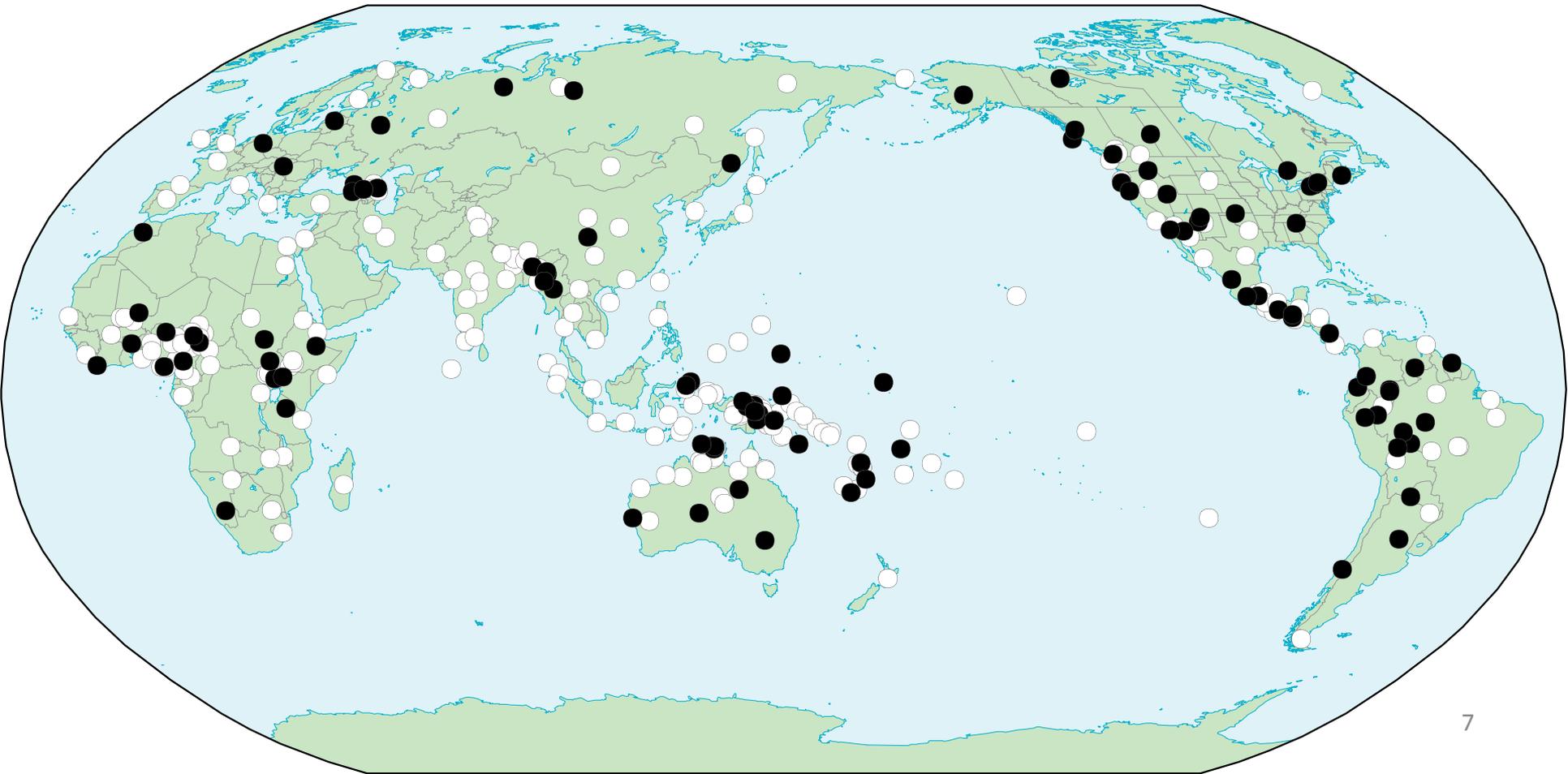
AM distribution

- 73/325 languages (22%) have AM (black)



DIR distribution

- 103/325 languages (32%) have DIR (black)

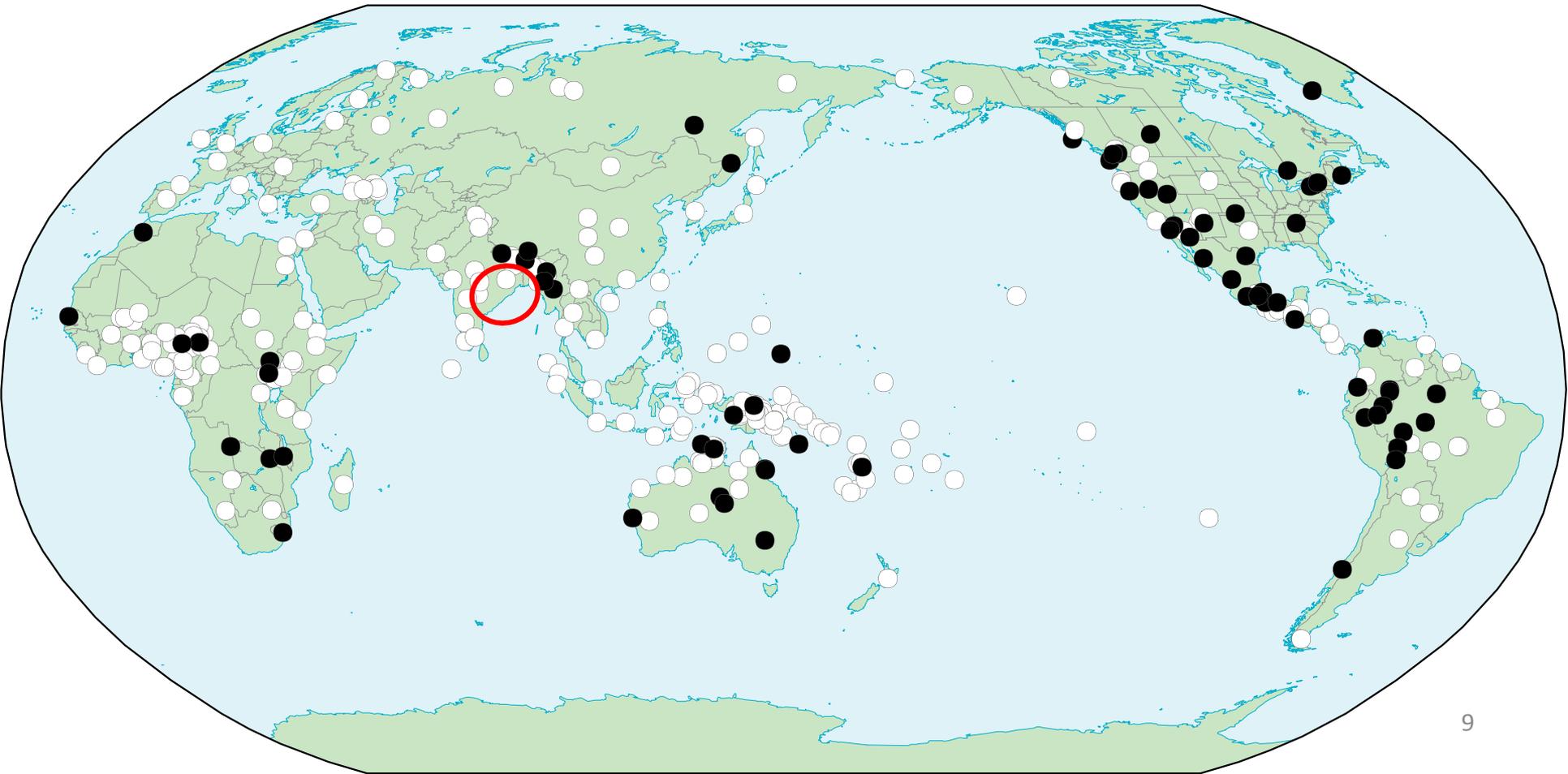


Representativeness of sample

- Seems representative of overall distributions
 - AM & DIR often seem to be regional phenomena
 - But this highlights regional trends not diversity
- Kui (Dravidian, **not in sample**) has AM!
 - meh-ka-i Winfield (1928:112)
 - look-ITV-FUT.AFF
 - ‘I will go and look.’

