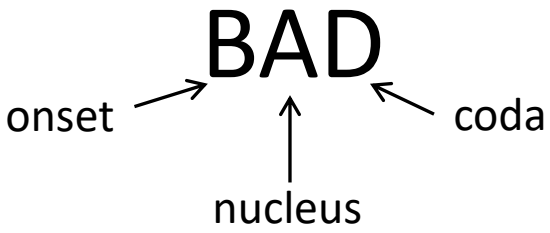
Variability of Languages in Time and Space

Lecture 3
Phonology – Syllables - Suprasegmentals

- Syllable structure and patterns
- Syllable repair processes
- Suprasegmentals: stress, length, tones

Anja Nedoluzhko

Syllable Structure



A Syllable is:

- Well-recognized unit in linguistic analysis
  - Easy concept: If listeners differ in syllabifying a word, it is generally the case that both possible syllabifications are possible (pastry = past.ry or pas.try)
- Explains the number of rhythmic units
- This number is usually equal to the number of vowels (but *little, eagle*)
  - Exceptions?

Canonical Syllable Patterns

- Which syllable types are permitted in a language
  - Sequencing of segments within syllables (**C**onsonant, **V**owels)
- May be different in different positions (in onset vs. in cora)
  - Italian: allows more than one **C**onsonant in the onset position

    pro.fon.do ‘deep’, *tro.no* ‘throne’, *blat.ta* ‘cockroach’

    but only a single **C**onsonant in the coda position

    san.to ‘saint’, *pal.ko* ‘platform’, *tor.ta* ‘cake’
  - Khalkha Mongolian: allows only a single **C**onsonant in the onset, but permits two **C**onsonant in coda position

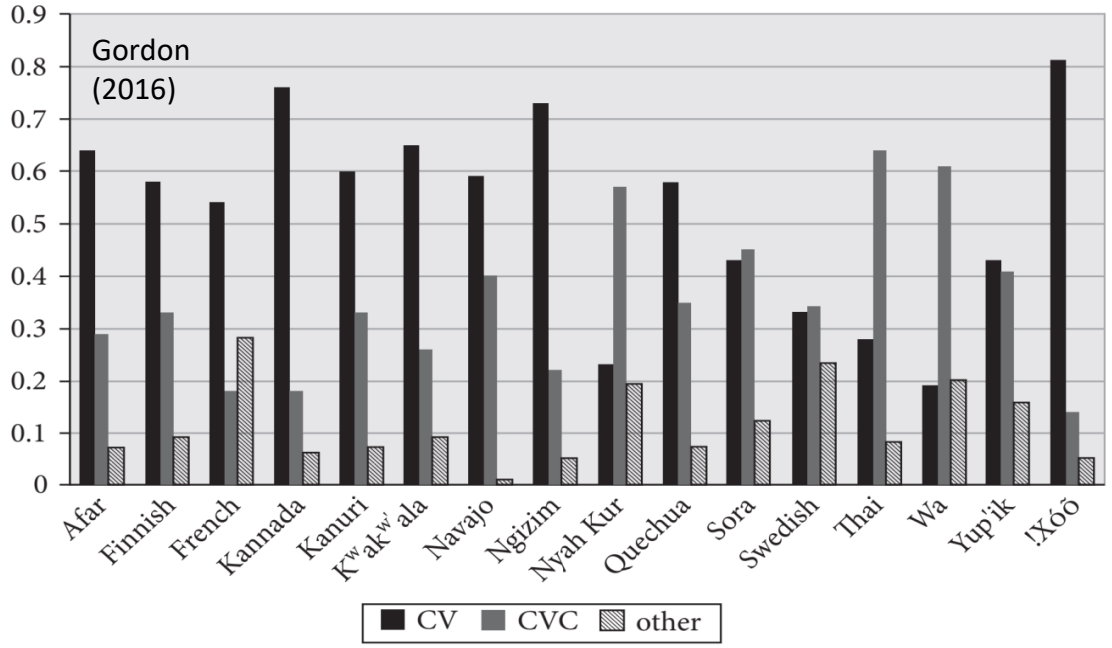
    *mai**ɮ**s* ‘cypress’, *ɔims* ‘sock’, *nomx-t**ʰ*** ‘to become tame’, *i**ɮ**s-t**ʰ*** ‘sandy’, *ʃarx-**ʧ**ʰ* ‘coroner’, *taws-t**ʰ*** ‘salty’

Canonical Syllable Patterns

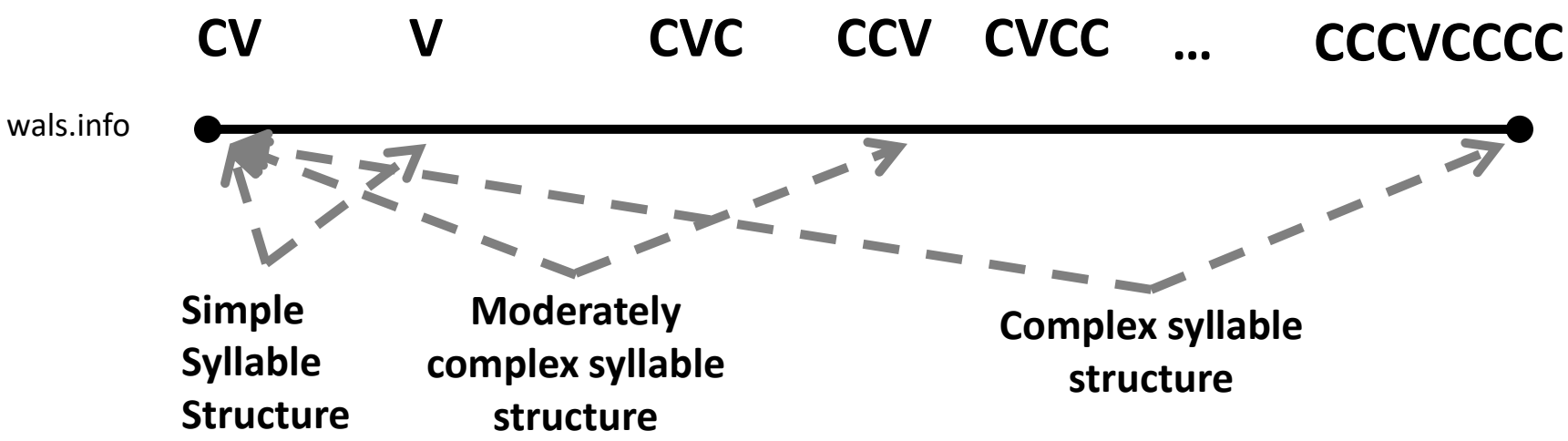
- CV – the most basic syllable, also within a language
- CV > CCV > CCCV and CV > V (markedness of the onset)
- CVC > CCV > CVCC > CVCCC
- CV > CVC > CCV

