

# Toward an RRG treebank of the Hebrew Bible

TreeGraSP Meeting #4 – February 26, 2020

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# RRG and the Hebrew Bible

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*Nicolai Winther-Nielsen*

- A Functional Discourse Grammar of Joshua: A Computer-Assisted Rhetorical Structure Analysis (1995)
- A Role-Lexical Module (RLM) for Biblical Hebrew: A Mapping Tool for RRG and WordNet in *Investigations of the Syntax-Semantics-Pragmatics Interface* (2008)
- Biblical Hebrew parsing on display: The Role-Lexical Module (RLM) as a tool for Role and Reference Grammar (HIPHIL 6, 2009)
- How to Classify Hebrew Verbs: Plotting Verb-Specific Roles in *Contemporary Examinations of Classical Languages* (2016)
- A Role and Reference Grammar of Biblical Hebrew clause linkage (RRG Buffalo 2019)

# RRG and the Hebrew Bible

**Christian Canu Højgaard**

- A Rhetorical-Structural Reading of Zechariah's Night Visions (2017)
- Agency and Lexical Decomposition of Biblical Hebrew Verbs (RRG Buffalo 2019)

# First steps toward a tree bank

## Browse Gold Sentences

31 gold sentences.

1. wa yy'ōmer ʔel- sār'ay ʔišt' ʔms
2. wa ttuqq, aḥ hā ʔišš, ā b, êt paŋ'ō
3. k'î- hāy'ā r'kûš, ā ʔmp r'āv
4. wî yh'î mavd'îl b, ên m, ayim lâ m'âyim
5. wa tt'ōmer sār'ā
6. wa y'v, āreḳ ʔ'lōh, îm ʔet- yiṣḥ'āq b'n' ʔms
7. wa yy'ōsef ʔavrāh'ām
8. wa yy'ōmer ʔēs'āw
9. wa yy'ōmer yaʔq'ōv ʔel- ʔāv'îr ʔms
10. wa yy'ōmer
11. ʔ'ānî
12. wa yyiqq' aḥ ʔet- hā ʔ'even
13. wa yy'āgel ʔet- hā ʔ'even mē ʔ, al p'î ha bb'ʔ'ēr
14. wa yy, aʔaš mišt' eh
15. ū l'k, ū
16. wa yyiqq' aḥ [y'hw, āh] ʔ'lōh, îm ʔet- h'ā ʔād'ām
17. wa yyiqq, aḥ yaʔq, ōv ʔ'āven
18. wa yy'ar ʔet- ha nnāšîm w' ʔet- ha y'lād'îm
19. wa yy'āmot

