# Grammar and graphical semiotics in early syntactic diagrams: Clark (1847) and Reed-Kellogg (1876)

Nicolas Mazziotta
Université de Liège & Universität Stuttgart

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# Introduction

Semiotic approach
- The notion of reification
- Graphical entities are complete signs

Early syntactic diagramming
- Drawing syntax before syntactic trees
- Clark's seminal work (1847)
- The successfull Reed/Kellogg system (1876)

Logic of space : Case studies
- Subject-predicate relation
- Coordination
- Subordinate clauses

Conclusion

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- Evaluate the **theoretical consequences**

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- Identifying units inside a given system
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- Identifying units inside a given system
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## Conceptual units are turned into graphical entities

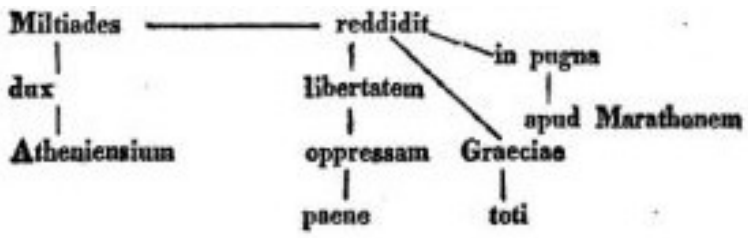
- They are **reified** (i.e. 'turned into ojects' Kahane/Mazziotta 2015) in the diagram

$\Rightarrow$ The graphical entity is bound to the conceptual unit

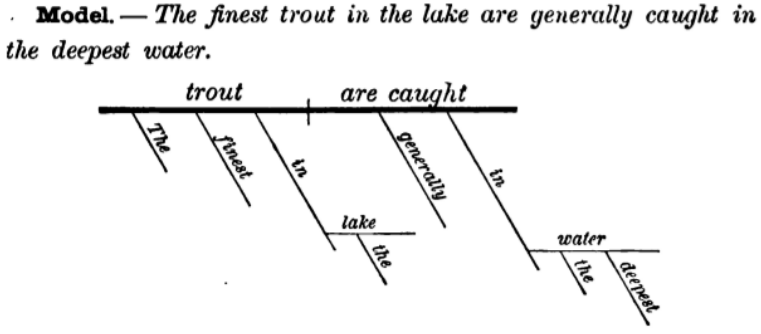
# Graphical entities are complete signs

## A stroke is not a mere stroke :

it is a complete sign (form and value)




(Billroth 1832 : 102)

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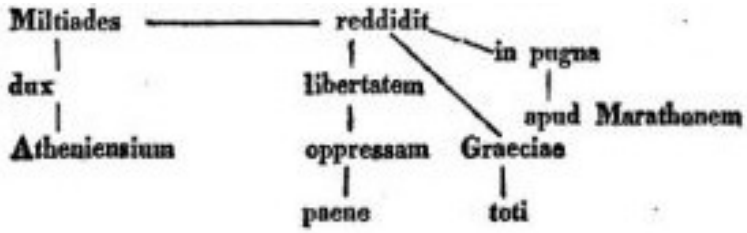


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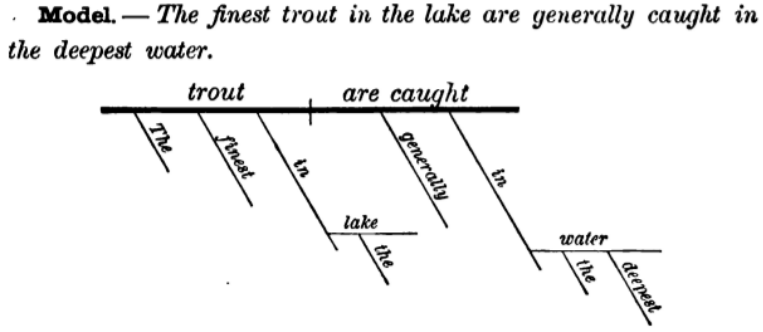


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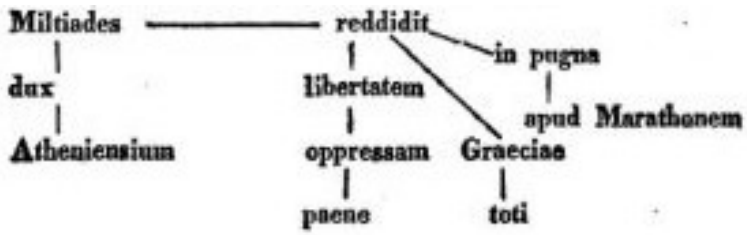