C = consonant
V = vowel

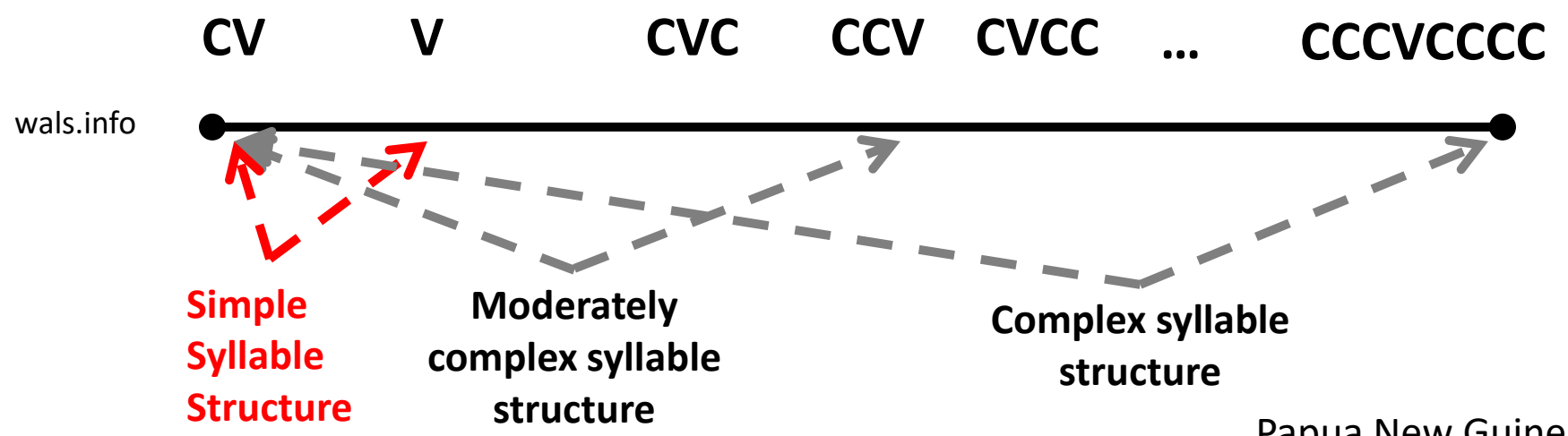
- CV is the most frequent syllable, also within a language where other possible combinations are possible
- Examples from 16 genetically diverse languages contained in the UCLA Lexical and Syllabic Inventory Database (ULSID)



