Synchronic typology of metrical systems

Day 3: Foot inventory

Björn Köhnlein
Leiden University
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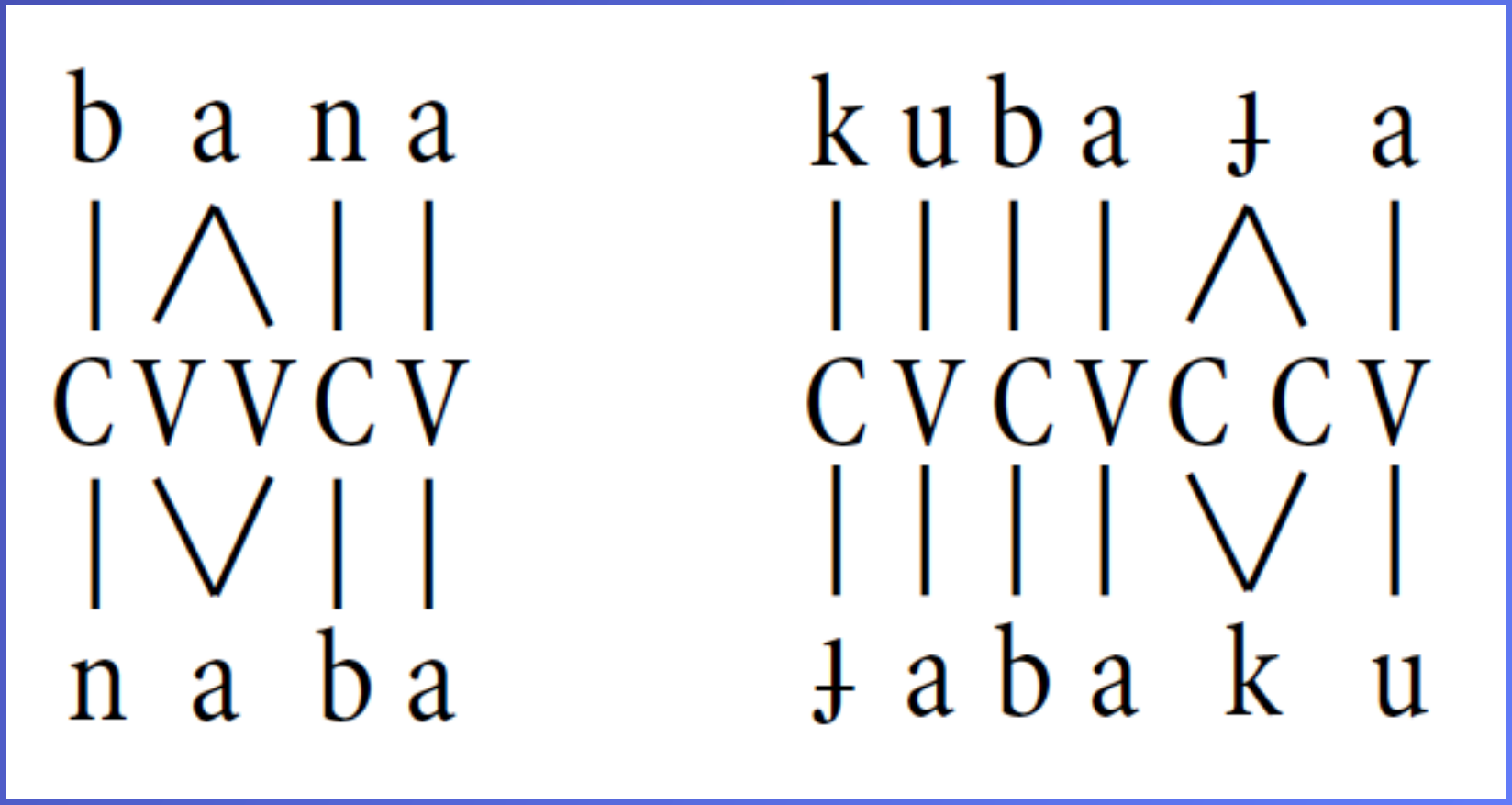
What we did yesterday…

Moraic phonology

- Where does moraic phonology come from?
- What are moras, and why / how are people using them?
- It all started with the rediscovery of syllable structure in (generative) phonology and the introduction of the CV tier