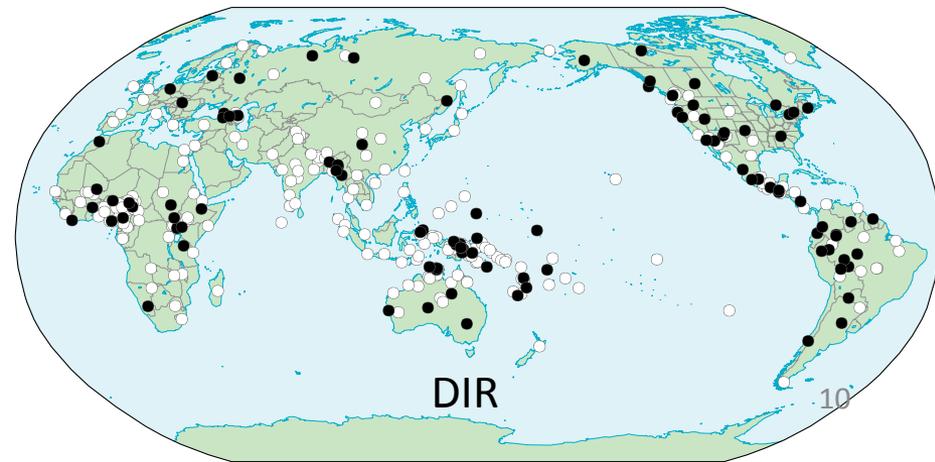
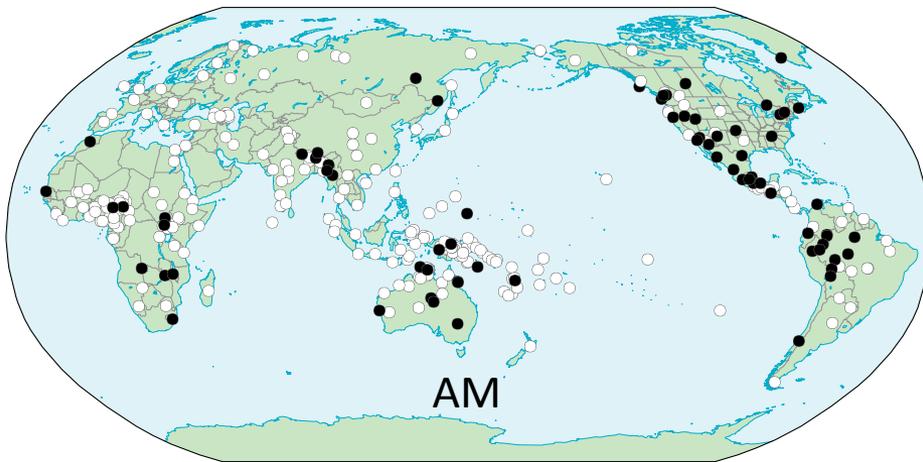
Representativeness of sample

- Don't assume all exceptions would be shown!



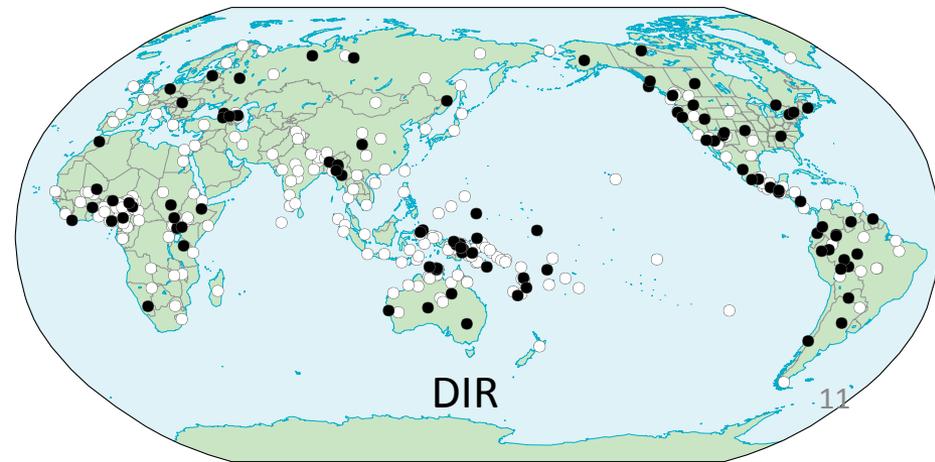
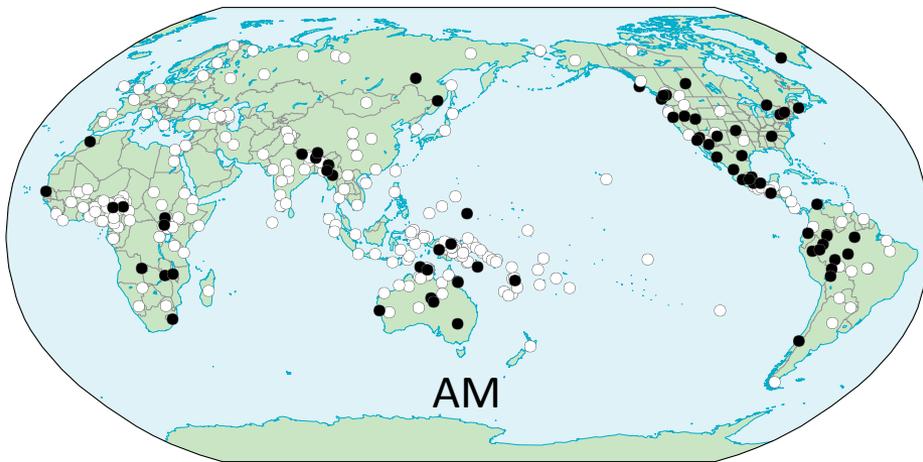
AM & DIR overlap

- Overall the distributions are similar
 - Some clear differences (Europe for example)
 - Bias based on morphological type
- Semantic similarities between AM & DIR
- Same terminology often used for both



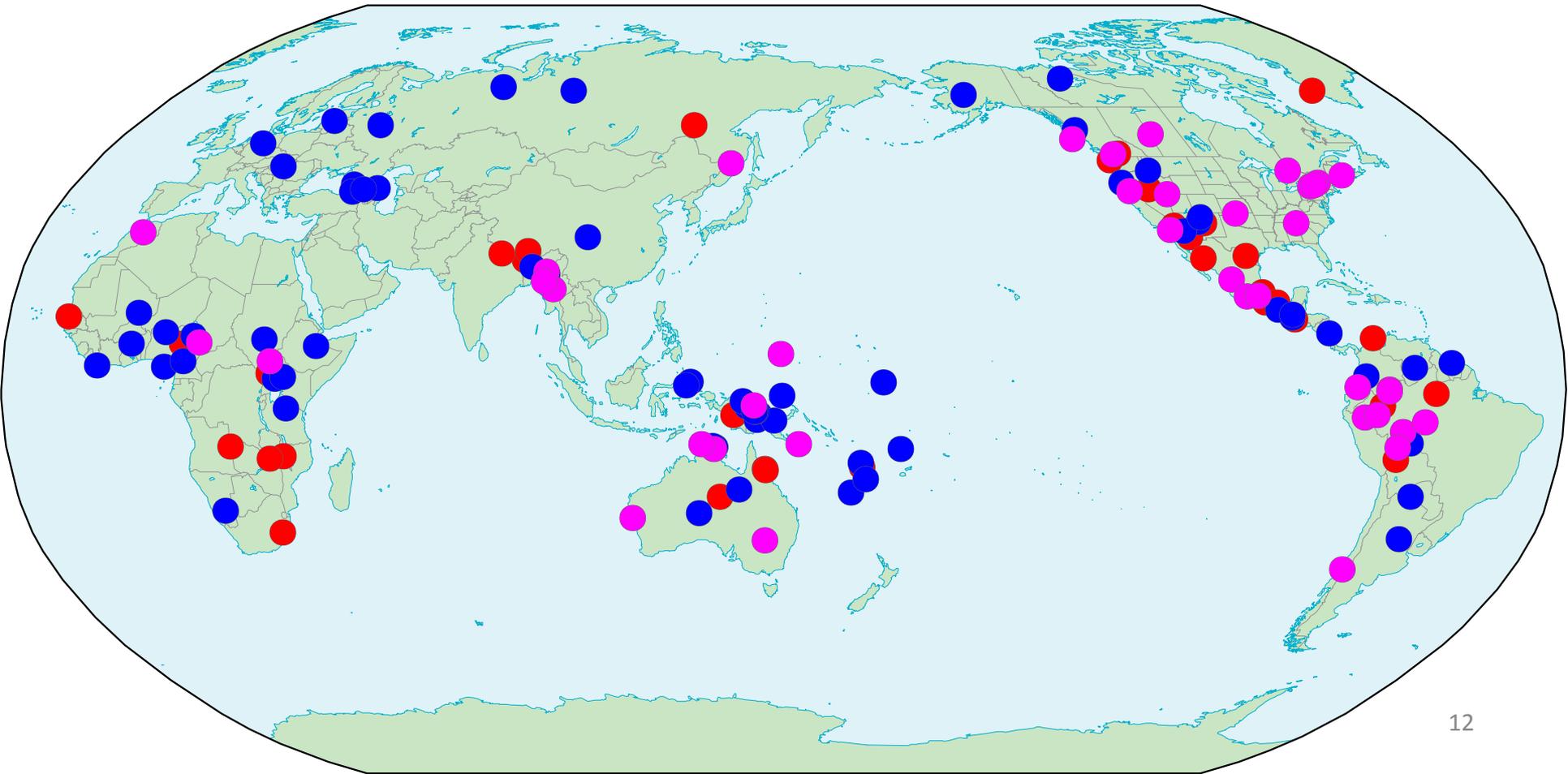
AM & DIR overlap

- 73 languages have AM; 103 have DIR
- Only 39 have both
 - 38% of DIR languages also have AM
 - Or: 53% of AM languages also have DIR