Syllable Structures in Languages

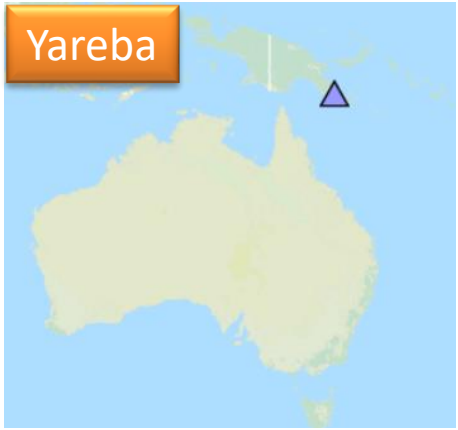


Simple Syllable Structures

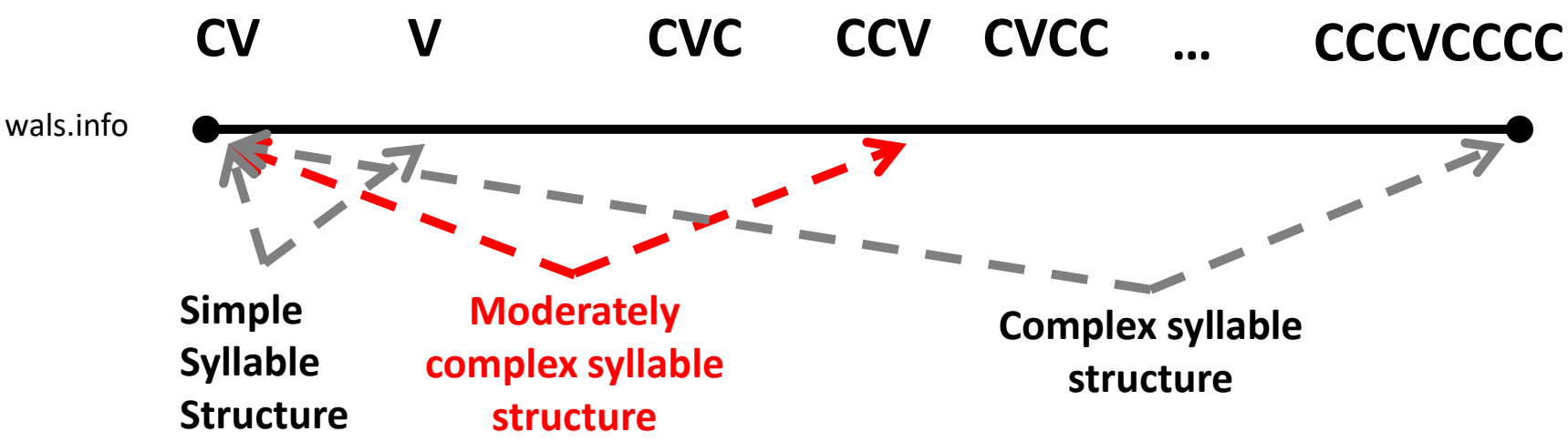


permitted not to have an initial consonant

Papua New Guinea



Moderately Complex Structures



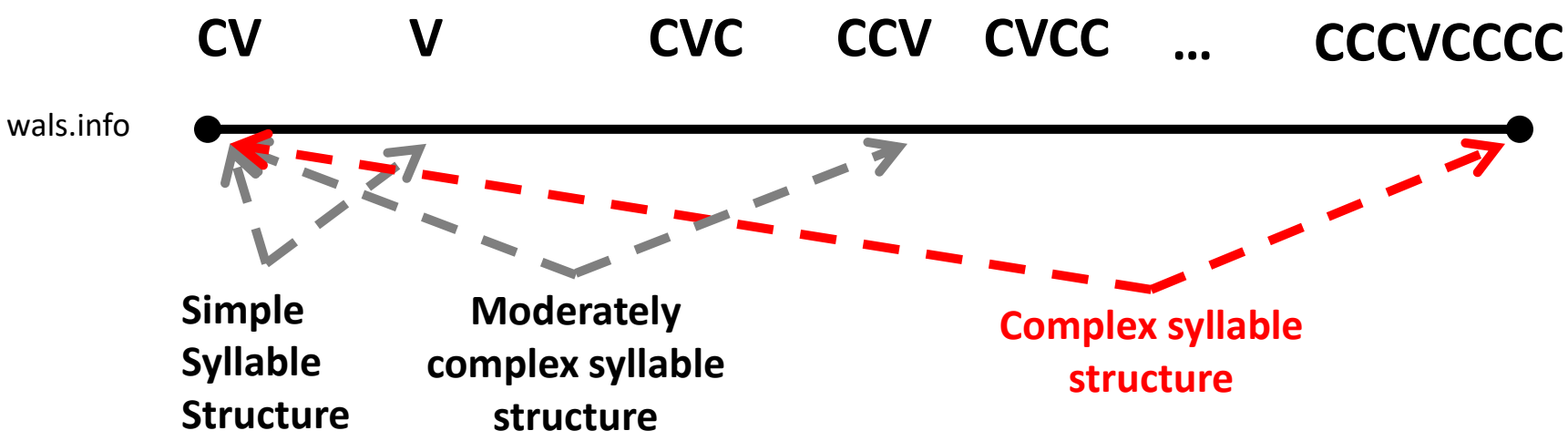
the most elaborate syllable permitted is CCVC

/bwak/ ‘(his) father’

the only possible second consonant in a sequence of two is /w/

There are strict limits on what kinds of combinations are permitted: The second of two consonants is commonly limited to being one of a small set belonging to either “liquids” (*r, l*) or “glides” ([w] in en. *wet*)

Complex Syllable Structures



English

(C)(C)(C)V(C)(C)(C)(C)

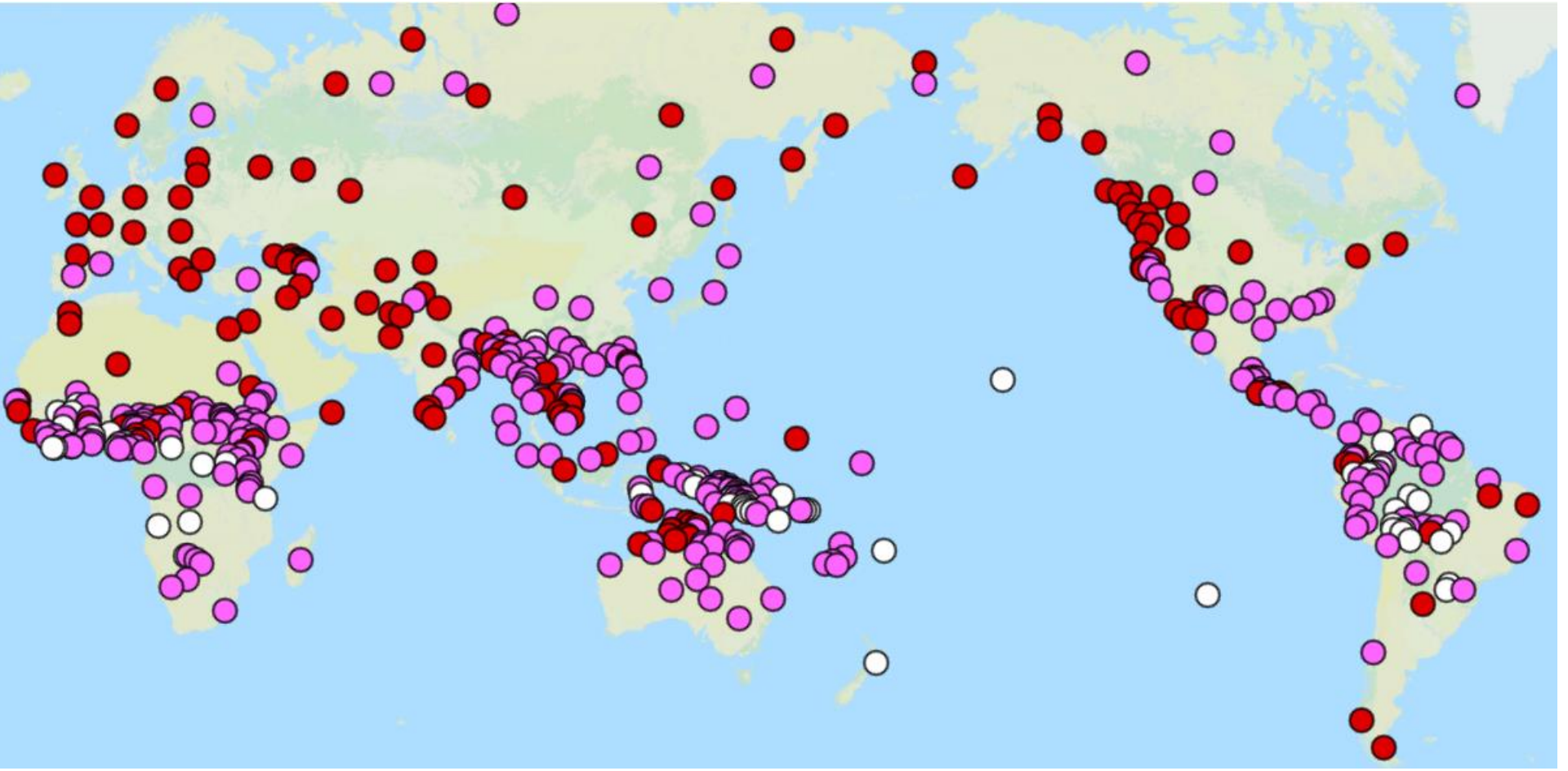
strengths /stɹɛŋkθs/

texts /tɛksts/

Distribution in WALS

Value	Representation
Simple syllable structure	61
Moderately complex syllable structure	274
Complex syllable structure	151
Total:	486

http://wals.info/feature/12A#2/16.6/153.1



Correlations Between Syllable Complexity and Other Properties

- Maddieson (2007), based on data from WALS:

  finds a positive correlation between complexity of syllable structure and the number of consonants such that languages permitting more complex syllable types tend to have a greater number of consonants.

small consonant inventories ↔ simple syllable structure

large consonant inventories ↔ complex syllable structures

		Syllable structure			
		Simple	Moderate	Complex	*Total*
Consonants	Small	20	42	16	*78*
	Mod. small	13	70	17	*100*
	Average	16	90	55	*161*
	Mod. large	3	56	37	*96*
	Large	8	15	23	*46*
	Total	*60*	*273*	*148*	*481*

Gordon (2016)

Syllable Repair Processes

- Many languages have productive processes to ensure that their syllables adhere to language-internal constraints on syllable structure
  - the insertion (epenthesis) of vowels in order to eliminate closed syllables or consonant clusters