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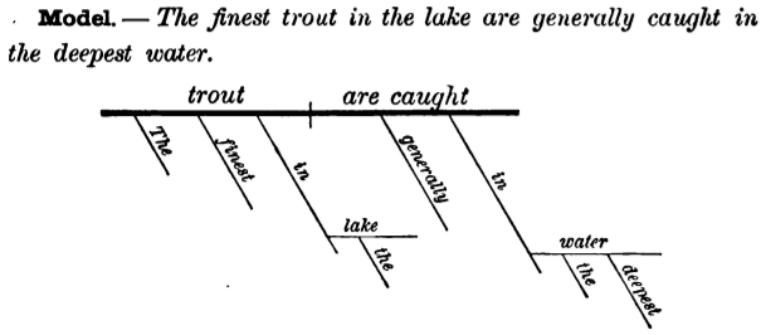


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- words are reified by labeled strokes
- relations are mostly reified by the relative positions of words

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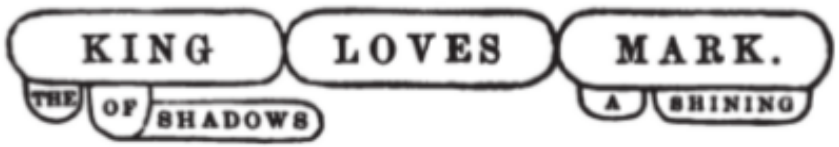
# Early syntactic diagramming

## Continuity between Clark 1847 and Reed/Kellogg 1876

Most diagrams seem to reify words rather than relations

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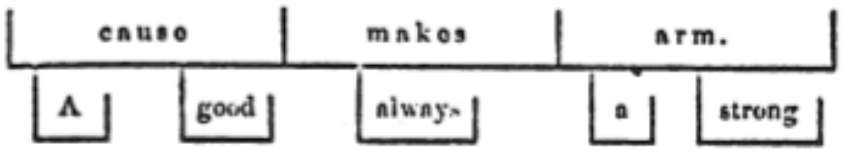


(Chandler 1860 : 153, apud Brittain 1973)

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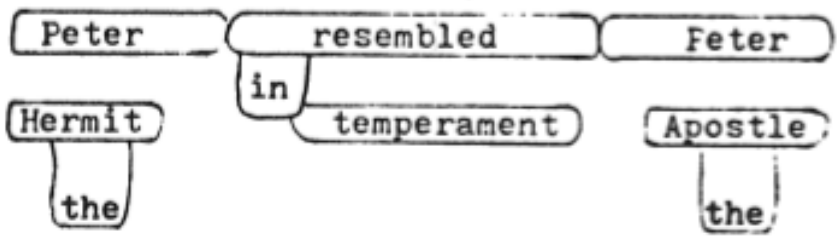


(Jewell 1861 : 17, apud Brittain 1973)

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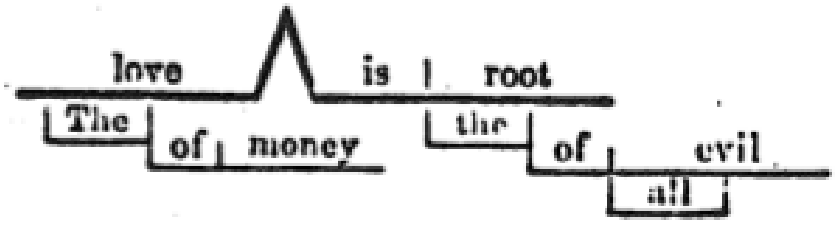


(Burtt 1869 : 265, apud Brittain 1973)

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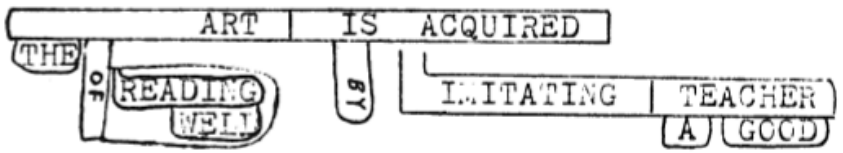


(Lighthall 1872 : 50, apud Brittain 1973)

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(Reed/Kellogg 1879[1876] : 81)

# Clark's seminal work (1847)

## General rules

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- The sentence is a combination of a **subject**, a **predicate** and, optionally, an **object**