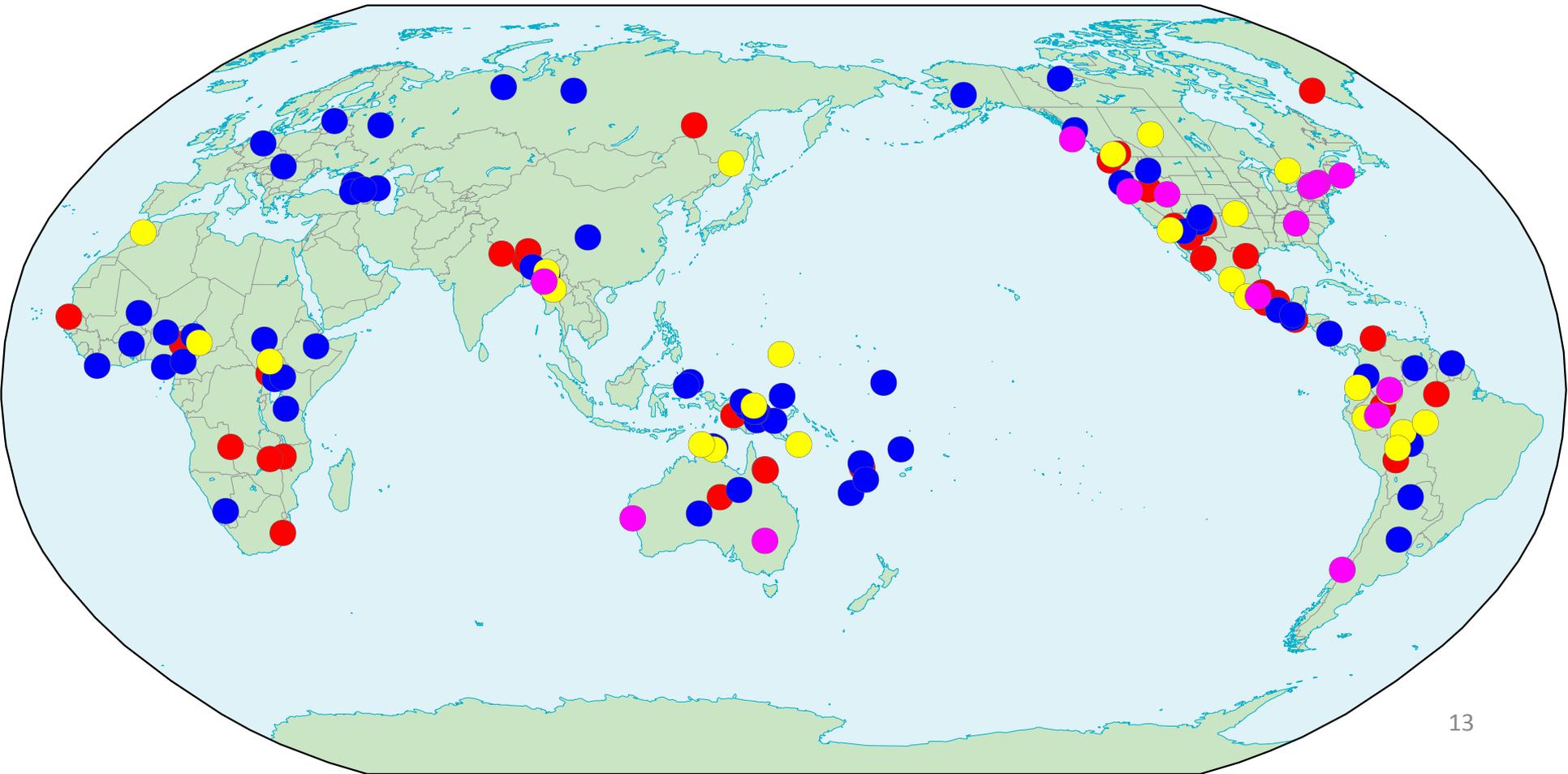
AM & DIR overlap

- AM only: 34; DIR only: 63; Both: 39



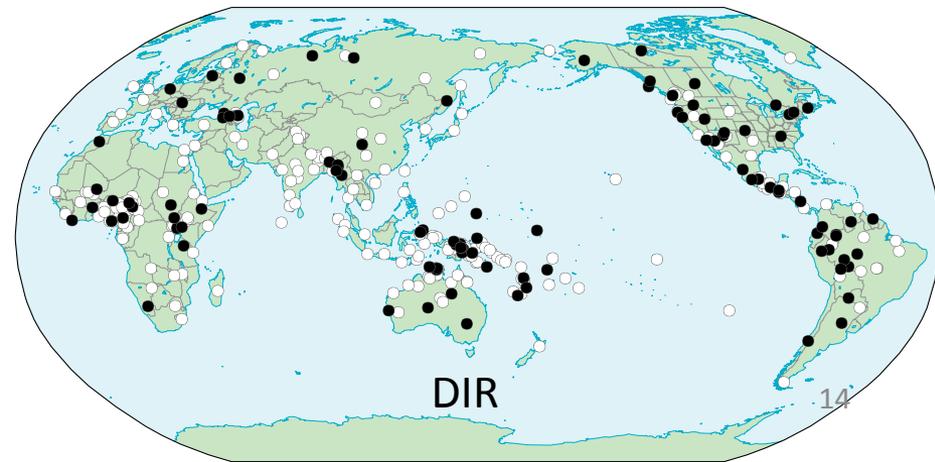
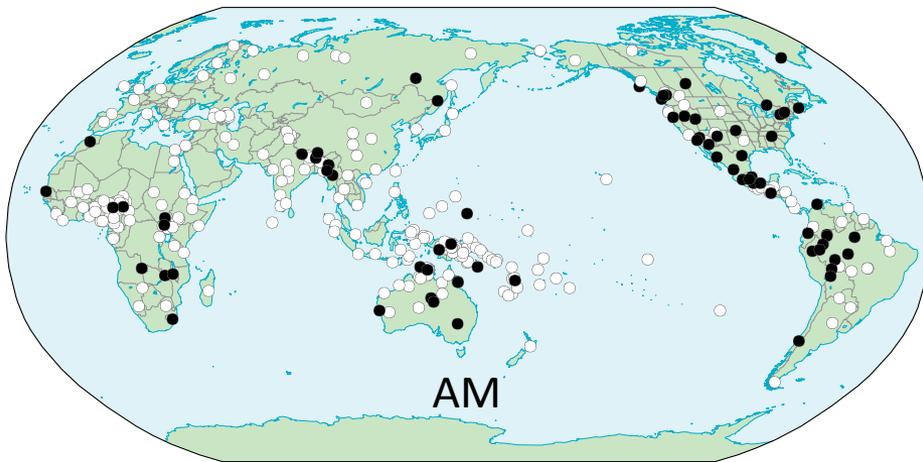
AM & DIR overlap

- AM only: 34; DIR only: 63; Both: 39 (24 with overlapping morphemes)



AM & DIR overlap

- Of the 39 languages with AM/DIR overlap, 24 have multi-functional AM/DIR morphemes
 - Complete overlap (of all morphemes) very rare
- Summary: despite similarities, AM and DIR are distinct grammatical categories