Cairene Arabic			
(a)	/ʔul-t-l-u/	ʔultilu	'I said to him'
	/katab-t-l-u/	katabtilu	'I wrote to him'
Iraqi Arabic			
(c)	/gil-t-l-a/	gilitla	'I said to him'
	/katab-t ma-ktuːb/	katabit maktuːb	'I wrote a letter'

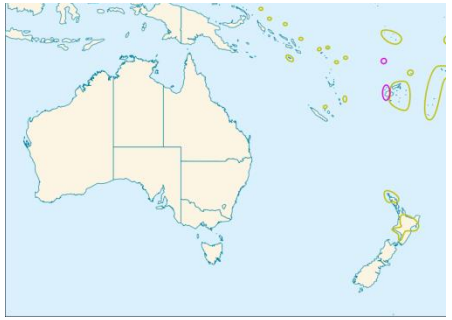
Gordon (2016)

Syllable Repair Processes

- Many languages have productive processes to ensure that their syllables adhere to language-internal constraints on syllable structure
  - the insertion (epenthesis) of vowels in order to eliminate closed syllables or consonant clusters
  - deletion of a segment

Simple	*Perfective*	*Gloss*
api	apit-ia	'be lodged'
sopo	sopoʔ-ia	'go across'
milo	milos-ia	'twist'
oso	osof-ia	'jump'
ŋalo	ŋalom-ia	'forget'

Gordon (2016)



Austronasian family
Polynesia

Syllable Structure: Slave

s-õdee	‘my older brother’
dene-[h]õdee	‘Brother (in church)’
n-anaj	‘your (sg) sister-in-law (man speaking)’
[h]anaj	‘sister-in-law’
b-ek’éhdí	‘I take care of him/her’
bebí [h]ek’éhdí	‘I take care of the baby’
ku-edehfe → kúdehfe	‘I chased them’
sah [h]edéhfe	‘s/he chased the bear’

Dené-Yeniseian family
Athabaskan group, Canada

1. What type of syllable is forbidden in Slave?
2. What and whz is inserted?
3. The syllable structure in Slave is
   a) simple
   b) moderately complex
   c) complex

Syllable Structure: Fula

Continuous	*Causative*	
hula	hulna	‘laugh’
jara	jarna	‘drink’
woja	wojna	‘cry’
d^3u:la	d^3u:lna	‘be Muslim’
wurto	wurtina	‘come out’
wudd^3a	wudd^3ina	‘steal’
jotto	jottina	‘arrive’

Senegambian branch of the Niger–Congo family

1. How does the marker for *Continuous* in Fula look like?
2. What is the marker of *Causative* in Fula?
3. The syllable structure in Fula is
    a) simple
    b) moderately complex
    c) complex

Suprasegmentals

- Vowels and consonants: segments of which speech is composed.
- Segments are composed together to form syllables
- Suprasegmentals are superimposed on the syllables. These are other features that are known as:
  - Stress
  - Length
  - Tones

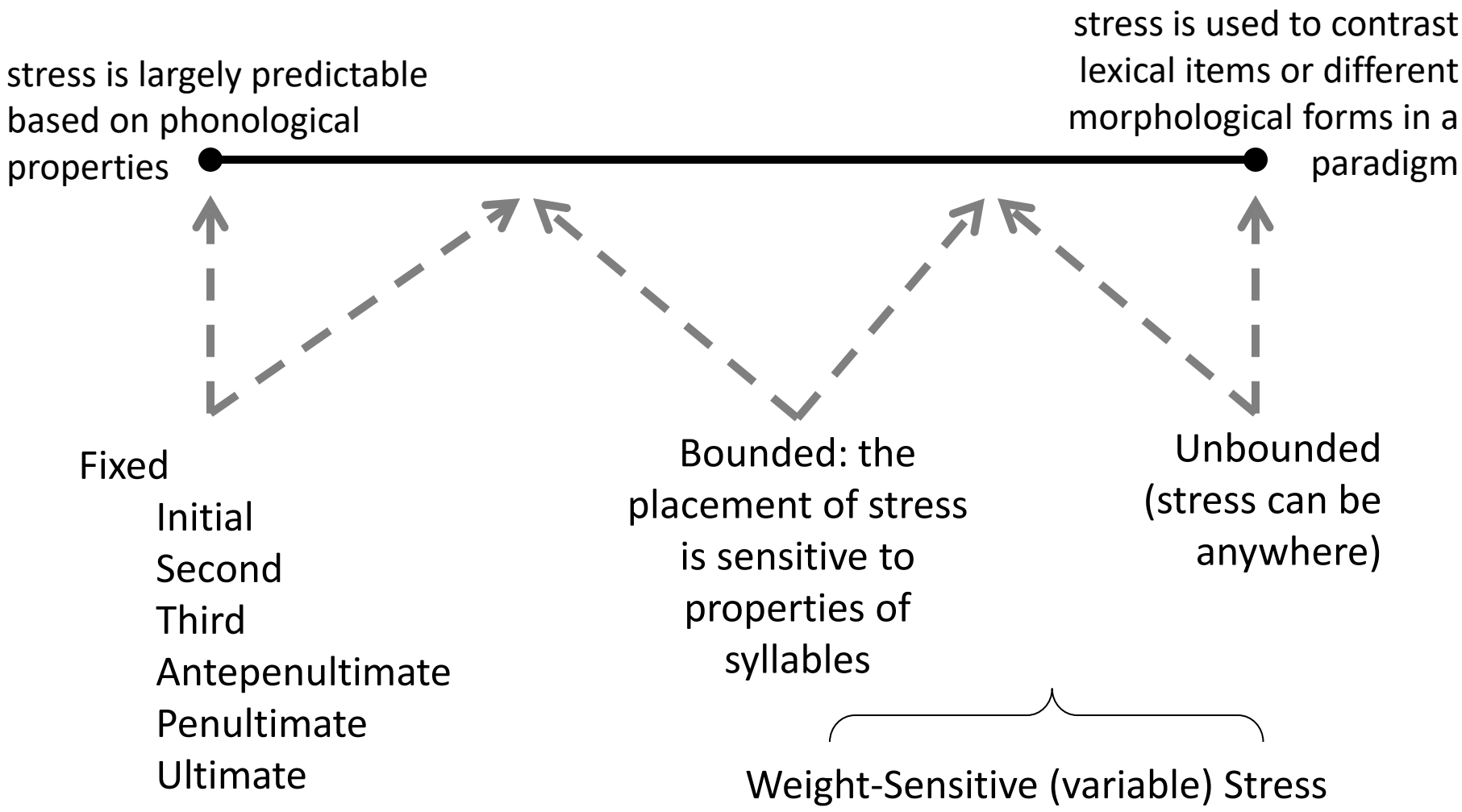
Suprasegmentals: Stress

- Manifested by different acoustic properties
  - increased duration
  - higher fundamental frequency (the acoustic analog to the perceptual property of pitch)
  - increased intensity (greater loudness perceptually)
- Consonants and vowels in stressed syllables may undergo various fortition processes in stressed syllables ↔ Consonants and vowels in unstressed syllables may conversely display lenition effects
- The majority of languages possess some type of stress system
  - languages that are reported to lack stress are mostly tonal languages
  - out of the 176 languages in the 200-language WALS sample 141 (roughly 80%) use stress compared to 28 that have only tone or pitch accent

