

# Roots and Patterns in McCarthy (1981)

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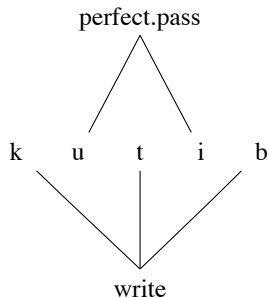
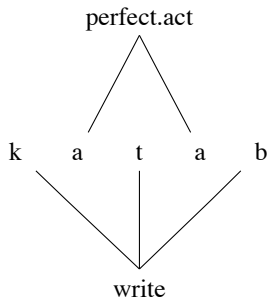
Reduplikation, Universität Leipzig

October 12, 2006

# Arabic Root- & Pattern- Morphology (Tense/Aspect)

	<b>Ptv. Act.</b>	<b>Ptv. Pass.</b>	<b>Impf. Akt.</b>	<b>Impf. Pass.</b>
<b>I</b>	<i>katab</i>	<i>kutib</i>	<i>aktub</i>	<i>uktab</i>
<b>II</b>	<i>kattab</i>	<i>kuttib</i>	<i>ukattib</i>	<i>ukattab</i>
<b>III</b>	<i>kaatab</i>	<i>kuutib</i>	<i>ukaatib</i>	<i>ukaatab</i>

# Problem I: Discontinuous Morphemes

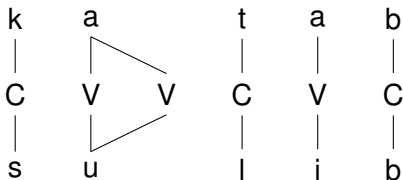


# Arabic Root- & Pattern- Morphology (Binyanim)

<b>Binyan</b>	<b>Form</b>	<b>Gloss</b>
<b>I</b>	<i>katab</i>	'write'
<b>II</b>	<i>kattab</i>	'cause to write'
<b>III</b>	<i>kaatab</i>	'correspond'
<b>IV</b>	<i>?aktab</i>	'cause to write'
<b>VI</b>	<i>takaatab</i>	'write to each other'
<b>VII</b>	<i>nkatab</i>	'subscribe'
<b>VIII</b>	<i>ktatab</i>	'write, be registered'
<b>X</b>	<i>staktab</i>	'write, make write'
<b>XI</b>	<i>ktaabab</i>	

# Problem II: Templatic Morphemes

## Binyan III



# Chomsky (1951) on Root- & Pattern-Morphology

(1) **Concatenation:**

a. *ktb* + *a* — *a* [+perfect +active +BinyanI]

b. *ktb* + *u* — *i* [+perfect +passive +BinyanI]

(2) **Phonological Rule:**  $C_1 C_2 C_3 + V_1 - V_2 \rightarrow C_1 V_1 C_2 V_2 C_3$

(3) **Rule Application:**

a. *ktb a* — *a* → *katab*

b. *ktb u* — *i* → *kutib*

# Word Formation Rules

Stem	Meaning	Change
$C_1C_2C_3$	[+perfect +active +BinyanI]	→ $C_1aC_2Ca_3$
ktb	[+perfect +active +BinyanI]	→ katab
$C_1C_2C_3$	[+perfect +passive +BinyanI]	→ $C_1uC_2Ci_3$
ktb	[+perfect +passive +BinyanI]	→ kutib

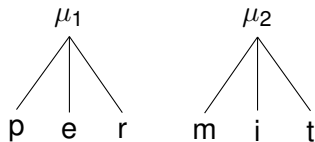
**Problem:** Doesn't capture parallels between *katab* and *kutib*

# Getting rid of juncture symbols I

SPE

per+mit

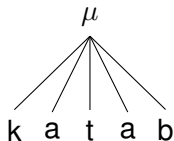
McCarthy (1981)



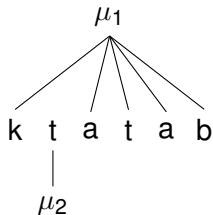


## Getting rid of juncture symbols II

Binyan I  
'write'



Binyan VIII  
'write, be registered'



# Slicing Morphological Information into Tiers

(*kuutib*, Binyan III Perf., 'write')

**C V V C V C**

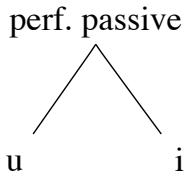
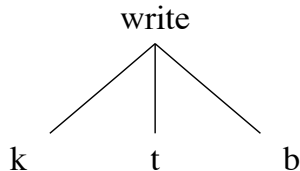
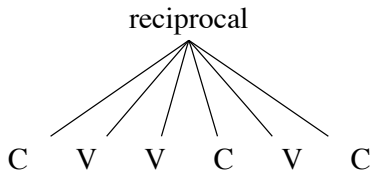
Binyan III, reciprocal (*kaatab,kuutib*)