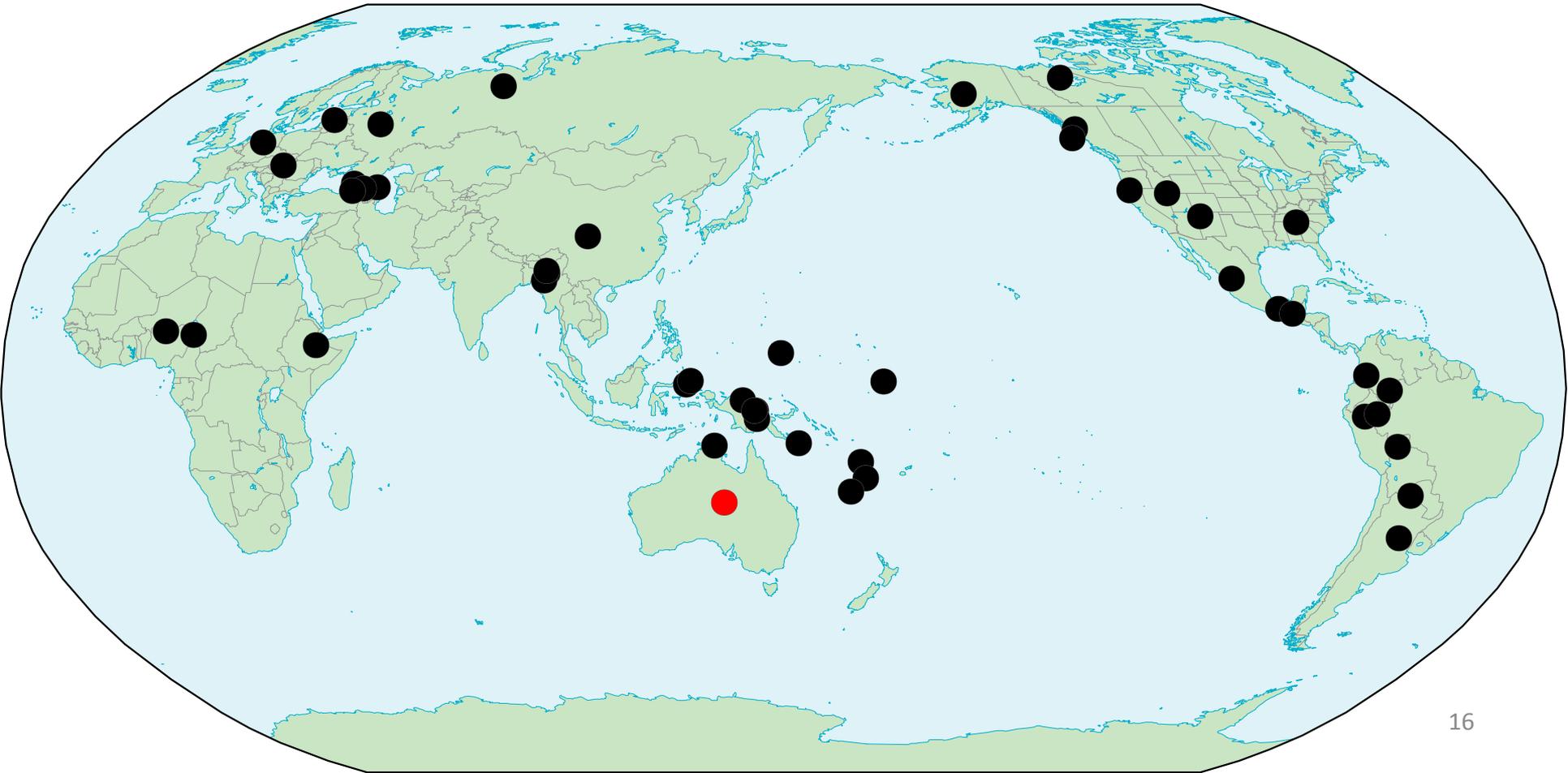


Semantics of DIR

- A lot of semantic variation
- As few as one directional per language
- As many as 62+: 11 languages have 10+
 - The largest systems blur with locationals, etc.
 - Sometimes interacts with environment (e.g. upriver)
- Often encodes Itive and Ventive (like AM)
- Often includes vertical types (unlike AM)
 - *Why is vertical AM so rare?*

Vertical motion

- 47 (of 103) DIR systems include vertical form(s); **only 1 vertical AM**

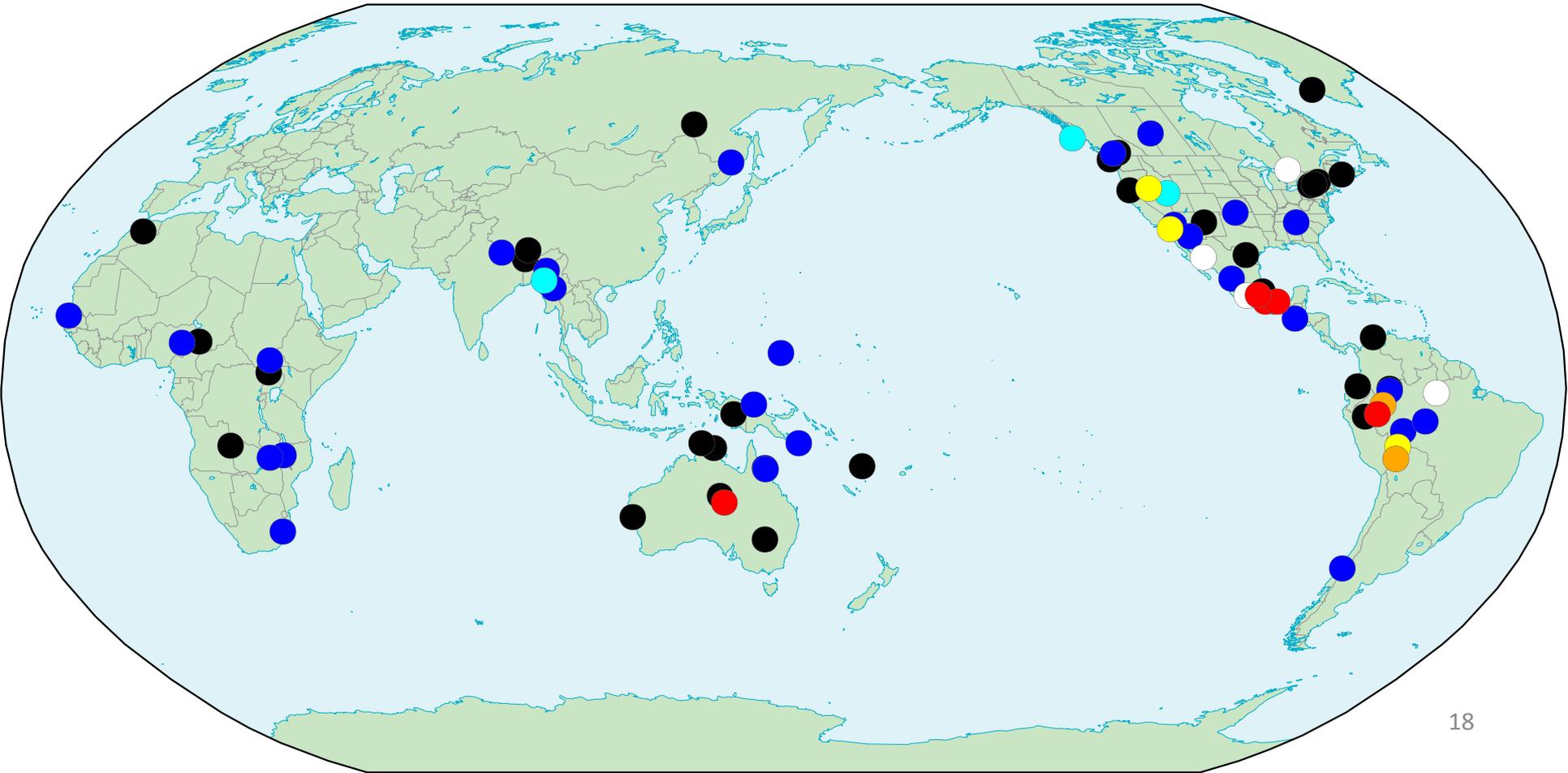


Itive and Ventive AM?

- 53 AM languages have Itive
- 40 AM languages have Ventive
- Only 13 AM languages have *neither*
 - But some of those have a general directional AM marker like ‘move directedly to somewhere and then do something’
 - Others (especially Concurrent) have a purely motion morpheme like ‘do while moving’

Number of AM markers

- 1: 29 languages; 2: 27; 3: 3; 4: 4; 5: 3; 6: 2; 11+: 5



Multi-functional AM markers

- Bininj Gun-wok ventive *m-* “exhibits a number of semantic extensions. With some verbs the ‘towards’ motion may not be part of the verbal predicate itself, but of some contextually obvious subsequent, prior or concurrent action” (Evans 2003:490)

Prior

Yi-m-yerrng-ma-Ø!

2-VEN-wood-pick.up-IMP

‘You pick up the wood (and bring it here).’

Concurrent

Birri-m-h-di

3aP-VEN-IMM-standP

‘They were standing there (on their way here).’

Concurrent

Kum-rdurndi

3P.VEN-return.PP

‘He came back as a man.’

Subsequent

kum-bininj-minj.