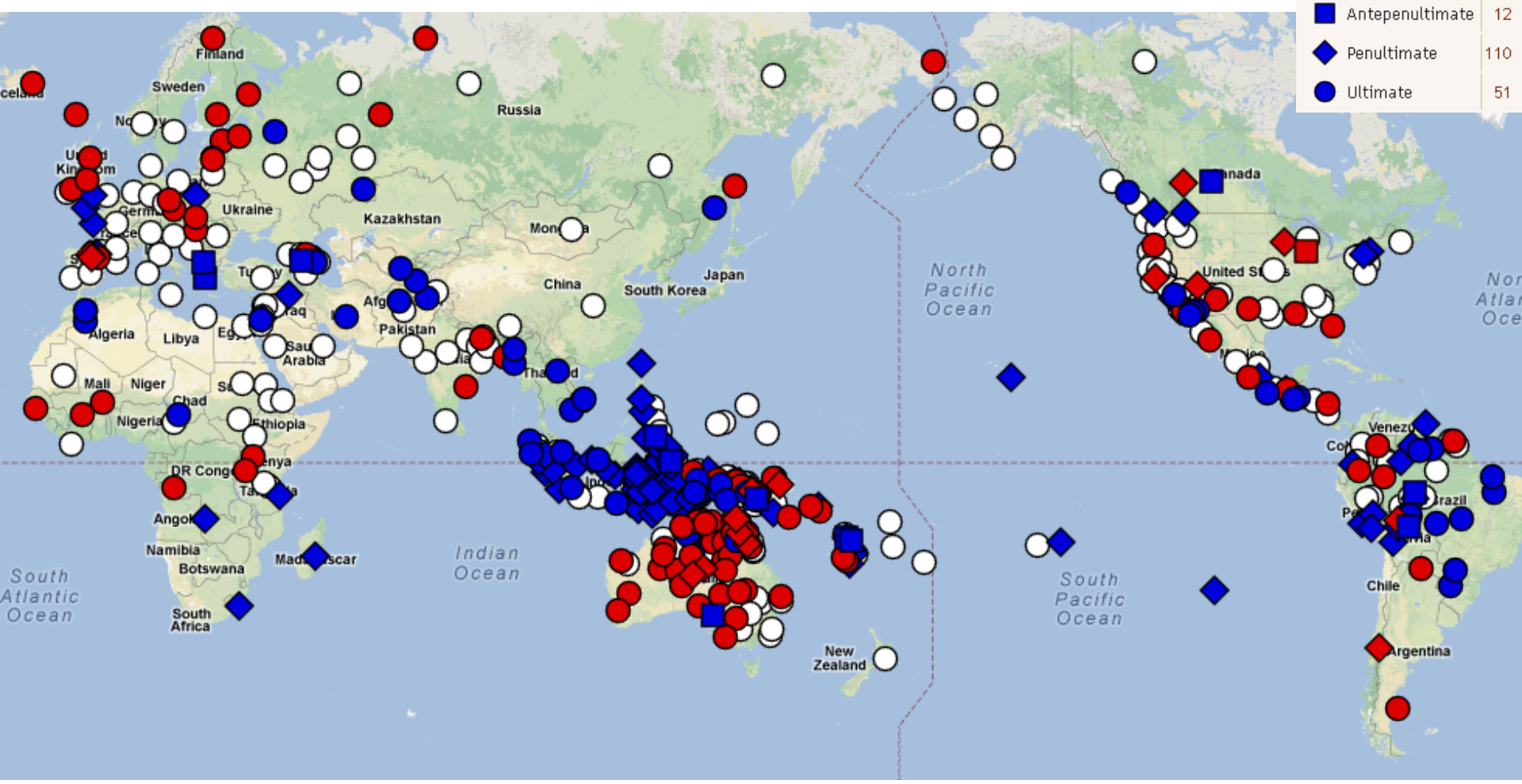
Databases on Stress Patterns

- StressTyp , **StressTyp2** (Goedemans et al. 2015) is a typological database containing information on stress and accent patterns in over 750 of the world's languages with nearly every language family represented
  - http://st2.ullet.net/
- **WALS** (World Atlas of Language Structures), info on 502 languages
  - https://wals.info/

Suprasegmentals: Stress



WALS: Fixed Stress Locations



WALS: Fixed Stress Locations

Value	Representation
No fixed stress (mostly weight-sensitive stress)	220
Initial: stress is on the first syllable	92
Second: stress is on the second syllable	16
Third: stress is on the third syllable	1
Antepenultimate: stress is on the antepenultimate (third from the right) syllable	12
Penultimate: stress is on the penultimate (second from the right) syllable	110
Ultimate: stress is on the ultimate (last) syllable	51
Total:	502