(Clark 1870 : 49)

**Horizontally** arranged bubbles

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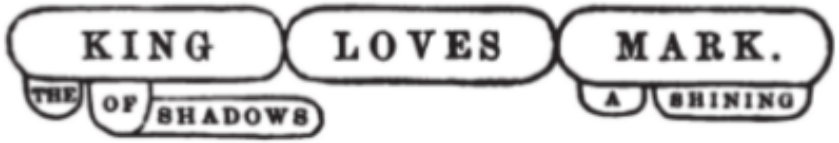


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**Vertically** connected bubbles (recursive)

# Clark's seminal work (1847)

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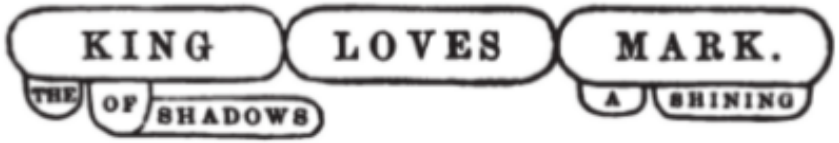
- **Prepositional phrases** are a combination of a preposition (*leader*) and a noun (*subsequent*)

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**Vertically** connected bubble for the leader, **horizontally** arranged with its subsequent

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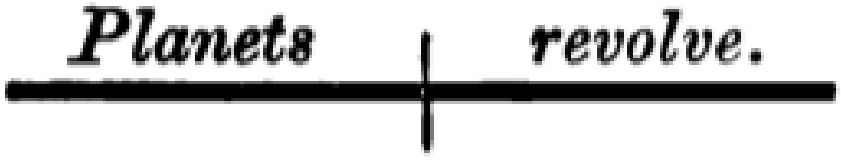


(Reed/Kellogg 1879[1876] : 17)

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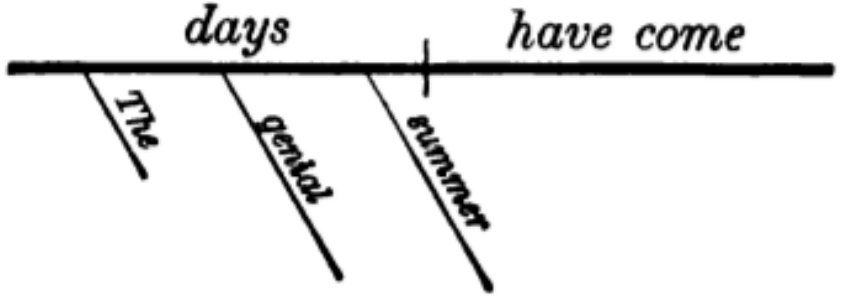


(Reed/Kellogg 1879[1876] : 34)

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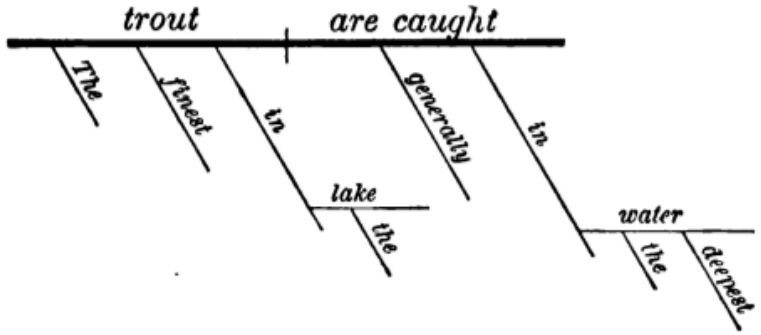
**Model.** — *The finest trout in the lake are generally caught in the deepest water.*




(Reed/Kellogg 1879[1876] : 62)

**Vertically** connected stroke for the preposition, **horizontally** arranged with the noun

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**What are the consequences ?**

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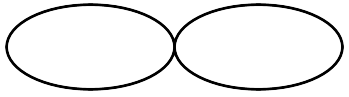

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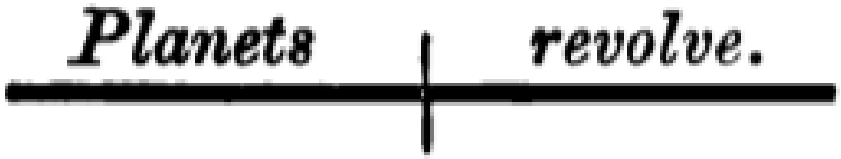
## Reed/Kellogg