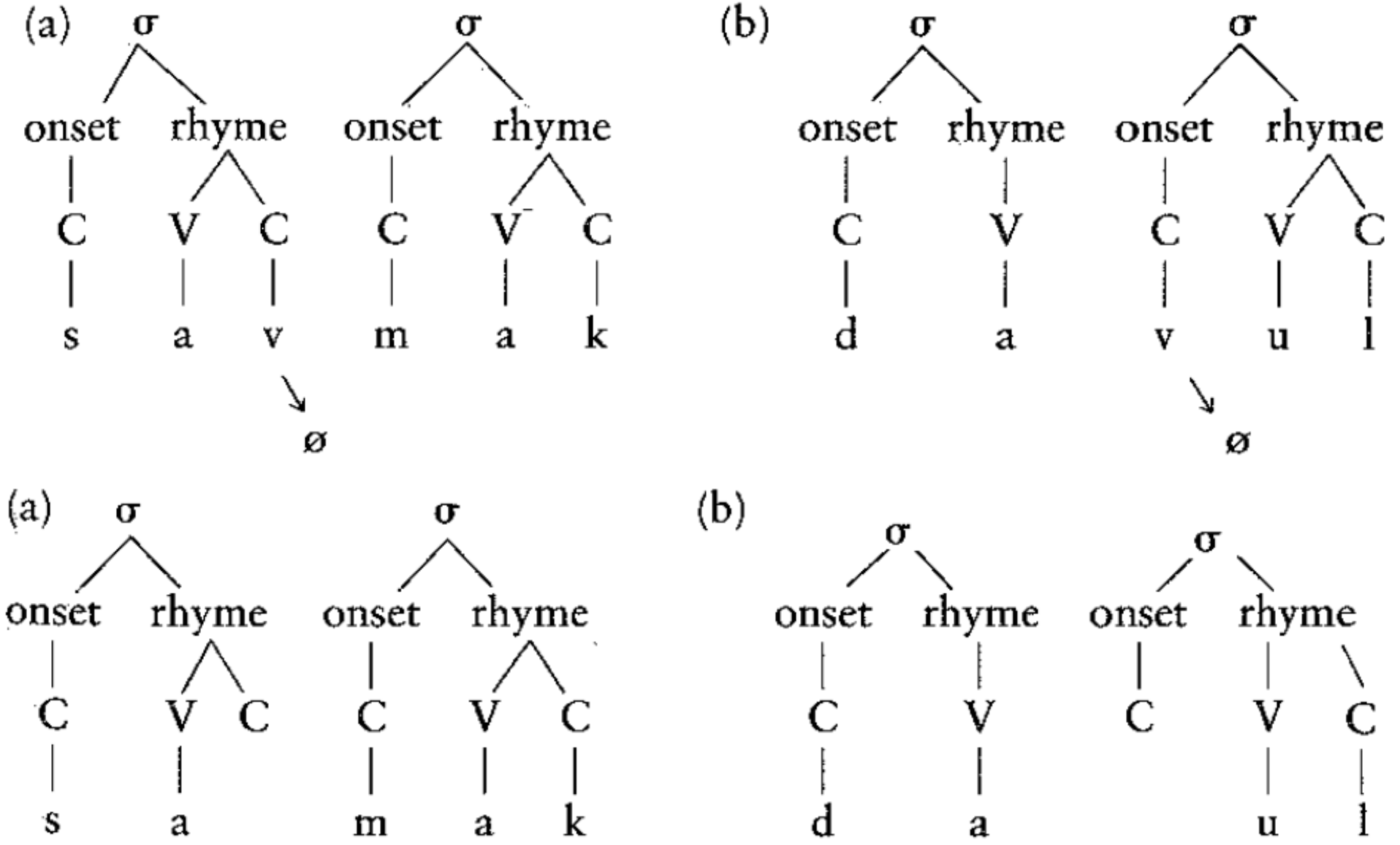
Luganda – Ludikya



Further arguments for the CV tier

- Compensatory lengthening
- When a segment gets lost, an adjacent segment can take over its skeletal position
- Result: lengthening