3P.VEN-man-INCH.PP

Temporal ordering of AM

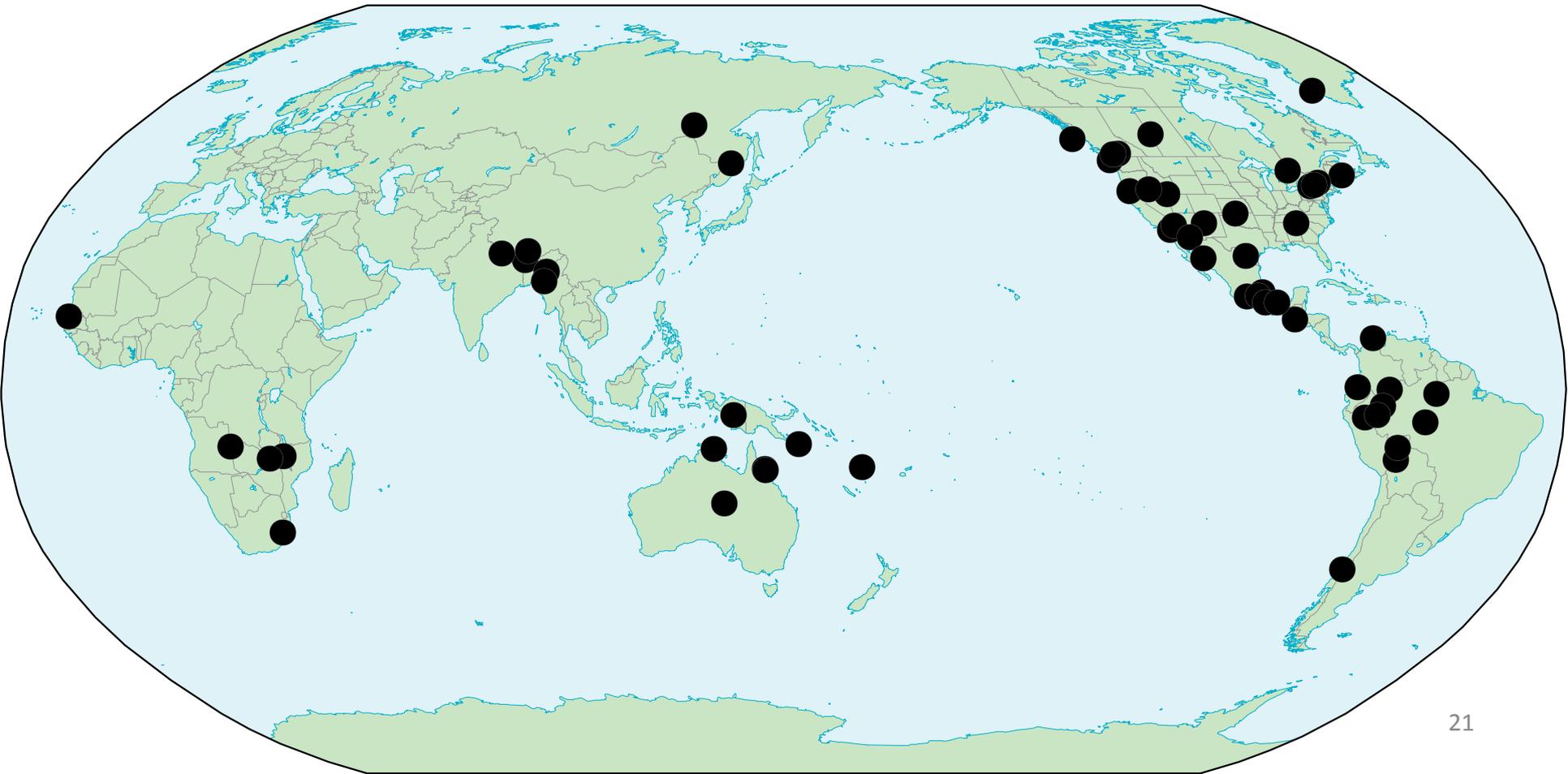
- The motion of AM may take place before, during or after the action of the main verb
- Guillaume (2016:83) proposed an implicational hierarchy:

prior > concurrent > subsequent

(Read ">" as "before")