(Reed/Kellogg 1879[1876] : 17)

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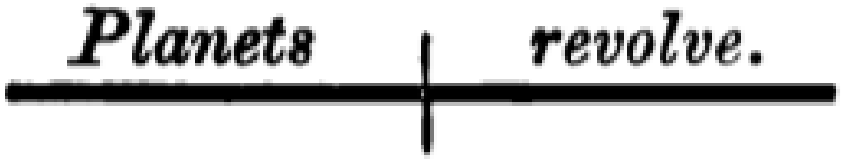


(Reed/Kellogg 1879[1876] : 17)

"I will draw on the board a heavy, or shaded, line, and **divide it** into two parts [. . . ] I will consider the first part as a sign of the subject of a sentence, and the second part as a sign of the predicate of a sentence." (Reed/Kellogg 1879[1876] : 17)

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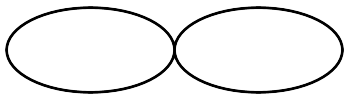

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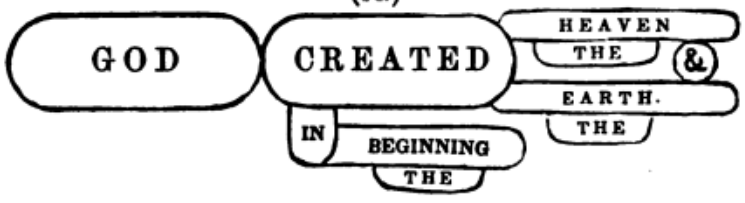
$\Rightarrow$ Using strokes offers no solution but to introduce an **additional** entity

# Coordination

## Clark

*"In the beginning God created the heaven and the earth."*

(14.)




(Clark 1847 : 24)

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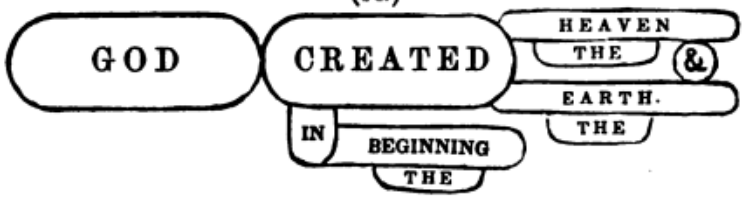
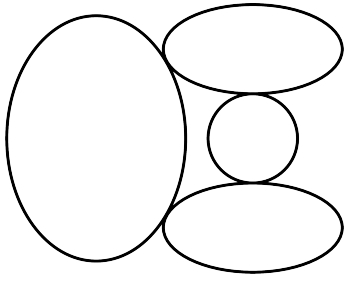


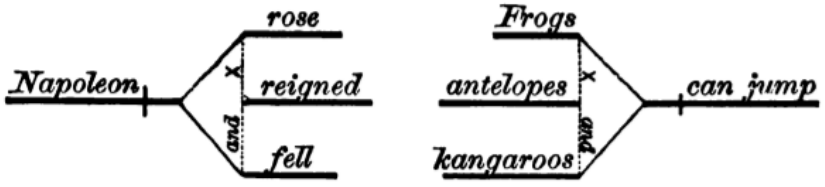

(Clark 1847 : 24)



# Coordination

## Reed/Kellogg

**Models.** — *Napoleon rose, reigned, and fell.*
*Frogs, antelopes, and kangaroos can jump.*




(Reed/Kellogg 1879[1876] : 48)

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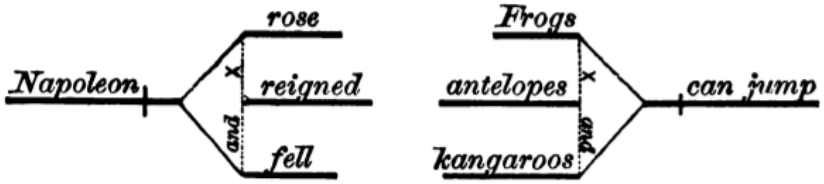


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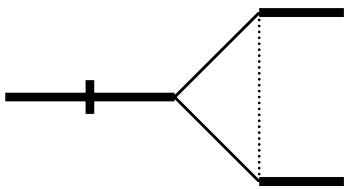

"The short line following the subject line represents the **entire predicate**, and is supposed to be continued in the three horizontal lines that follow, each of which represents one of the **parts** of the compound predicate. These lines are united by **dotted lines**, which stand for the connecting words. The × denotes that an *and* is understood." (Reed-Kellogg 1879[1876] : 47-48)