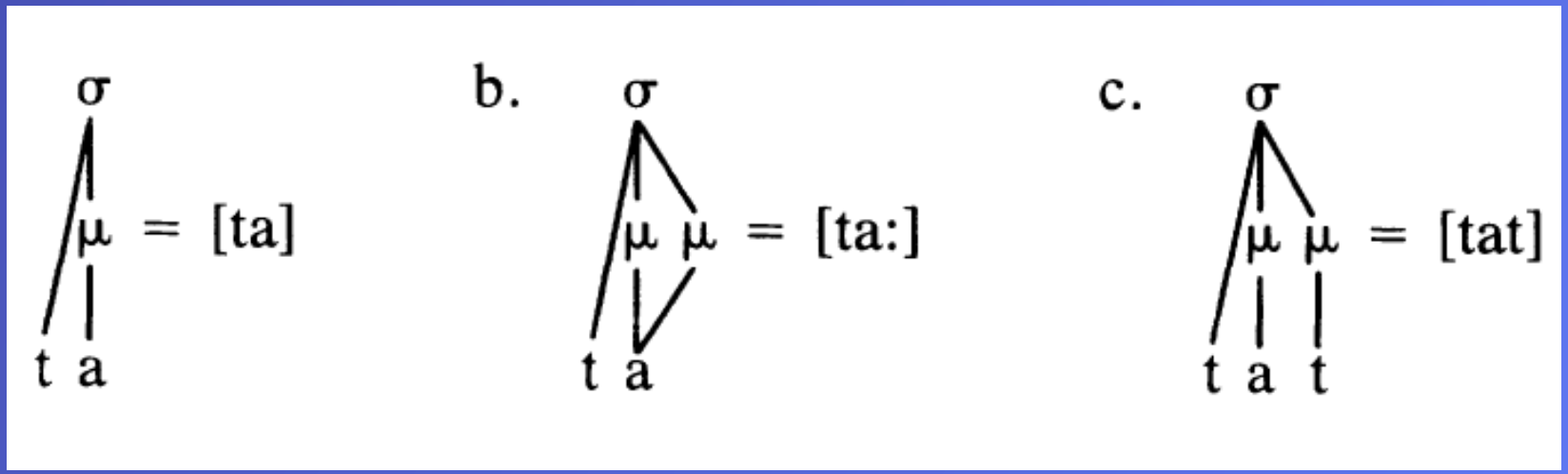
CL in Turkish (based on Sezer 1986)