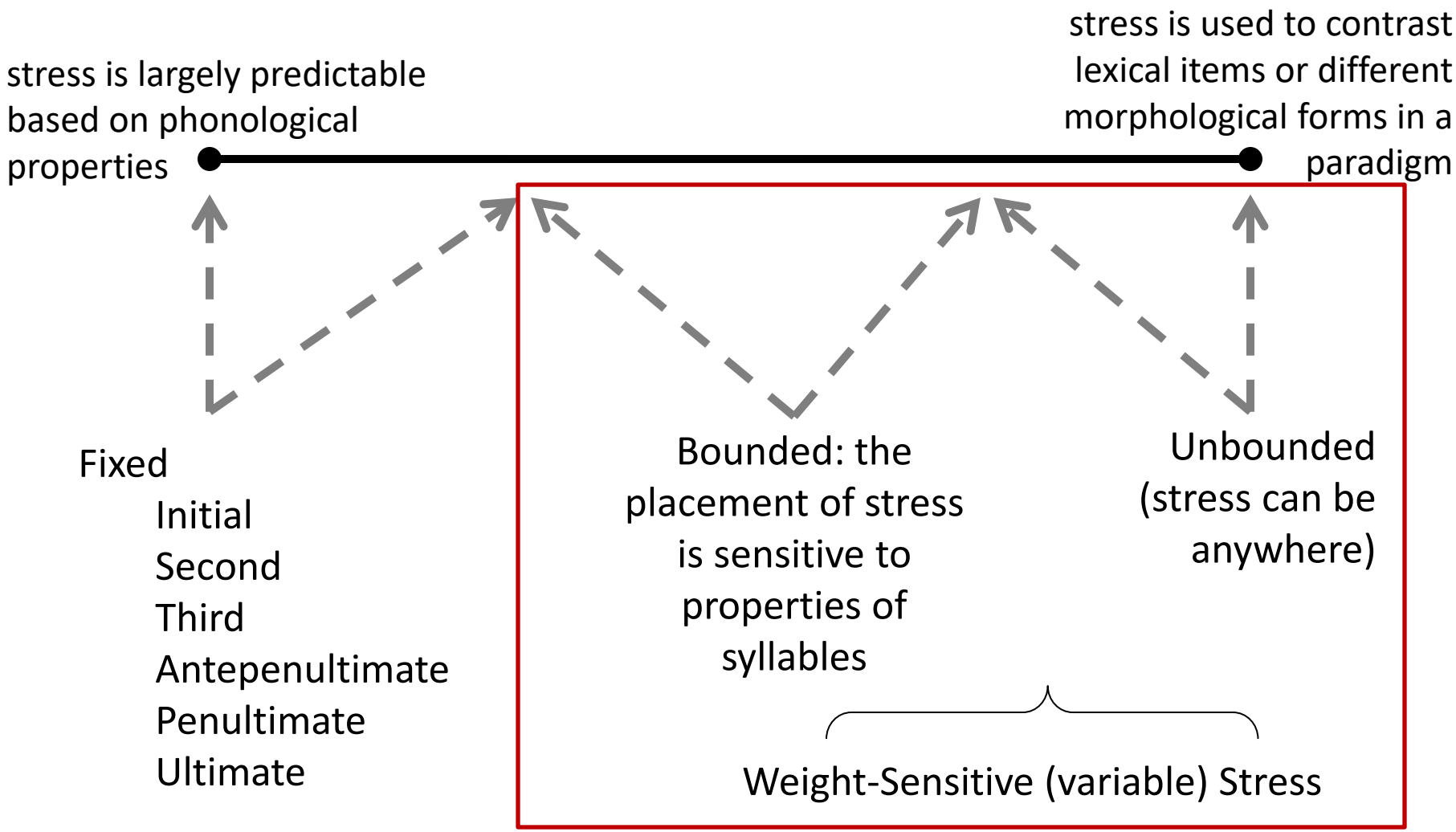
Mapudungun/Araucanian

ṯiˈpanto ‘year’, *eˈlumuˌyu* ‘give us’.

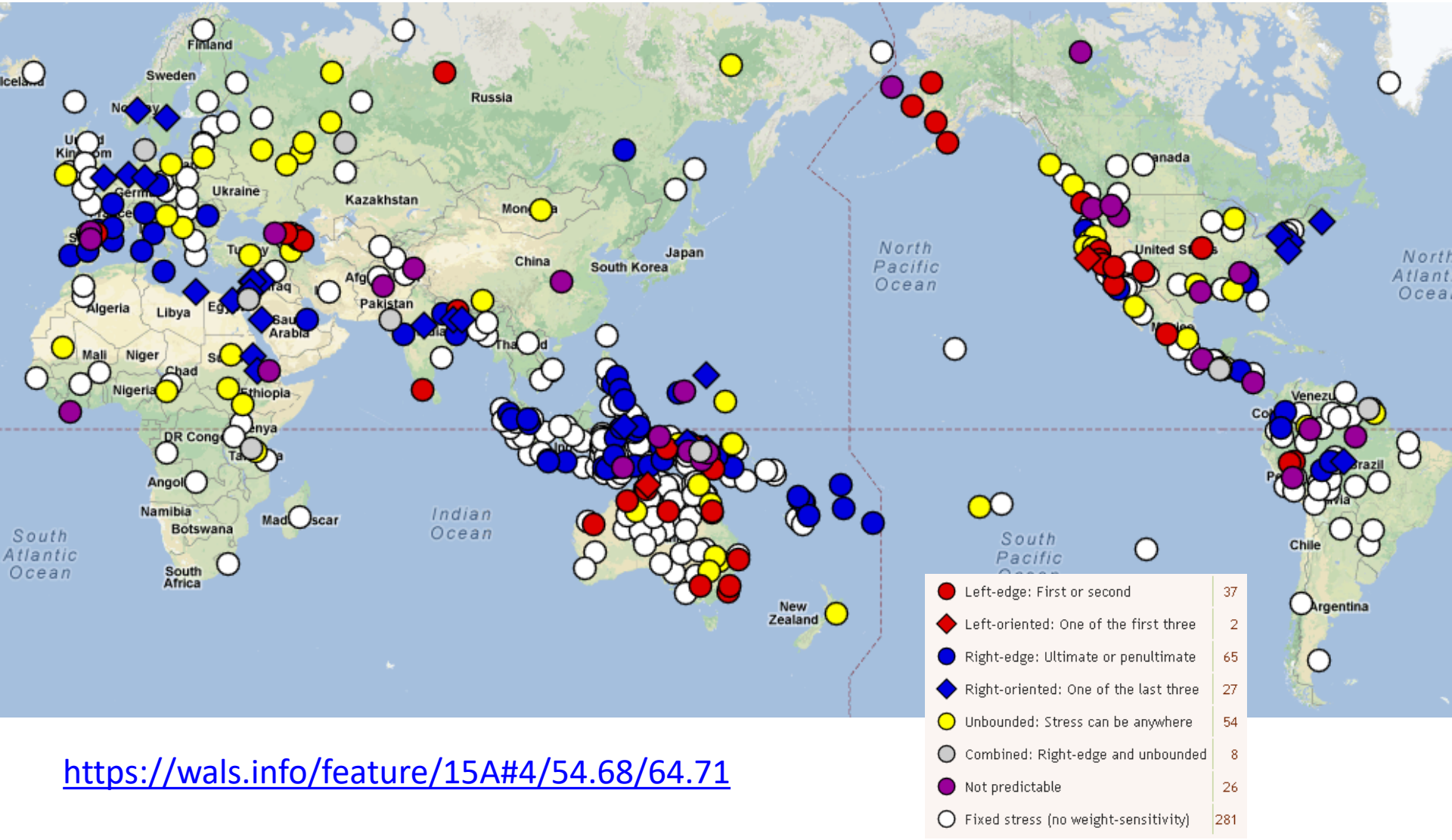
Winnebago, also known as **Ho-Chunk language** (*Hoocąk, Hocąk*)
Siouan language family

hochiˈchinik ‘boy’, *waghiˈghi* ‘ball’

