

Menzerath-Altmann Law in Syntactic Dependency Structure

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Menzerath-Altmann law

- mutual relations between sizes of “neighbouring” language units
- the longer construct, the shorter (on average) its constituents
- examples:

*the longer word (measured in morphemes),
the shorter morphemes (measured in the number of phonemes)*

*the longer sentence (measured in clauses),
the shorter clauses (measured in the number of words)*

Mathematical formula

$$y(x) = ax^b$$

x size of construct

(e.g., number of clauses in sentence)

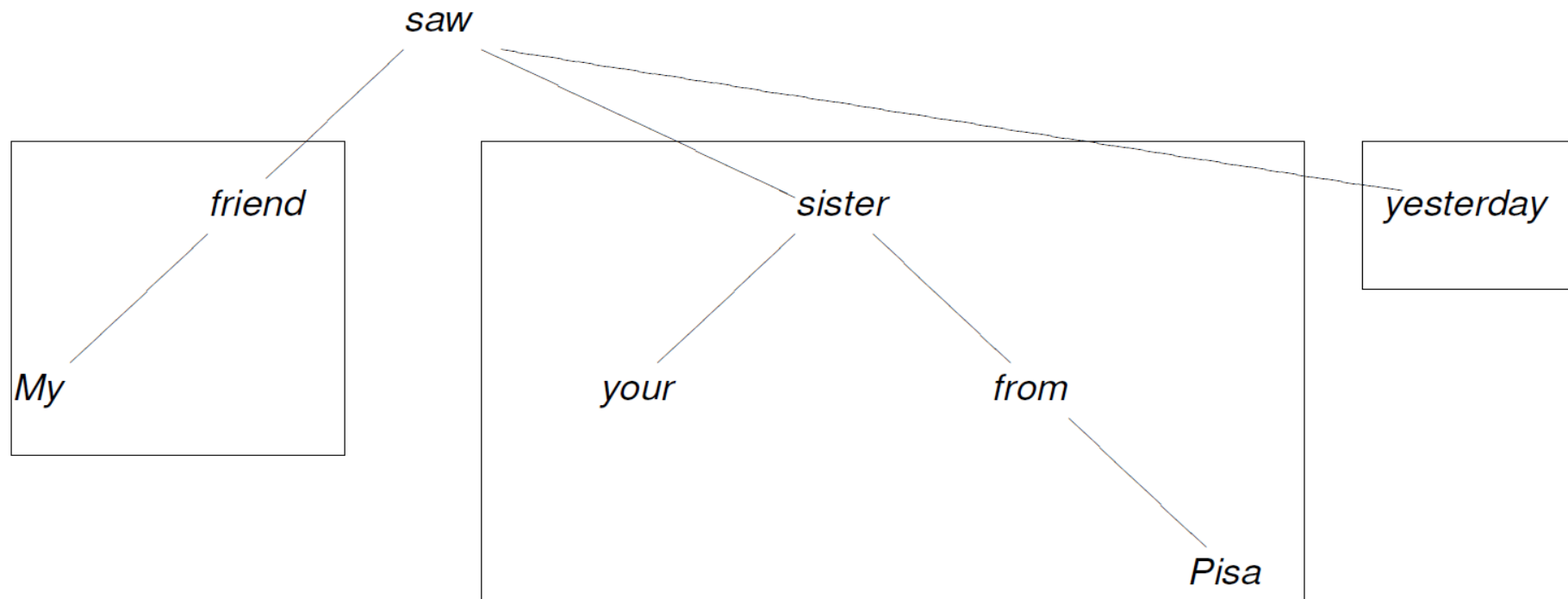
$y(x)$ mean size of constituents if size of construct is x

(mean length of clauses if sentence length is x)

a, b parameters

Syntactic dependency structure and the law

- construct = clause
- constituents = phrases directly dependent on predicate



Language material

- dependency trees from *Prague Dependency Treebank 3.0* were used
- only main clauses were chosen (PDT 3.0 assigns the analytical function “Predicate” only to predicates of main clauses)
- non-projective trees were not filtered out
- altogether, 56530 clauses were analyzed

Results

$$y(x) = 8.96x^{-0.62}$$