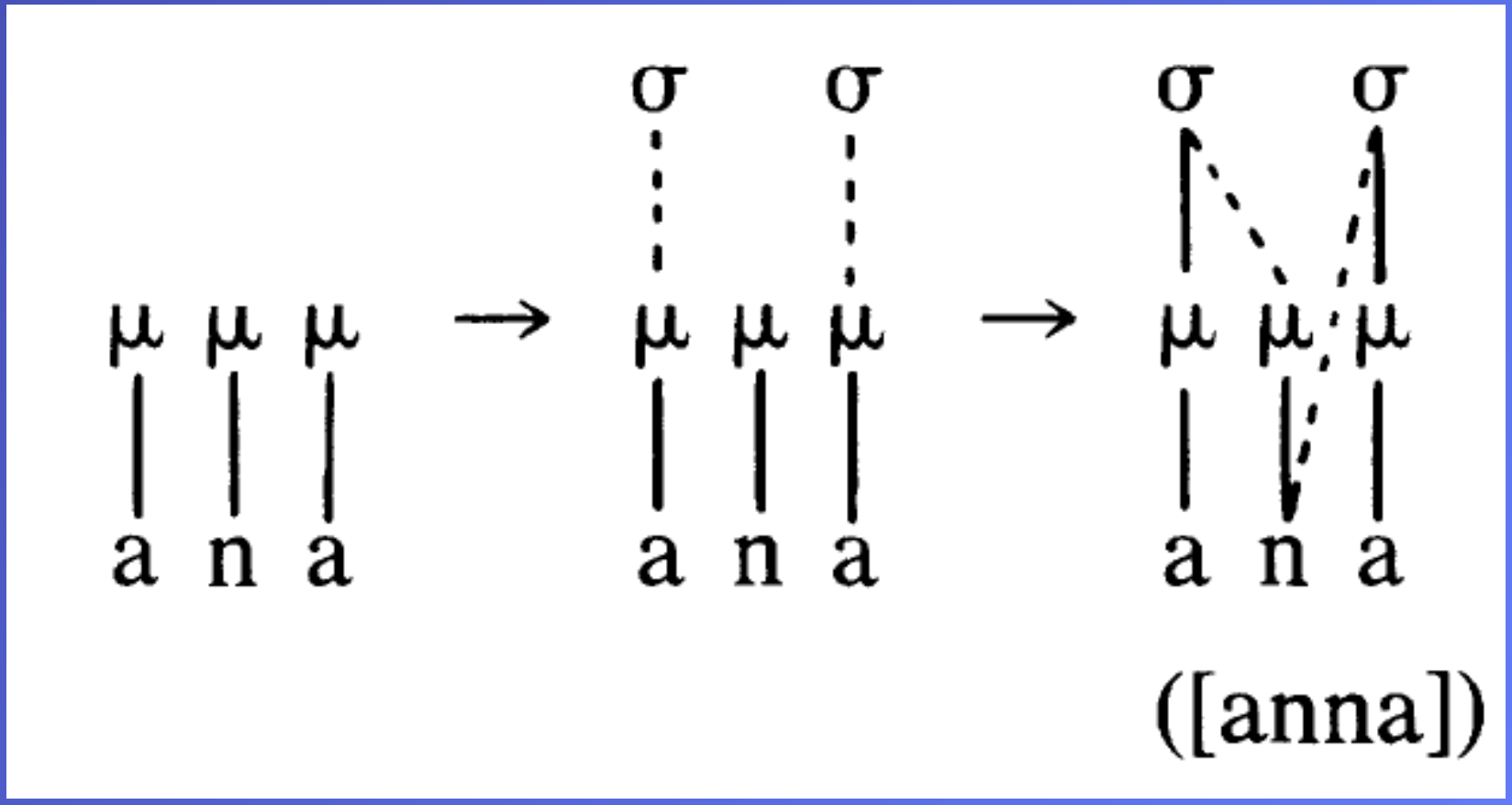


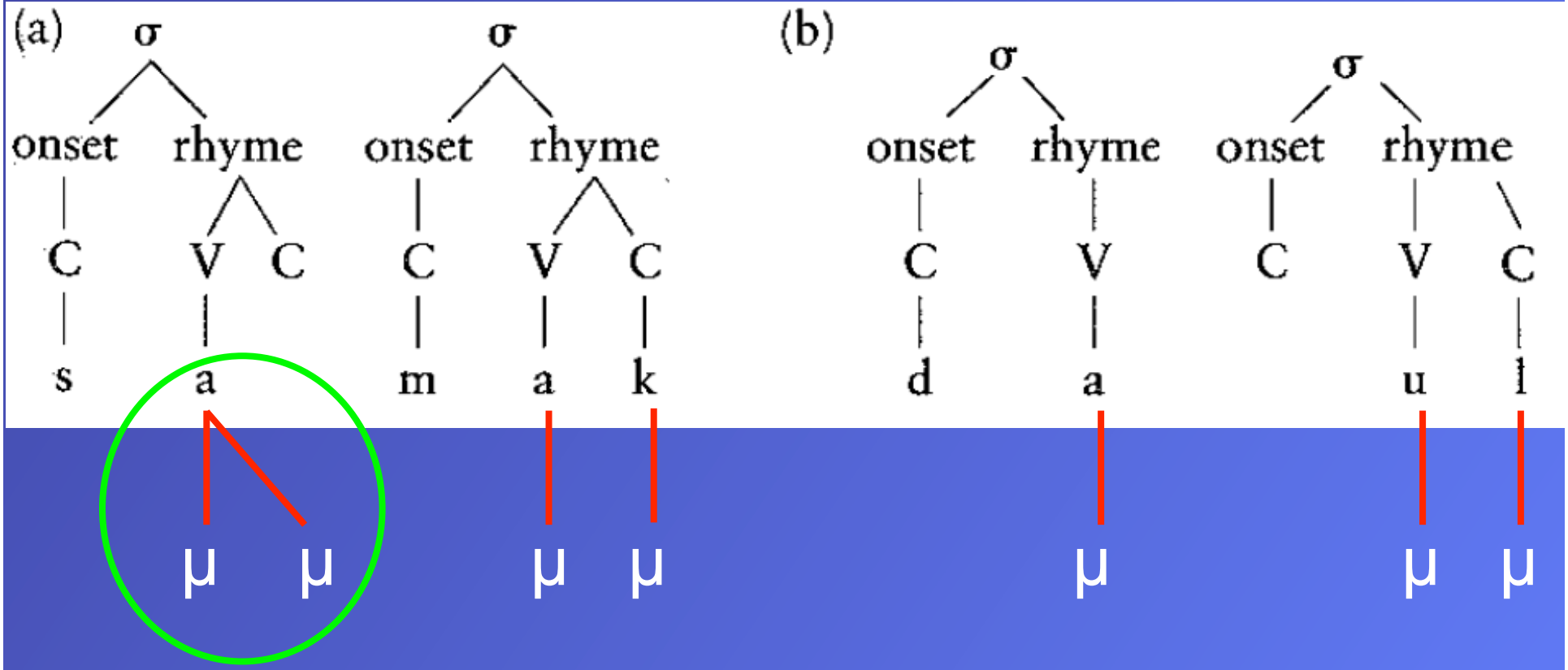
CL in Latin (Hayes 1989)