# Coordination

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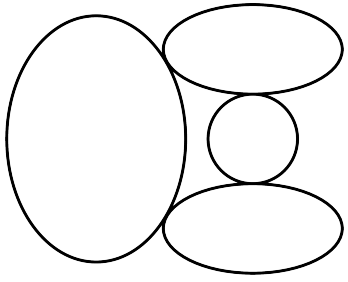

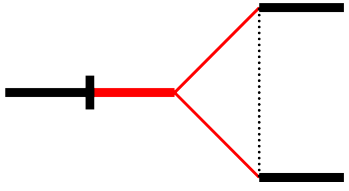

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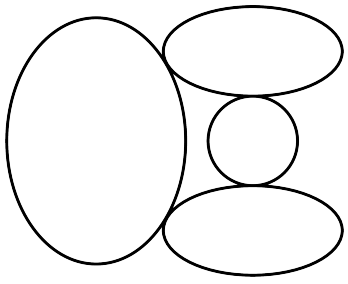

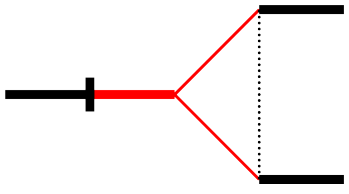

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# Coordination

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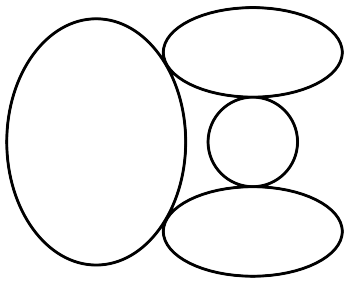

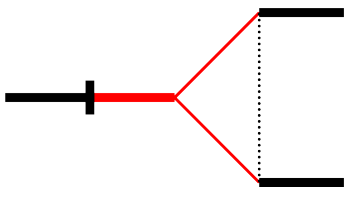

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- Reed-Kellogg :
  - one entity reifies independently the “entire predicate”,

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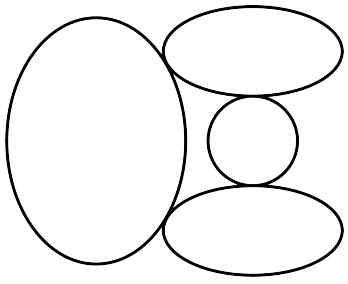

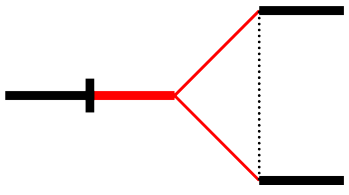

- Clark : no more entities than words
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  - one entity reifies independently the “entire predicate”,
  - other strokes reify its “parts” and are linked by lighter strokes reifying the part-whole structure

# Coordination

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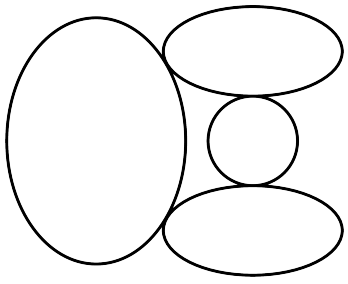

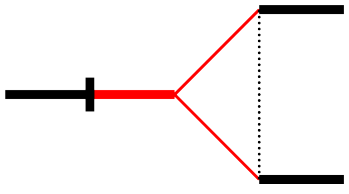

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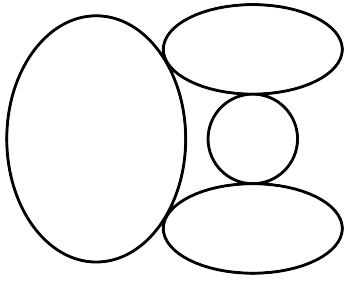

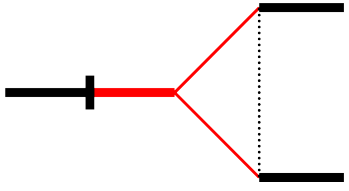

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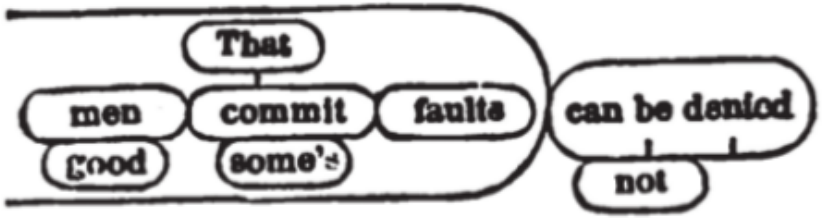
$\Rightarrow$ Using **strokes with a specific angle** offers no solution but to introduce an additional entity

