

# Linearisation as syntax-phonology mapping

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# Syntax theory

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- Utterances are essentially linear.
- What is the relation between the hierarchical and the linear structure?

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Chomsky (2004) argues that there are three possible ways to derive linear order from hierarchical structure:

- Construction-specific (“the worst case”)
- A head parameter, along with a principle that specifiers always precede their heads (Saito & Fukui 1998, Neeleman & Weerman 1999, Kremers 2003, Richards 2004).
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# First assumption

Any approach within generative grammar toward linearisation makes three assumptions.

- Totality (Kayne 1994):  
Given a tree  $K$  and the set  $T$  of terminals in  $K$ , for every pair  $x, y \in T$ , an ordering is defined, either  $x > y$  or  $y > x$ .

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## Second assumption

- Linear Correspondence (Ackema & Neeleman 2004):  
If X is structurally external to Y, then Ph(X) is linearly external to Ph(Y).
  - Ph(X): the phonological material associated with X.  
(Kremers 2007)



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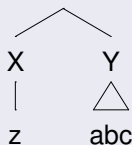
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# Spoken languages

Spoken languages show similar phenomena:

- (2)  $\frac{\text{tu} \quad \text{sais} \quad \text{wh} \quad \text{danser?}}{\text{you} \quad \text{know.2SG} \quad \text{dance}}$   
'do you know how to dance?'

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**Synchronicity**: the simultaneous expression of two meaning-bearing elements.

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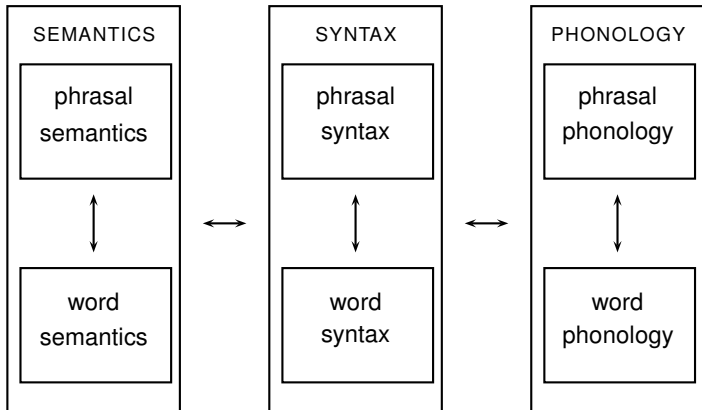
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# The Language Faculty

(3)



(Jackendoff 2002, Ackema & Neeleman 2004)

# Lexical mapping rules

- Lexical items are language-specific mapping rules:

$$(4) \quad \mathbf{tree}(x) \leftrightarrow [\mathbf{N}, \mathbf{count}] \langle \underline{\vartheta} \rangle \leftrightarrow /t^1i:/$$

- The same is true for affixes:

$$(5) \quad \lambda \mathbf{P}[\mathbf{P}(x)] \leftrightarrow [\mathbf{N}, \mathbf{count}] \langle \underline{\vartheta} \rangle \leftrightarrow /-\mathfrak{a}^1/$$

# Prosodic hierarchy

Utterance (U)

Intonational Phrase (IntP)

Phonological Phrase ( $\varphi$ ) ←

Prosodic Word ( $\omega$ ) ←

Foot (Ft)

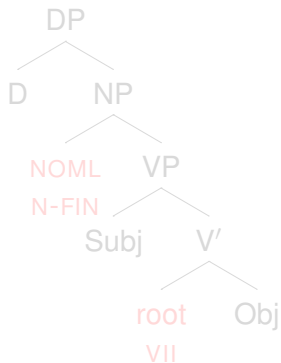
Syllable ( $\sigma$ ) ←

Mora ( $\mu$ ) ←

# Arabic morphology

- Arabic non-linear morphology is **synchronous**.
- The deverbal noun *nfiṣāl* 'agitation' has four morphemes:

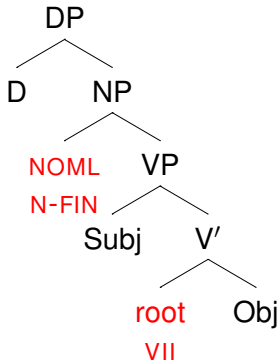
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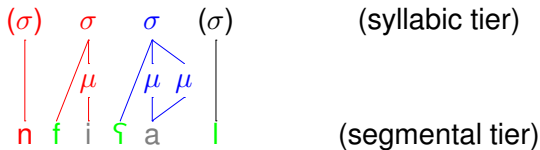
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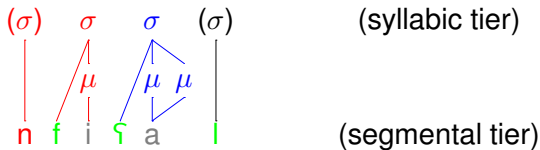
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- The linear order of the segments is derived in phonology:
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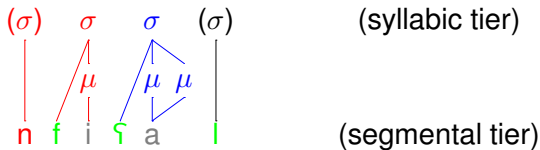
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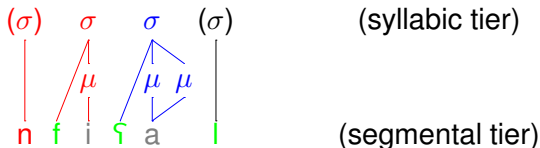
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- Proposal: syntactic structures map onto phonological structures consisting of  $\varphi$ 's and  $\omega$ 's.
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