Suprasegmentals: Stress



Weight-Sensitive Stress



https://wals.info/feature/15A#4/54.68/64.71

Weight-Sensitive Stress: Unbounded

Russian

a) <u>to contrast lexical items:</u>

дорога

vowel reduction

(1) dor<u>O</u>ga /dər<u>O</u>gə/
‘a road’

(2) dorog<u>A</u> /dərʌg<u>A</u>/
‘dear’

b) <u>to contrast different morphological forms in a paradigm:</u>

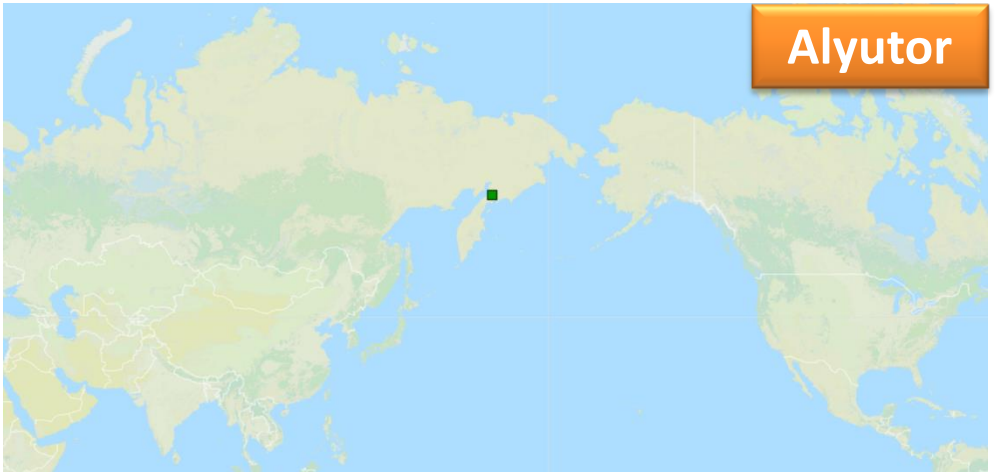
		a	b	c	d	e	f
Единственное число	И	карта	стол	море	вино	волк	губа
	Р	карты	стола	моря	вина	волка	губы
	Д	карте	столу	морю	вину	волку	губе
	В	карту	стол	море	вино	волка	губу
	Т	картой	столом	морем	вином	волком	губой
	П	о карте	о столе	о море	о вине	о волке	о губе
Множественное число	И	карты	столы	моря	вина	волки	губы
	Р	карт	столов	морей	вин	волков	губ
	Д	картам	столам	морям	винам	волкам	губам
	Т	картами	столами	морями	винами	волками	губами
	П	о картах	о столах	о морях	о винах	о волках	о губах

mO<u></u>r’e – ‘a sea’ (Nom.Sg.)
mor’<u>A</u> – ‘seas’ (Nom. Pl)

Weight-Sensitive Stress: Bounded

tátul	—	fox
nətɣálqin	—	hot
nuráqin	—	far
ɣálɣən	—	skin
néqəqin	—	quick
nəsáqqin	—	cold
tapláɹjətkən	—	he sews shoes
kámɣətək	—	roll up
ʔítək	—	be
paqátkuk	—	run
nílɣəqinat	—	white
púnta	—	liver
qetúmɣən	—	relative
píwtak	—	fall
nəmítqin	—	skillful
túmɣətum	—	friend
tátka	—	walrus
káttil	—	forehead
qalpúqal	—	rainbow
kəpírik	—	hold in arms
təvítatətkən	—	I work
píntəvəlɹək	—	throw at each other

Alyutor or **Alutor** is a language of Russia that belongs to the Chukotkan branch of the Chukotko-Kamchatkan languages



Formulate the stress rules and put the stress for the following words:

sawat - lasso
pantawwi - boots
nəktəqin - solid
nəminəm - bouillon

Suprasegmentals: Vowel Length

Within languages that make length distinctions, short segments tend to vastly outnumber their long counterparts.

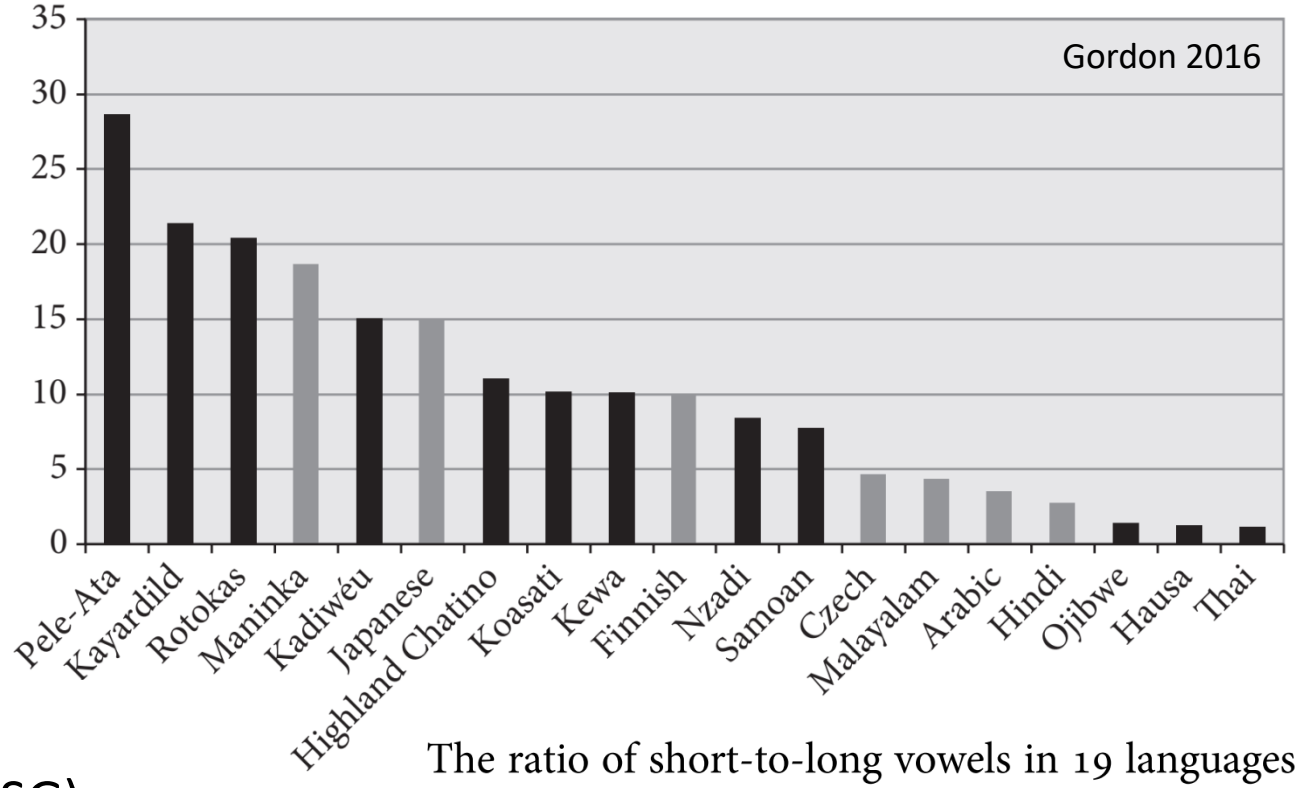
Estonian

saada /saːta/ – ‘to get’
saada /saˑta/ – ‘send!’
sada /sata/ – ‘hundred’