# Subordinate clauses

## Clark




(Clark 1870 : 47)

# Subordinate clauses

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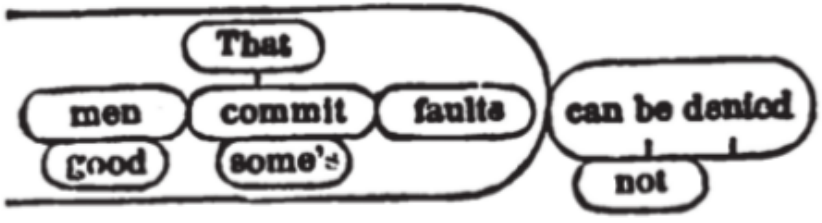


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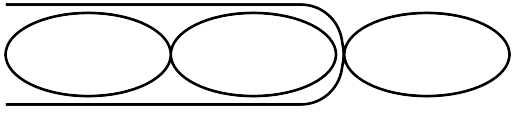
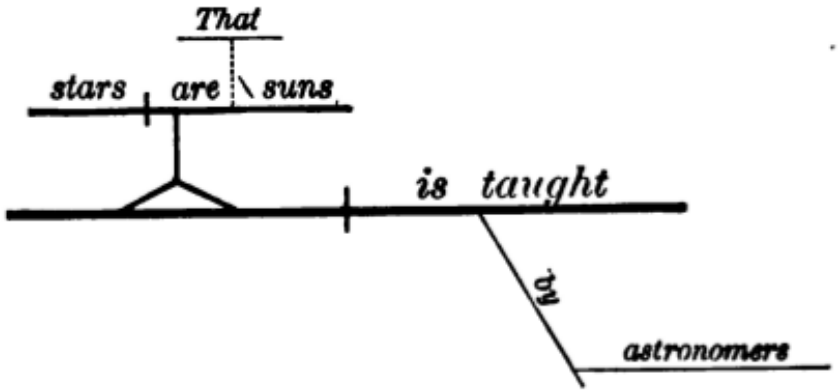


# Subordinate clauses

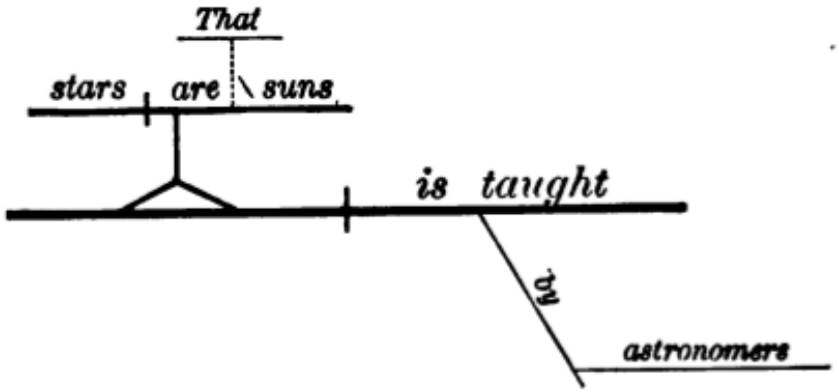
## Reed/Kellogg




(Reed/Kellogg 1879[1876] : 137)

# Subordinate clauses

## Reed/Kellogg

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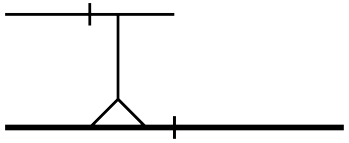
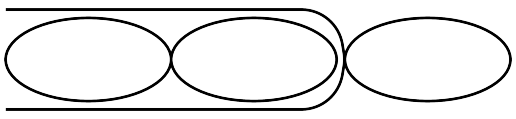
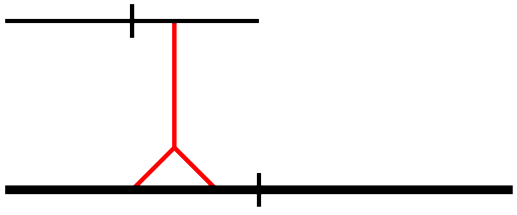