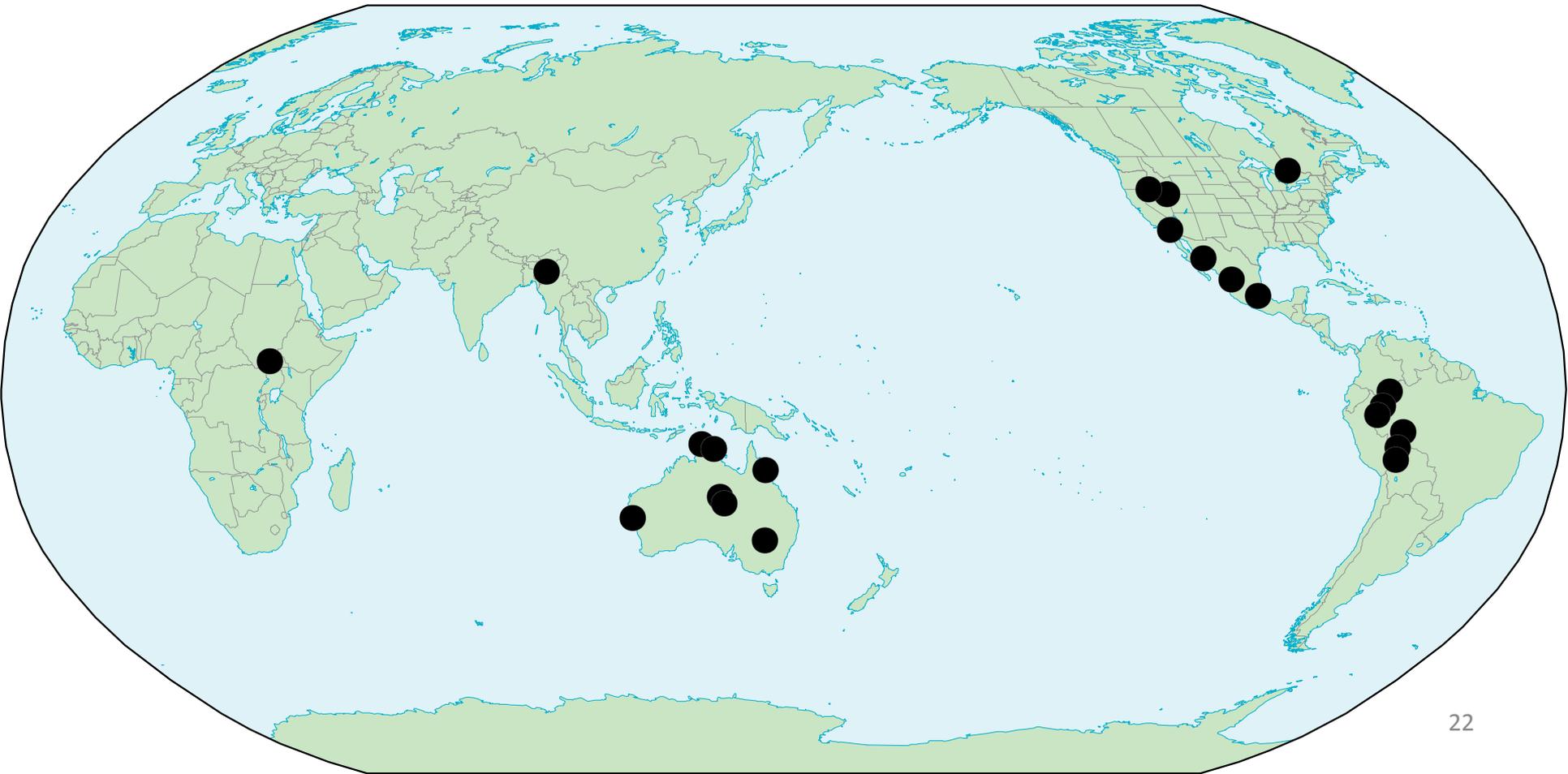
Temporal ordering of AM

- 58 languages (of 73 with AM) have Prior



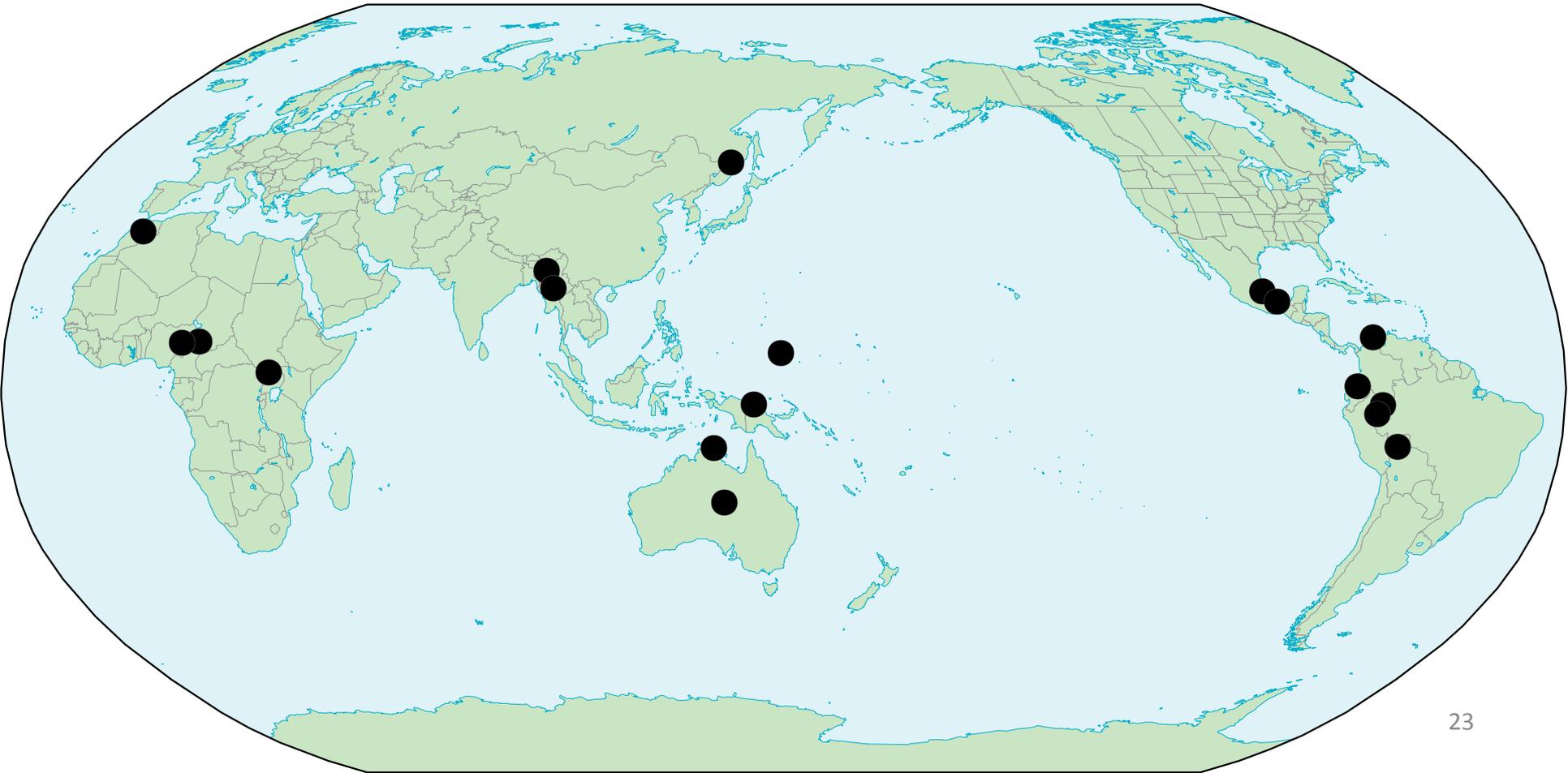
Temporal ordering of AM

- 22 languages (of 73 with AM) have Concurrent



Temporal ordering of AM

- 18 languages (of 73 with AM) have Subsequent



Temporal ordering of AM: survey

- Languages with only one type:
Prior: 39; Concurrent: 8; Subsequent: 7
- Languages with two types:
P+C: 8; P+S: 5; *P+C: 0*
- Languages with all three: 6
- *Summary*: languages with each (any config.):
Prior: 58; Concurrent: 22; Subsequent: 18

Temporal ordering of AM: survey

- Exception's to Guillaume's hierarchy:
 - Only Concurrent: Alyawarra, Apuriña, Kukulú, Ngiyambaa, Nhanda, Retuarã, Tepehuan (Southeastern), Tiwi
 - Only Subsequent: Arapesh (Mountain), Berber, Burmese, Kera, Ma'di, Pero, Puluwat
 - No languages with only Prior+Conc. (not Subseq.)
 - Prior+Subseq.: Ika (Arhuaco), Nahuatl (Mecayapan Isthmus), Quechua (Imbabura), Totonac (Xicotepec de Juárez), Udihe

Temporal ordering of AM: survey

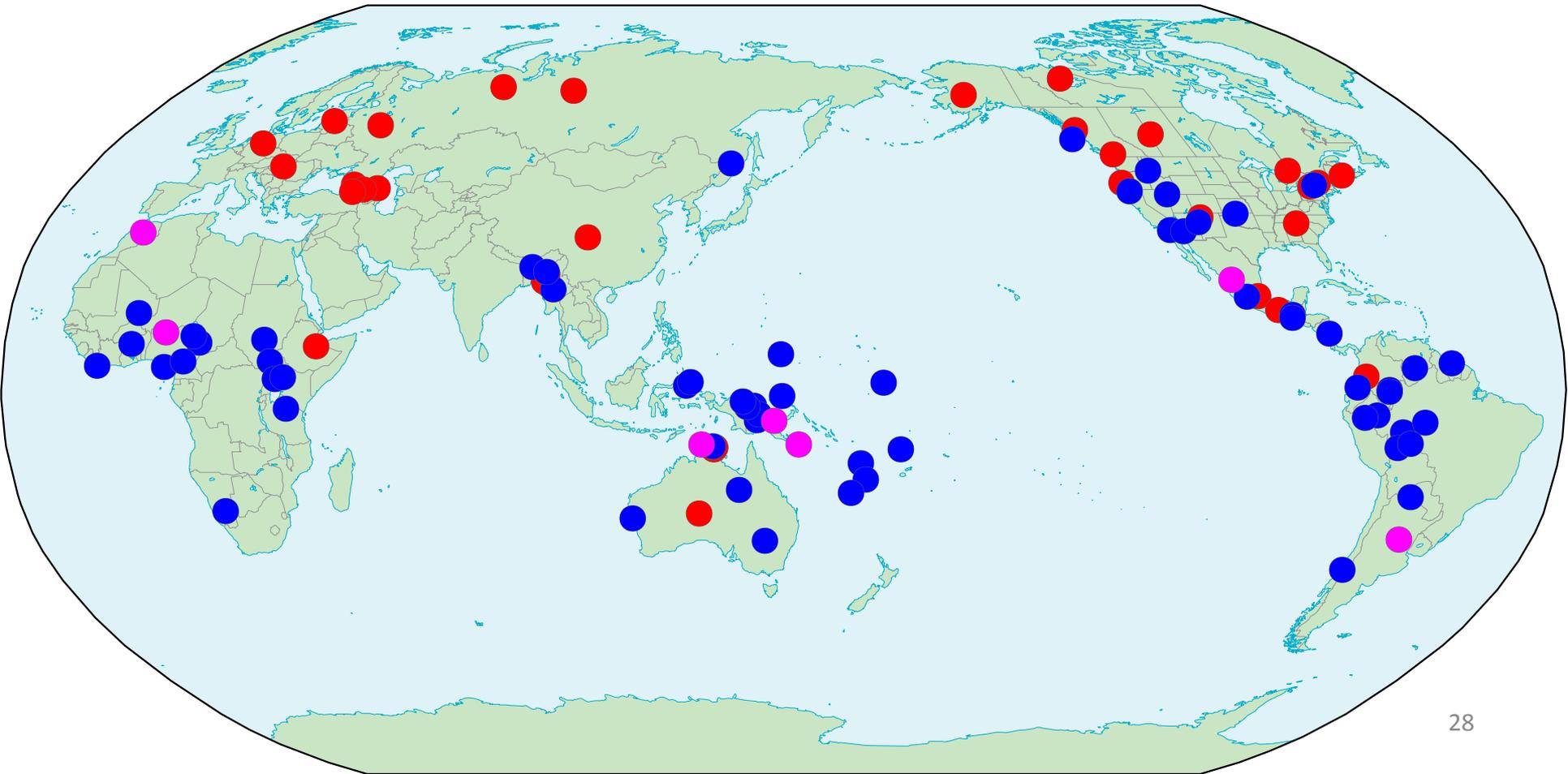
- Overall, Prior is most common
 - Statistically but not absolutely consistent with Guillaume's hierarchy, however:
- No clear evidence for *Concurrent*>*Subsequent*
- Also similar in terms of *number* of morphemes
- Only Prior+Conc configuration is not found
- However: different types vary in some ways...
 - For example, Concurrent less often is ventive/itive

Affix ordering?

- It is often claimed that Serial Verb Constructions are ordered **iconically**, e.g.:
 - Prior motion should precede the main verb
 - Subsequent motion should follow
 - Also, usually, directional SVCs follow (iconic?)
- If SVCs (or similar) are the origin from which AM grammaticalizes, we should expect similar skews in prefixing vs. suffixing patterns...
 - See also Lovstrand (2017, this conf.) on AM SVCs

Affix ordering for DIR

- Prefixing: 35; Suffixing: 61; Mixed: 7



Affix ordering for DIR

- Prefixing: 35; Suffixing: 61; Mixed: 7
- Suffixing preference, but that is true of affixes cross-linguistically *in general*
- Regional patterns (with exceptions)
- Variation implies different grammaticalization sources for different orders

Affix ordering for DIR

- Prefixing: 35; Suffixing: 61; Mixed: 7
- Mixed types:
 - Both prefixes and suffixes (6 languages)
 - Clitics that are variably proclitic/enclitic (1: Berber)
 - *This might be better to exclude from this morphological survey*
 - Non-concatenative morphology (1)
 - Hausa has templatic morphology
 - Lamang has suffixes but also appears to have tonal effects

Non-concatenative morphology

- Rare, but possibly found for AM as well
 - *Considering languages outside the sample*
- Dinka has tonal+ DIR marking, sometimes AM?