*kasnus	→	ka:nus	‘gray’
*kosmis	→	ko:mis	‘courteous’
*fideslia	→	fide:lia	‘pot’

*smereo:	→	mereo:	‘deserve-1 sg.-pres.’
*snurus	→	nurus	‘daughter-in-law’
*slu:brikus	→	lu:brikus	‘slippery’

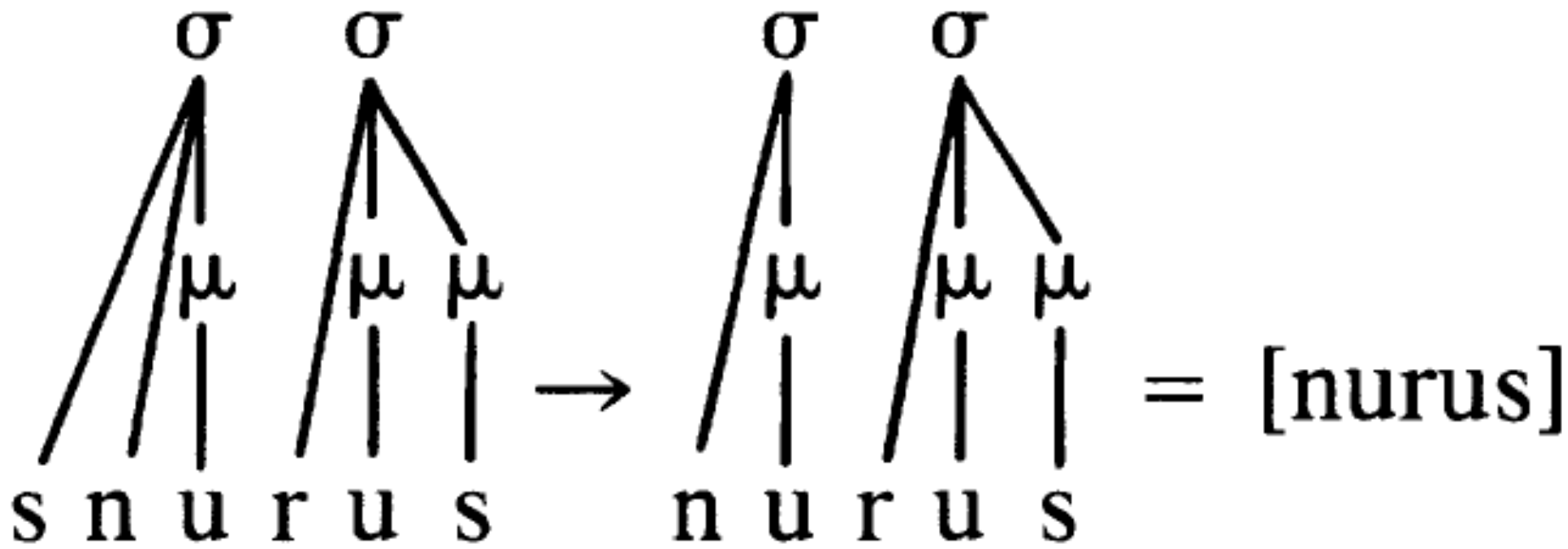

σ
μ
t a
= [ta]
b.
σ
μ μ
t a
= [ta:]
c.
σ
μ μ
t a t
= [tat]