Arabic, Sanskrit, Japanese, Hebrew, Finnish, Hungarian, Italian, Czech etc.

Czech

šipku – ‘arrow’
šípku – ‘rosehip’ (Gen, SG)

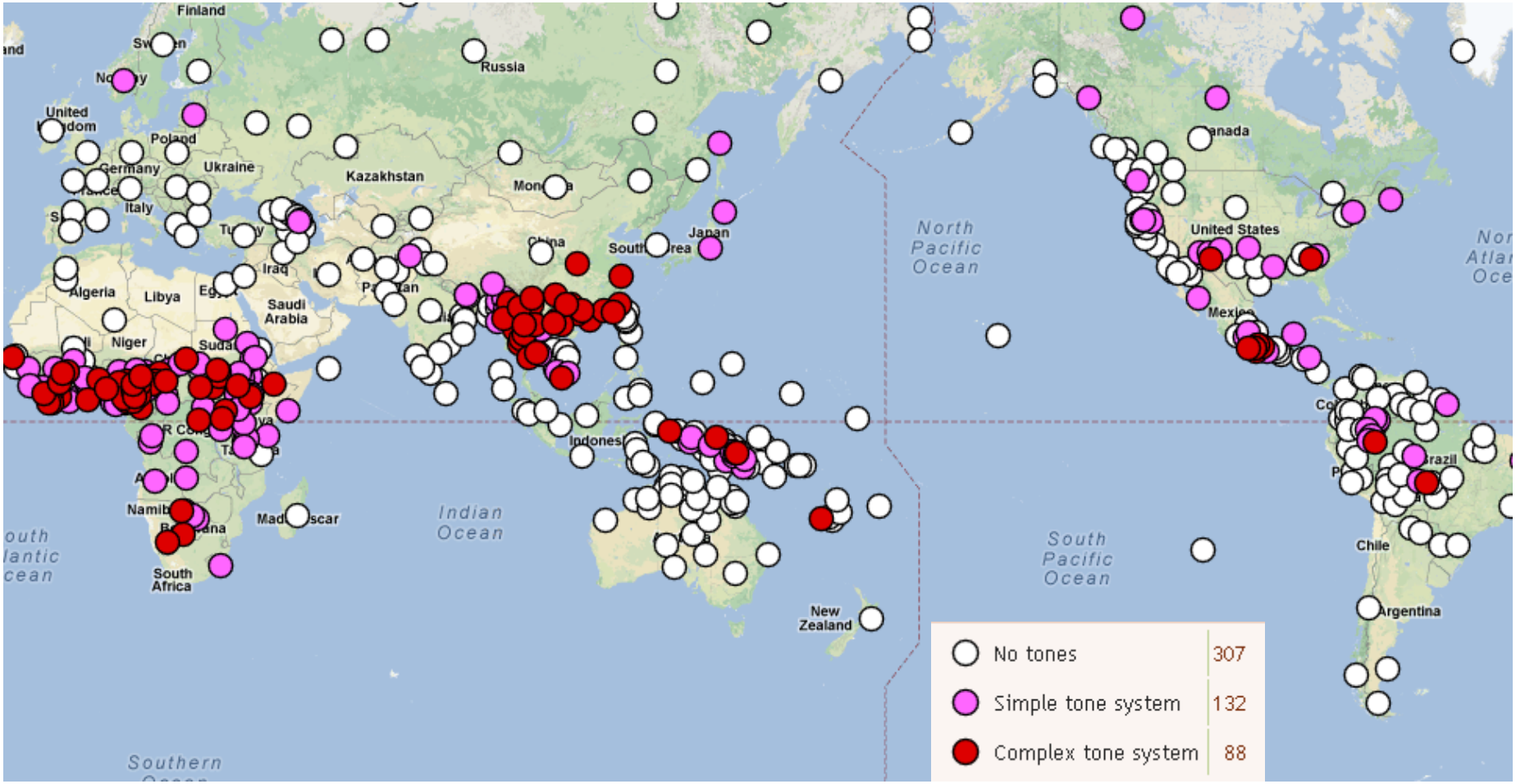


The ratio of short-to-long vowels in 19 languages

Suprasegmentals: Tone

- The use of different pitch patterns to distinguish individual words or the grammatical forms of word
- Up to 60–70% of the world's languages are tone languages (surprisingly sharp disagreements: different numbers in different classifications, cf. Maddieson's (2013) in WALS)
- Tone languages are not distributed evenly throughout the world (widespread in Africa, Central America, and Southeast Asia)

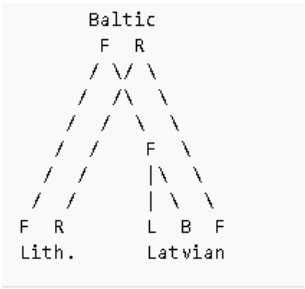
WALS: Tones in languages



Suprasegmentals: Tone

No Tones — **Simple tone systems** — **Complex tone systems**

English, Czech, German, Hebrew, Arabic, Finnish, French, …



/kʰáá/ - ‘to trade’
/ kʰ āā/ - ‘to get stuck’
/kàà/ - ‘galangal’
/kàá/ - ‘leg’
/káà/ - ‘leg’

Thai

Serbian

+ length,
+ variable stress

short falling ⟨ȉ⟩,
short rising ⟨ì⟩;
long falling ⟨î⟩
long rising ⟨í⟩

ne znam = /nèznām/ - ‘I don’t know’

Lithuanian, Latvian

Stressed syllables containing a long vowel, diphthong, or a sonorant coda—may have one of two tones, falling (acute) tone or rising (circumflex) tone

Ideal tone language: Every syllable in a word is differentiated solely on the basis of tone
Reality: most tone languages have constraints on the distribution of tones (e.g. limited to roots and certain affixal domains)

References

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