mět à=lòŋ wək róoor

child D=untie.ITV cow.PL bush.LOC

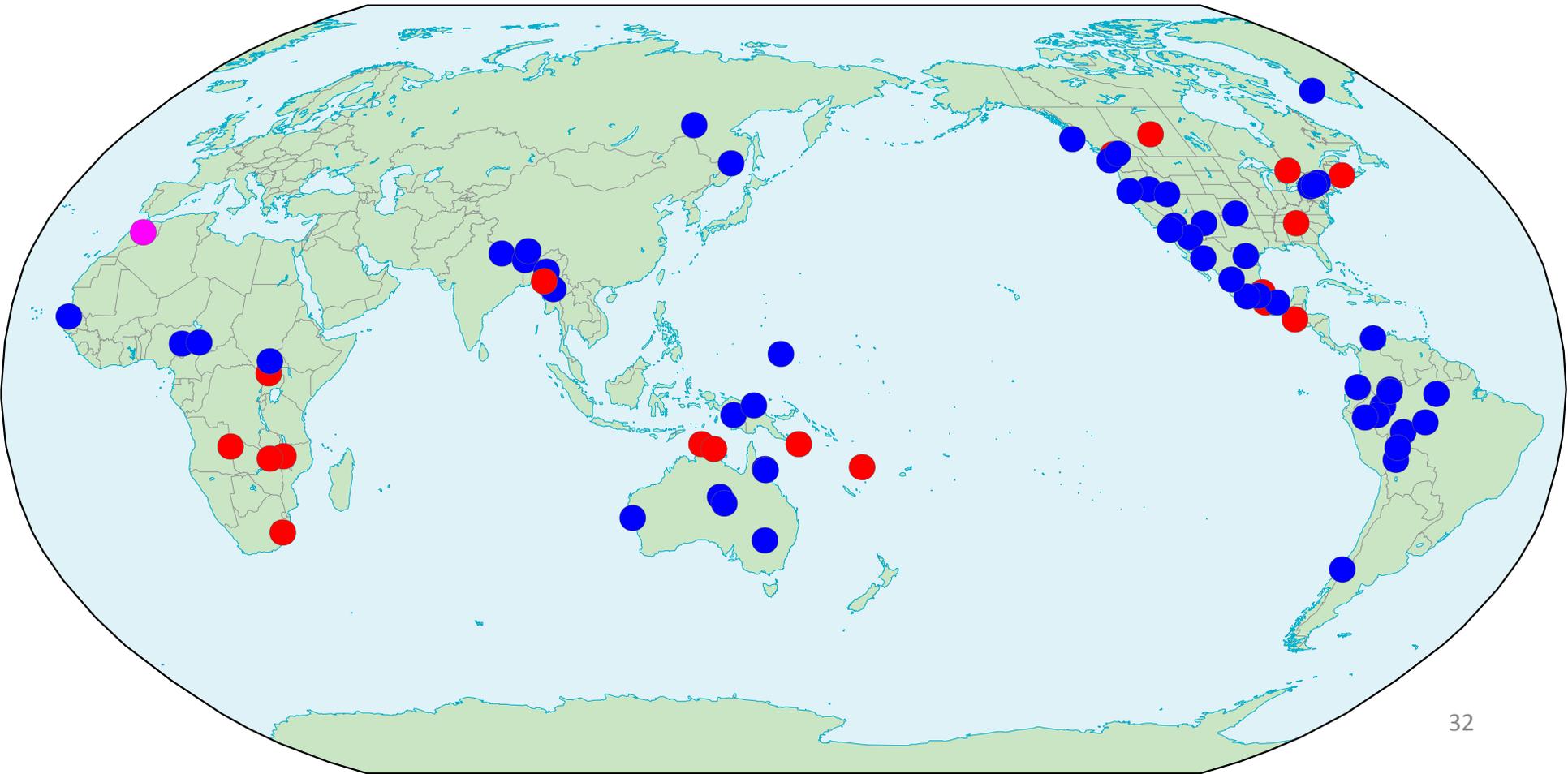
‘The child is untying the cows (so they go) into the bush.’

cf. à=lòŋ ‘is untying’

(Andersen 2012: 40)

Affix ordering for AM

- Prefixing: 18; Suffixing: 54; Mixed: 1



Affix ordering for AM

- Prefixing: 18; Suffixing: 54; Mixed: 1
- AM also has a suffixing preference
 - In fact, this preference is stronger than for DIR
 - **Not iconic**: prior motion is most common type!
- Ordering is **consistent** *within* each language
 - Prior and Subsequent are not ordered differently
 - The Mixed language is again Berber, with proclitic/enclitic optionality

Affix ordering for AM & DIR

- DIR without AM:
 - 25 prefixing DIR; 36 suffixing DIR; 3 mixed DIR
- AM without DIR:
 - 0 prefixing AM; 25 suffixing AM; 0 mixed AM
- *No clear effects of AM/DIR interaction*
- Both AM and DIR:
 - 7 prefixing both; 25 suffixing both; 1 mixed both
 - 3 suffixing AM but prefixing DIR; 0 vice-versa
 - WithMixed DIR: 2 prefixing AM & 1 suffixing AM

Prior vs. Subseq & Affix Ordering?

- **Prior, Concurrent and Subsequent** languages:

Type	Prefixes	Suffixes	Mixed
Prior only	13	26	-
Conc. only	1	7	-
Subs. only	1	5	1
P+C	3	5	-
P+S	1	4	-
C+S	-	-	-
P+C+S	1	5	-

- **No apparent effect**
- In Prior-only *2-morpheme* systems, 8 each are prefixing and suffixing
 - Different origins?
- Among the most complex systems (11-15 AM markers), 1 is prefixing, and 4 are suffixing

Data does not support iconicity

- Clearly not one (iconic) grammaticalization path for AM (or DIR)
 - But iconicity could still affect individual languages
- Unlikely that all AM/DIR grammaticalize from SVCs for example
- More research is needed on the paths of grammaticalization for AM and DIR
 - Also their relationship when they do overlap

On Origins

- Many possibilities, varies by language/region
- My impression is:
 - Prior and Subsequent may relate to locationals
 - DIR may relate to concurrent
 - There are also other similar categories in some languages like *elevationals* (sometimes directional)
- Historical or comparative reconstruction studies on more languages/regions needed

Challenges and Special Cases

- Applying a comparative concept to a large sample has a testing effect:
- Some languages are borderline cases; we can:
 - Revise the comparative concept (definition)
 - Revise our coding scheme
 - Better understand the (limits of the) phenomenon
- Several challenges came up in the survey
 - And a number of unusual features were found

Roundtrip AM

- Some languages have AM markers meaning something like “Go & Do & Return”
 - Are these Prior? Subsequent? Both? Other?
 - How should they be counted in the survey?
 - Some languages emphasize one part of the path
 - The going or returning may be optional but implied
 - Sometimes these seem to overlap with *locationals*
 - In some cases they are complex with transitive verbs
 - Fetching, depositing, etc.

Roundtrip AM

- Ika appears to only have Roundtrip AM:

Abran zami g-Λm-bina u-ž-e

Abram food eat-IMP-AM AUX-MED-Q

‘Did Abram come to eat (then go back)?’

(Frank 1990:57)

Multi-functional AM markers

- Quechua *-mu* is complicated!
 - Sometimes it indicates ventive DIR
 - Sometimes it indicates itive AM
 - Sometimes it indicates Roundtrip AM

Marginal Concurrent AM

- Some languages only have (or also have) borderline Concurrent AM (or DIR)
- Khoekhoe (Hagman 1977:74) has *mãa* ‘distributive’ which is somewhat like AM:

≠nũu-mãa ‘sit around’

!ũu-mãa ‘go around’

sãĩ-mãa ‘cook around’

!ùru-mãa ‘thunder around’

Purposive vs. Prior AM

- Especially for verb-verb expressions but also for some morphology, unclear whether the lexical verb is (always) entailed...
- Consider the Iroquoian ‘dislocative’:

Cayuga (Mithun 1999:428):

ɛkatrihóʔta:t

‘I’ll work.’

ɛkatrihóʔta:t-**h**-aʔ

‘I will go back to work.’

AM also encodes direction

- Despite being distinct from DIR, AM also usually encodes directional distinctions (itive, ventive, etc.)
- What is the defining property of AM?
 - Is direction required? Per language? Per morpheme?
- As argued in Ross(2016b), whether AM or DIR, ventive and itive express directional motion and may behave similarly ('surprise' readings)

AM & DIR together?

- Sometimes AM and DIR may co-occur
- But they rarely systematically interact
- Barasano is unusual (Jones & Jones 1991:77):

ãbi-ya

pick.up-IMP

‘Pick it up!’

ãbi-a-ya

pick.up-DIST-IMP

‘Pick it up there!’

ãbi-a-yá

pick.up-MOT-PROX.IMP

‘Bring it here!’