"As this [sentence] subject **cannot**, in its proper form, be written on the subject line, it is placed above, and, by means of a **support**, the [sentence] diagram is made to rest on the subject line."
(Reed/Kellogg 1879[1876] : 107)

# Subordinate clauses

## Comparison





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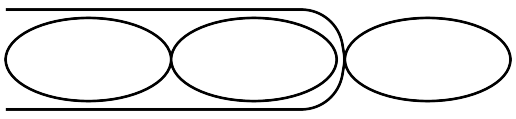

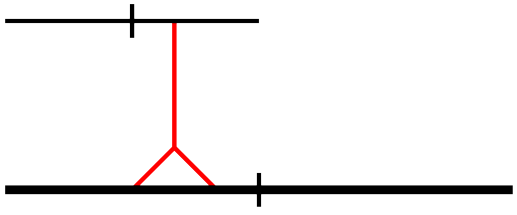

- Clark : one bubble per word + one bubble for the sentence used as a constituent

# Subordinate clauses

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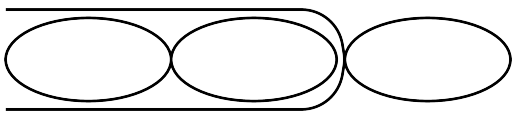

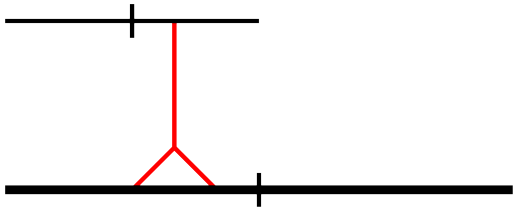

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# Subordinate clauses

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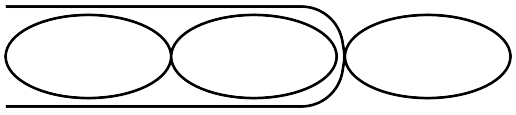

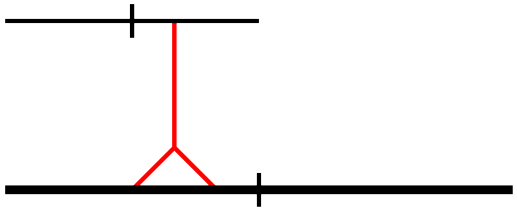

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- Reed-Kellogg : additional symbolic stroke between the sentence as a constituents and its decomposition

$\Rightarrow$ The monodimensionality of strokes **does not allow to depict inclusion** in an iconic way