σ σ σ
μ μ μ μ μ μ μ μ μ
a n a a n a a n a
([anna])



Mora reassociates with preceding vowel

CL in Latin (Hayes 1989)



Day-to-day program

- Monday – Introduction / phonetic correlates of stress
- Tuesday – Moraic Phonology
- Wednesday – Foot inventory
- Thursday – Foot inventory II
- Friday – Metrical structure in Optimality Theory

The phonological nature of stress

- How to express stress phonologically?
- For a long time, stress was assumed to be a feature (in SPE-theory)
- Beginning with Liberman and Prince (1977) and Halle and Vergnaud (1978), stress is now regarded as a structural position

Stress as a structural position in non-linear phonology

- The structural position corresponding to stress is **the foot**
- Typically, feet are characterized by one strong and one weak syllable

Some typological properties of stress systems

- Obligatoriness
  - Every content word has at least one stressed syllable
- Culminativity
  - In every word / phrase there is one syllable which is stronger than the rest

Some typological properties of stress systems

- Non-assimilation
  - Stress cannot assimilate like segmental features / tones
- Rhythmic distribution
  - Syllables bearing stress tend to occur in roughly equal distances

Stress as a structural position: the foot

- One of the feet in a word is the strong foot, and its strong syllable (its **head**) will typically be more prominent than the strong syllables of other feet:

  main stress vs. **secondary stress**
- Where feet are located within a word varies between languages
- However, several scholars assume that this follows a set of universal phonological principles

Note: feet in poetry

- The notion of the foot used within metrical theory is similar, but not identical, to the foot known from metrical poetry
- Both group syllables into constituents
- However, in poetry, feet are used for esthetic purposes – in metrical theory, they represent the rhythmic structure of the word

Stress patterns

- We will look at two widespread theories in the analysis of linguistic rhythm
- Hayes (1981)
- Hayes (1995), a refined theory based on moras

Stress in nonlinear phonology

- Hayes (1981) proposed a theory of stress that is an improvement upon the linear account in two ways:
  - Stress is no longer a feature but a strength relation between syllables
  - Parameters account for the different stress patterns in natural languages

Strength relation between syllables

- Stress is formally represented by using binary branching tree structures
- These nodes are labeled **S(trong)** and **W(eak)**

Different stress patterns in natural languages

- The parameters in Hayes (1981):
  - Right-dominant vs left-dominant
  - Bounded vs unbounded
  - Left to right vs Right to left
  - Quantity-sensitive vs quantity-insensitive

Right-dominant vs left-dominant

- Languages vary in whether the right node or the left node of the binary tree structure is dominant
  - Left-dominant: (SW)
  - Right-dominant: (WS)

Bounded vs unbounded

- In **bounded** languages, main stress is located at a fixed distance from the (left or right) word boundary, secondary stresses are located at fixed intervals from other stresses
- In **unbounded** stress systems, main stress cannot be located in this way; it is pulled towards heavy syllables

Left to right vs right to left

- Languages with bounded stress systems may differ in whether foot construction starts at the **right edge** or the **left edge** of the word
- There can be asymmetries (e.g. first, primary stress can be assigned on on edge, the other feet from the other edge)

Quantity-sensitive vs. quantity-insensitive

- In one group of languages, the fact that a syllable is heavy or light does not influence the construction of feet. They are **quantity-insensitive**
- In another group of languages, the internal structure of the syllable is taken into account: here, a weak node may not dominate a heavy syllable; they are **quantity-sensitive**

Extrametricality

- A particular phonological element (segment, prosodic unit) can be ignored during computation
- This element is usually at an edge of a word (left, right)
  - E.g. word-final syllable, mora, consonant, etc.