ãbi-a-sa

pick.up-MOT-DIST.IMP

‘Take it away!’

Non-Subject AM

- Only 4(?) languages have non-subject AM:
 - Arapesh, Arrernte (Mparntwe), Matses, Puluwat
- Arapesh appears to have *absolutive* AM:

Y-a-húlú-búk-úm-ag-**úk** wah
1SG-R-3PL-put-BEN-here-**PERM** sun

‘I put the leaves in the sun and they will remain there, and I went.’

Énan n-a-nak-**úk**
3SG.M3SG-R-go-**PERM**

‘He went (and did not return).’

(Conrad & Wogiga 1991:20)

How many AM markers?

- What does “how many” mean?
 - *How many what?*
- In this survey I have considered paradigms
 - Including variants like tense, plural, or *speed*
 - What “counts” as AM? Remove other categories?
- Temporal ordering? Required?
- Direction? Is that required, or even included?
- *Just motion vs. no motion??*

Grammaticalization of AM

- Not often discussed: *to what extent* are different AM systems grammaticalized?
 - What about multi-functionality?
 - Morphological transparency? Complexity?
 - What about clitics vs. affixes?
 - Or SVCs and other verb-verb constructions?
 - What about compound verbs vs. opaque affixes?
 - Overlap with other categories may either be like agreement or the only expression of the category

Most complex systems?

- The most complex systems actually do not add more “*motion*” to the system
 - They overlap with more other categories
- Some complex paradigms also may have transparent parts:
 - Guillaume (2016:88) independently lists Cavineña
 - *-eti* ‘COME.PERM&DO’ (prior), *-be* ‘DO.IPFV.COMING.TEMP’
and *-etibe* ‘DO.IPFV.COMING.PERM’ (concurrent)
 - But why not *-eti-be* as a compositional form?

Most complex systems?

- Wilkins (1991, 2006) proposes a very complex paradigm for Mparntwe Arrernte:
 - *-intve* = "DO COMING"
 - *-intv.alpe* = "DO COMING BACK"
 - *-intve.lhe* = "DO COMING THRU"
 - *-irtne* = "REVERSIVE": (a) Do going back; (b) Do back to
- But some of these morphemes appear compositional:
 - *-artn(e)* 'quickly'?
 - *-rl(e)* 'subsequent'?
- In fact, Henderson (2002, 2013) and Dras et al. (2012) propose such an analysis!

CATEGORY OF ASSOCIATED MOTION					
Action and Motion Concurrent			Action and Motion Non-Concurrent		
(Performer of Action is also moving entity)					
Directed: Deictic		Oriented			
- <i>intve</i> = "DO COMING"		- <i>nhe</i> = "DO PAST"		GO (-lhe)	
- <i>intv.alpe</i> = "DO COMING BACK"		- <i>tye.kerle</i> = "DO DOWNWARDS"		GOBACK (-alpe)	
- <i>intve.lhe</i> = "DO COMING THRU"		- <i>ty.antve</i> = "DO UPWARDS"		Prior Motion (-tye)	
- <i>irtne</i> = "REVERSIVE": (a) Do going back; (b) Do back to				Subsequent Motion (-rie)	
				Subsequent Motion Hurried (-artne)	
				- <i>tye.lhe</i> = "GO & DO"	
				- <i>ty.alpe</i> = "GO BACK & DO"	
				- <i>rie.lhe</i> = "DO & GO"	
				- <i>rl.alpe</i> = "DO & GO BACK"	
				- <i>artne.lhe</i> = "Quickly: DO & GO"	
				- <i>artn.alpe</i> = "Quickly: DO & GO BACK"	
(Performer of Action is NOT moving entity)					
Directed Non-Concurrent					
(prior)					
- <i>ty.intve</i> = "DO ON Z's ARRIVAL"					

Not fully morphologized?

- Djabugay has AM like other many Australian languages (Patz 1991:285)
- However, there is a ligature (*converb suffix?*) between two transparently verbal stems:

gudji nyina-**y**-garra-ny buimba-:
he.S sit-**LIG**-come-PST camp-LOC
'He came to sit in the camp.'

“Grammatical” phenomenon?

- In what sense is *AM grammatical* vs., e.g., semantic?
- How would we know when, e.g., SVCs are “grammatical”?
- Morphology is easy to consider grammatical
- But sometimes it also seems to mix two *lexical* concepts into a single word (complex predicate?)
- Sometimes the motion event or lexical verb seems subordinated within the construction
- AM is *not* limited to morphology, but very difficult to identify in periphrastic expressions
- English “go and get” is AM pseudocoordination (Ross 2016b)

Thank you!

- *Questions and feedback welcome*

djross3@gmail.com

danielrosslinguist.com

Selected References

- Andersen, Torben. 2012. Verbal directionality and argument alternation in Dinka. In Angelika Mietzner & Ulrike Claudi (eds.), *Directionality in Grammar and Discourse: Case Studies from Africa*, 35–53. Köln: Rüdiger Köppe Verlag.
- Conrad, Robert J. & Kepas Wogiga. 1991. *An outline of Bukiyip grammar*. Canberra, A.C.T., Australia: Dept. of Linguistics, Research School of Pacific Studies, Australian National University.
- Dras, Mark, Benjamin Börschinger, Yasaman Motazed, Myfany Turpin, François Lareau, Robert Dale, Owen Rambow & Morgan Ulinski. 2012. Complex predicates in Arrernte. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG12 Conference*. Stanford: CSLI Publications.
- Evans, Nicholas. 2003. *Bininj Gun-wok: a pan-dialectal grammar of Mayali, Kunwinjku and Kune*. Canberra: Research School of Pacific and Asian Studies, Australian National University.
- Frank, Paul S. 1990. *Ika syntax*. Dallas, TX: Summer Institute of Linguistics & University of Texas at Arlington.
- Guillaume, Antoine. 2016. Associated motion in South America: Typological and areal perspectives. *Linguistic Typology* 20(1). 81–177.
- Hagman, Roy Stephen. 1977. *Nama Hottentot Grammar*. Bloomington: Indiana University Press.
- Henderson, John. 2002. The word in Eastern/Central Arrernte. In Robert M. W. Dixon & Alexandra Y. Aikhenvald (eds.), *Word: a cross-linguistic typology*. Cambridge: Cambridge University Press.
- Henderson, John. 2013. *Topics in Eastern and Central Arrernte Grammar*. Muenchen: LINCOM.
- Jones, Wendell & Paula Jones. 1991. *Barasano syntax*. Dallas: Summer Institute of Linguistics & University of Texas at Arlington.
- Lovestrand, Joseph, with Daniel Ross. 2017. Serial verb constructions and the semantics of associated motion. Presented at the International Workshop on Associated Motion at the 12th Conference of the Association for Linguistic Typology (ALT 2017), Australian National University, Canberra, Australia.

Selected References

- Mithun, Marianne. 1999. The languages of native North America. Cambridge: Cambridge University Press.
- Patz, Elizabeth. 1991. Djabugay. The Handbook of Australian Languages, vol. 4, 244–347. Melbourne: Oxford University Press Australia.
- Ross, Daniel. 2016a. Between coordination and subordination: Typological, structural and diachronic perspectives on pseudocoordination. In Fernanda Pratas, Sandra Pereira & Clara Pinto (eds.), Coordination and Subordination: Form and Meaning — Selected Papers from CSI Lisbon 2014, 209–243. Newcastle upon Tyne: Cambridge Scholars Publishing.
- Ross, Daniel. 2016b. Going to Surprise: the grammaticalization of itive as mirative. In Jacek Woźny (ed.), Online proceedings of Cognitive Linguistics in Wrocław Web Conference 2016. Wrocław, Poland: Polish Cognitive Linguistics Association & University of Wrocław. <https://sites.google.com/site/coglingwroc2>.
- Ross, Daniel. forthcoming. Pseudocoordination, serial verb constructions and multi-verb predicates: The relationship between form and structure. Urbana, IL: University of Illinois at Urbana-Champaign Ph.D. dissertation.
- Ross, Daniel, Ryan Grunow, Kelsey Lac, George Jabbour & Jack Dempsey. 2015. Serial Verb Constructions: a distributional and typological perspective. Presented at the Illinois Language and Linguistics Society (ILLS) 7, University of Illinois at Urbana-Champaign, Urbana, Illinois. <http://hdl.handle.net/2142/88844>.
- Wilkins, David P. 1991. The Semantics, Pragmatics and Diachronic Development of “Associated Motion” in Mparntwe Arrernte. Buffalo papers in linguistics 1. 207–257.
- Wilkins, David P. 2006. Towards and Arrernte grammar of space. In Stephen C. Levinson & David Wilkins (eds.), Grammars of space: explorations in cognitive diversity, 24–62. Cambridge: Cambridge University Press.
- Winfield, W. W. 1928. A grammar of the Kui language. Calcutta: Baptist Mission Press.

See handout for additional references and data for each language: <http://hdl.handle.net/2142/96282>