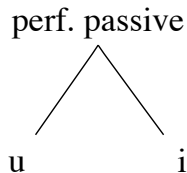
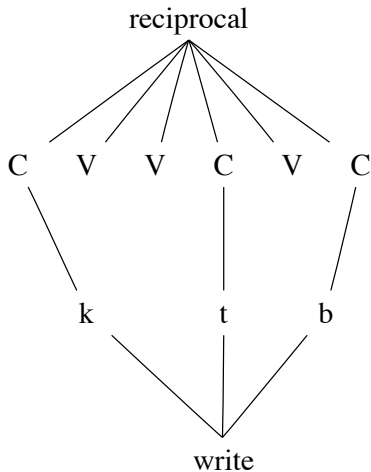
**k t b**

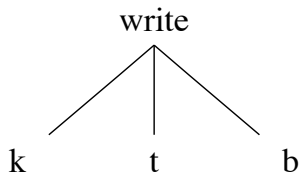
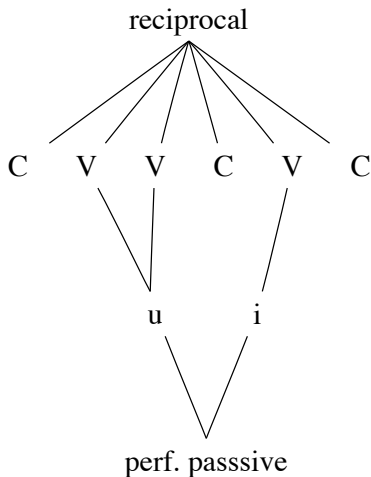
write, (*kattab,ktatab*)

**u i**

Perf. Passive (*kutib,nkutib*)

Slicing +  $\mu$ -Notation (*kuutib*, Binyan III Perf., 'write')

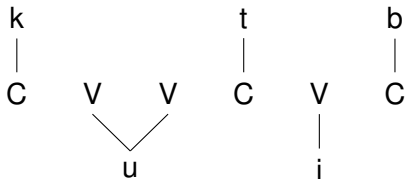
Slicing +  $\mu$ -Notation (*kuutib*, Binyan III Perf., 'write')

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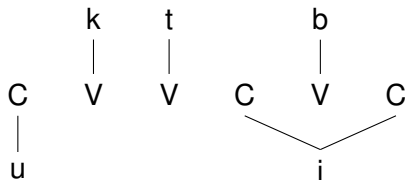
# Linking Conditions

- 1 Vowels link to Vs, Consonants to Cs
- 2 Association Lines never cross
- 3 Preassociation is not altered
- 4 Linking is left-to-right
- 5 Every skeletal node is linked to a melodic node

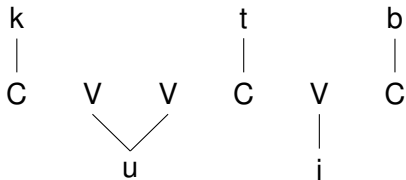
# Condition 1: Vowels link to Vs, Consonants to Cs



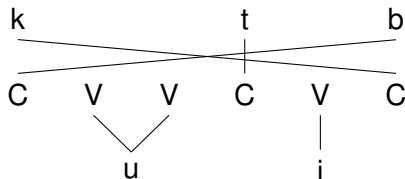
**not:**



## Condition 2: Association Lines never cross



**not:**





# Condition 3: Preassociation is not altered: ktab

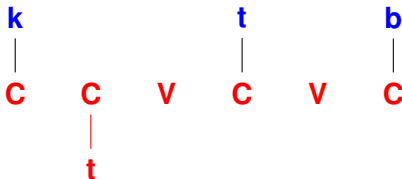
**C C V C V C**  
 |  
**t**

Binyan VIII

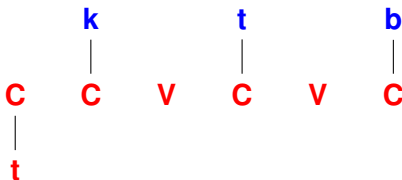
**k t b**

'write'

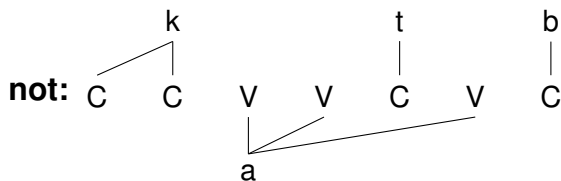
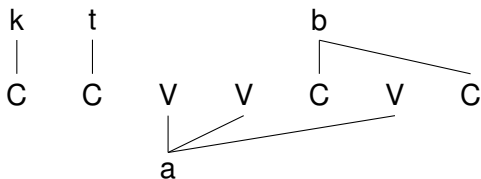
# Condition 3: Preassociation is not altered: katab



**not:**



# Condition 4: Linking is left-to-right



# Condition 5: Every skeletal node is linked