Some examples

- Pintupi
- Garawa
- Hixkaryana

Stress in Pintupi

a. [tʲáː]
b. [mú.ŋu]
c. [múː.ŋu]
d. [tʲán.pa]
e. [ká.pa.li]
f. [míːlʲ.ma.nu]
g. [ŋál.ku.nìn.pa]
h. [pú.ɭiŋ.kà.la.tʲu]
i. [tʲá.mu.lìm.pa.tʲùŋ.ku]

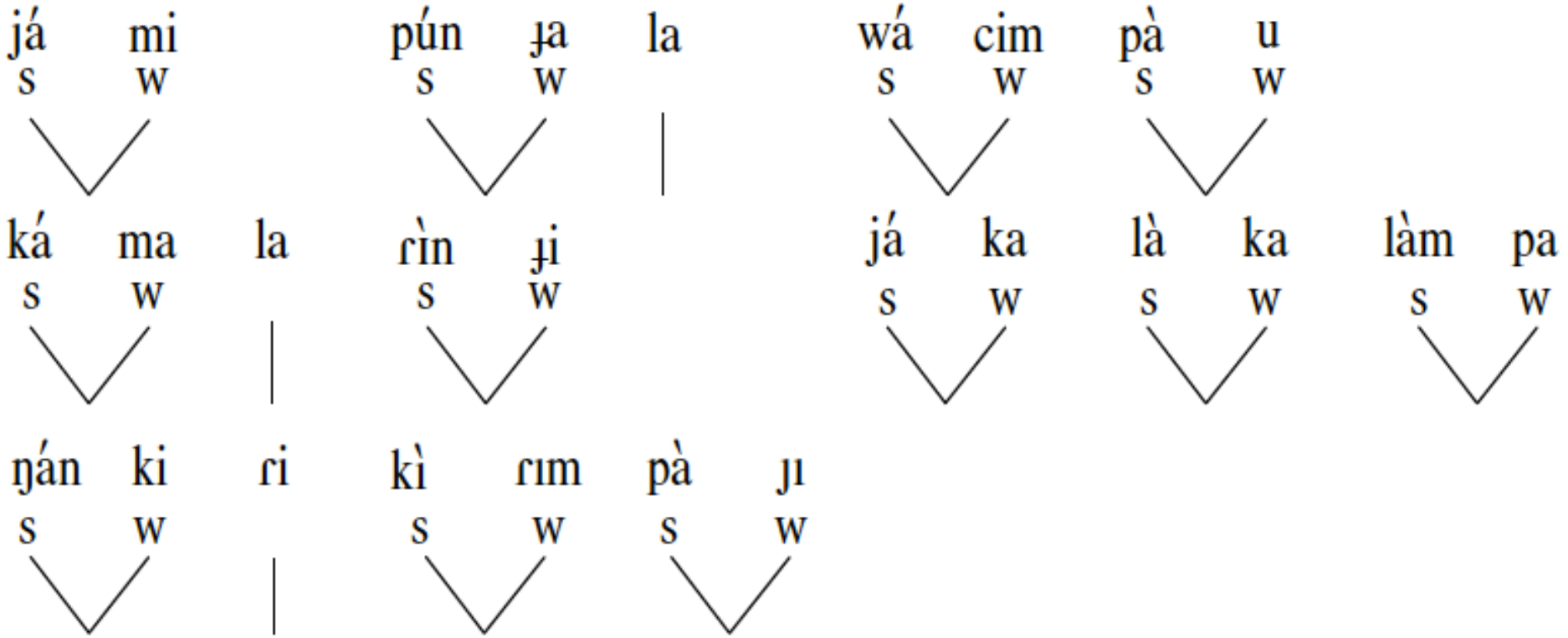
Pintupi

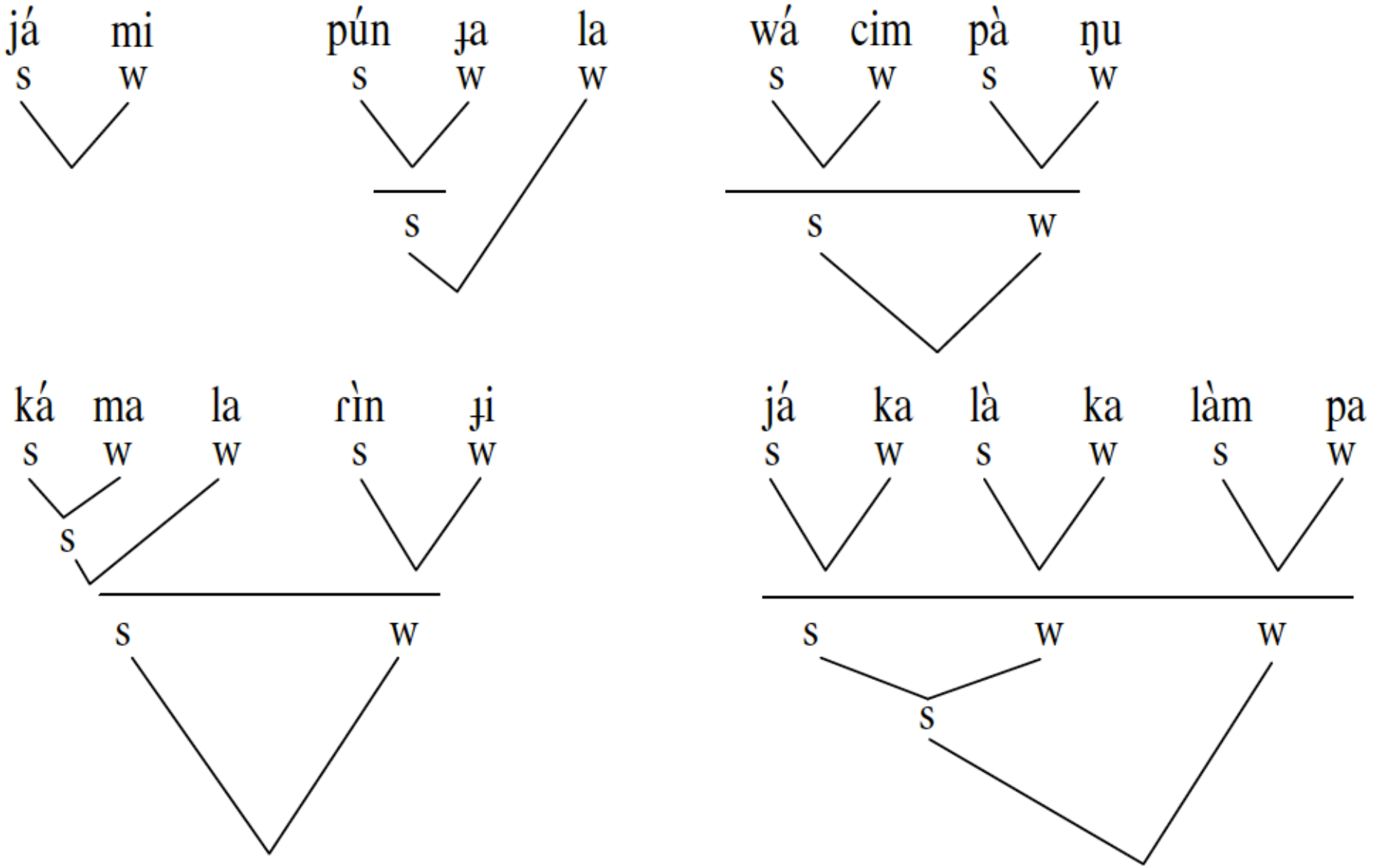
Overt forms	Surface forms
a. [tʲáː]	/(cv́v)/
b. [mú.ŋu]	/(cv́.cv)/
c. [múː.ŋu]	/(cv́v.cv)/
d. [tʲán.pa]	/(cv́c.cv)/
e. [ká.pa.li]	/(cv́.cv) cv/
f. [míːlʲ.ma.nu]	/(cv́v) cv.cv/
g. [ŋál.ku.nìn.pa]	/(cv́c.cv)(cv̀c.cv)/
h. [pú.ɭiŋ.kà.la.tʲu]	/(cv́.cvc)(cv̀.cv) cv/
i. [tʲá.mu.lìm.pa.tʲùŋ.ku]	/(cv́.cv)(cv̀c.cv)(cv̀c.cv)/

Garawa: data (Furby 1974)

já .mi	pún.ɟa.la	wá.cim.pà .ŋu
‘eye’	‘white’	‘armpit’
ká .ma.la.ɾìn.ɟi	já .ka.là.ka.làm.pa	
‘wrist’	‘loose’	
ŋán.ki.ɾi.kì.ɾim.pà .ji		
‘fought with boomerangs’		

Quantity-insensitive, left-dominant (Garawa)




já mi
s w
pún ɟa la
s w w
s
wá cim pà ŋu
s w s w
s w
ká ma la ɾìn ɟi
s w w s w
s
s w
já ka là ka làm pa
s w s w s w
s w w
s