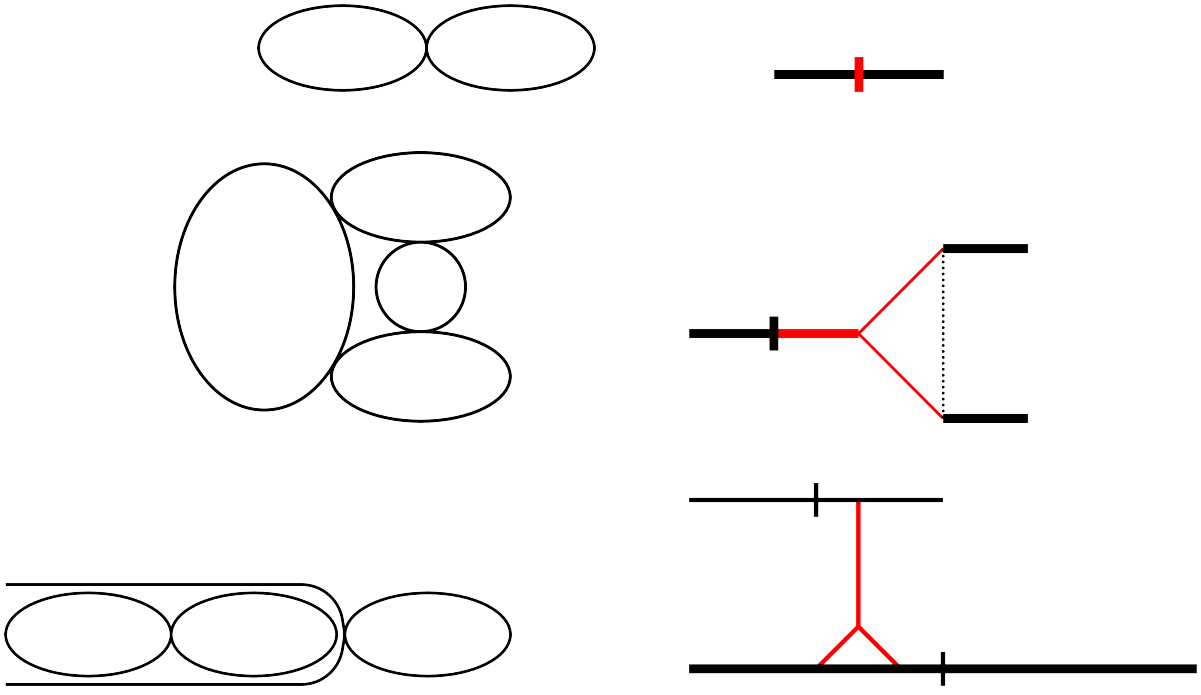
Introduction

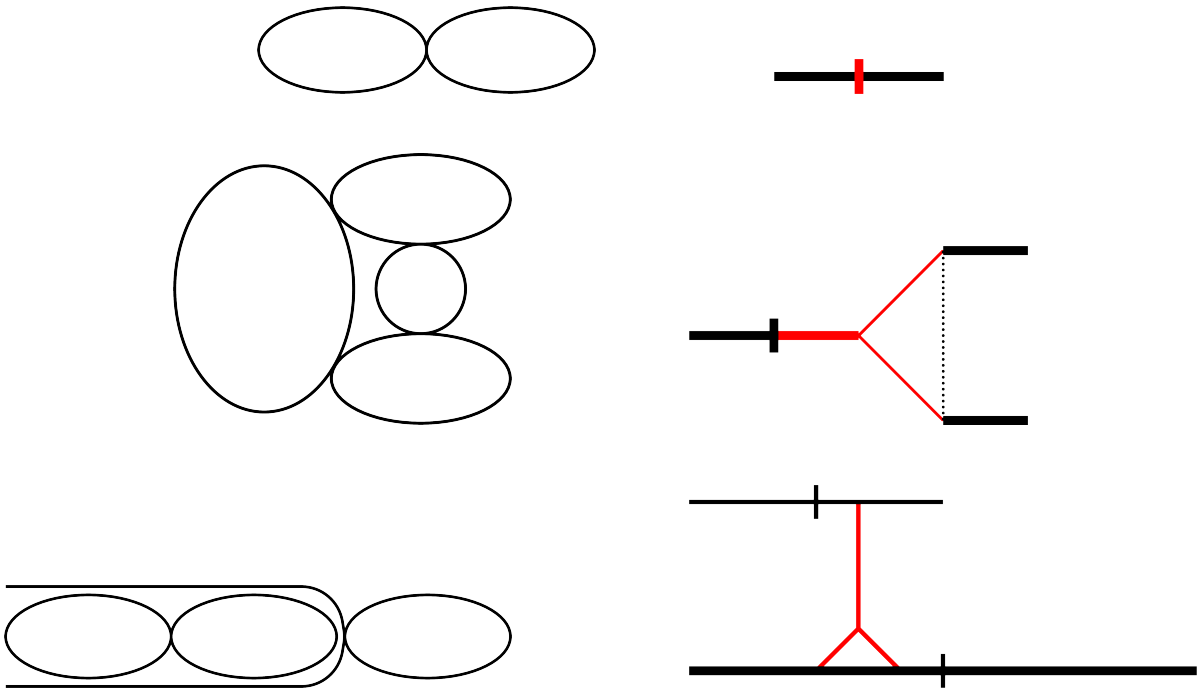
Semiotic approach
- The notion of reification
- Graphical entities are complete signs

Early syntactic diagramming
- Drawing syntax before syntactic trees
- Clark's seminal work (1847)
- The successfull Reed/Kellogg system (1876)

Logic of space : Case studies
- Subject-predicate relation
- Coordination
- Subordinate clauses

Conclusion





## Consequences of using strokes with a specific angle

- it makes it impossible not to reify intermediate units (relations)
- it emphasizes the reified expression of part-whole relations

# Conclusion

## Grammatical theory and graphical conventions

- Interfere with one another
- Conceptual units are reified
- The choice of the graphical conventions constrain what can be expressed and how

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## Grammatical theory and graphical conventions

- Interfere with one another
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- The choice of the graphical conventions constrain what can be expressed and how

## History of syntactic diagramming

- Necessitates a semiotic analysis that break down diagrams into entities
- Shows the evolution between similar systems

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