⇒ <https://rrg-bh.phil.hhu.de>

# The ETCBC database of Biblical Hebrew

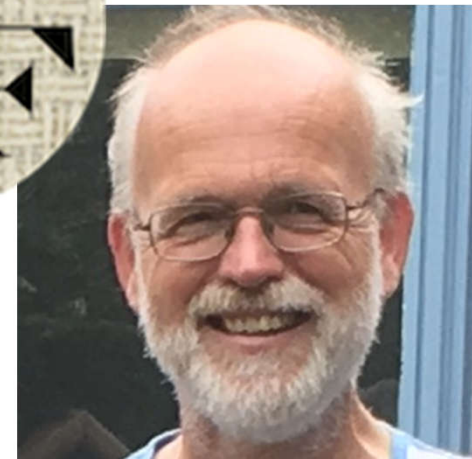
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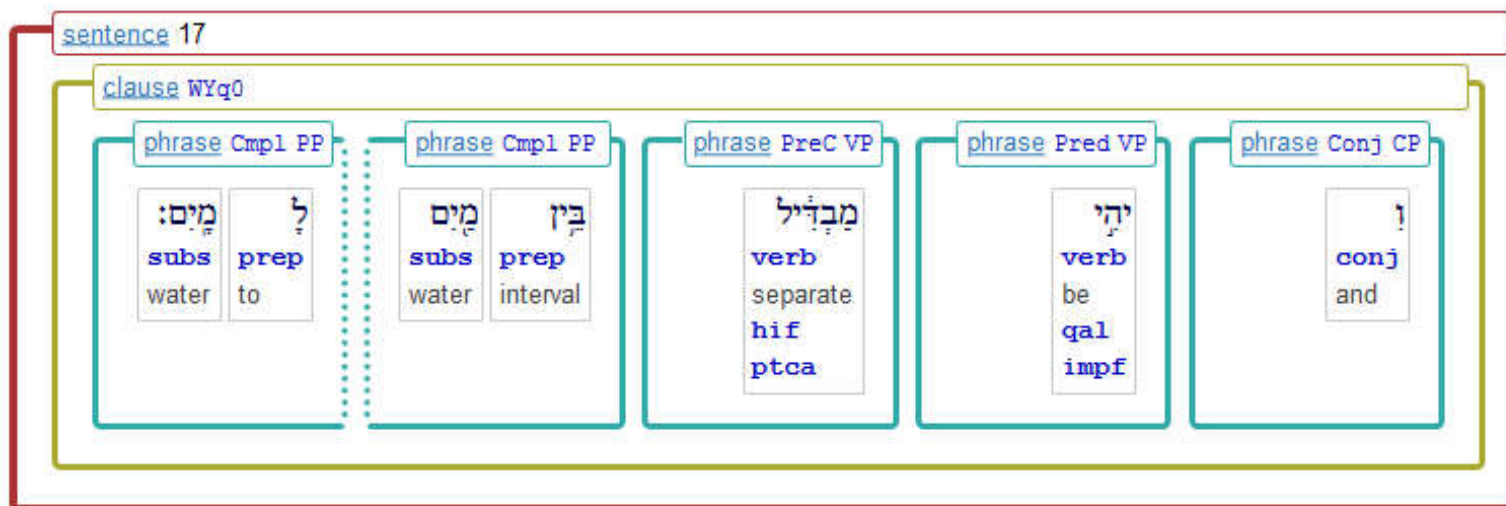
- Content: The Hebrew Bible/Old Testament
- Languages: Hebrew (plus a minority of Aramaic sentences)
- Size: 63,711 sentences
- Developed by the Eep Talstra Center for Bible and Computer (ETCBC) at Vrije Universiteit, Amsterdam ([www.etcbc.nl](http://www.etcbc.nl))
- Freely accessible: <https://github.com/ETCBC>

# PTB-trees of Biblical Hebrew

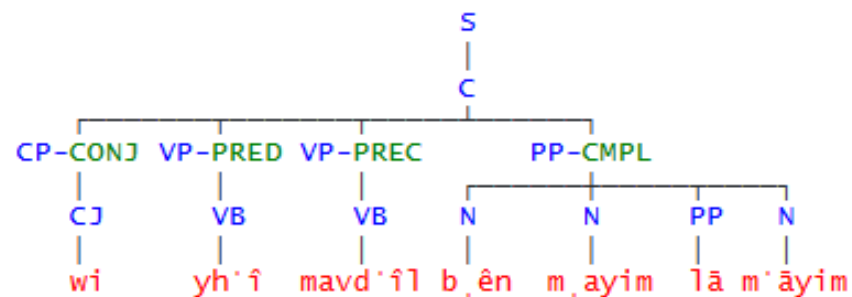
- Automatically generated with Text-Fabric:  
<https://github.com/ETCBC/lingo/tree/master/trees>
- Text-Fabric:
  - Python module
  - A representation of the ETCBC database
  - Tools for querying the database
  - Developed by [Dirk Roorda](#)



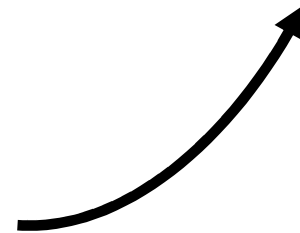
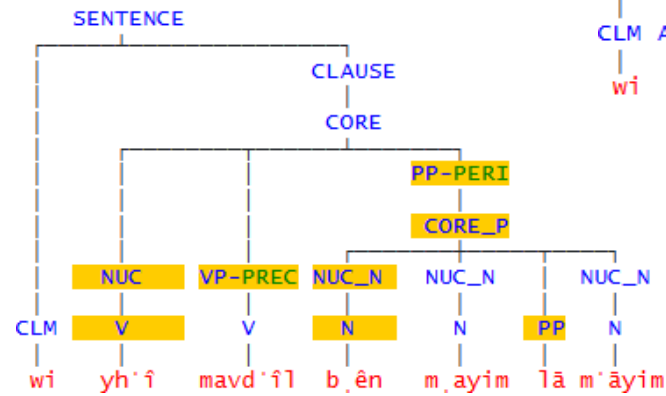
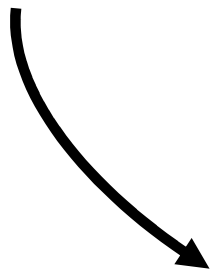
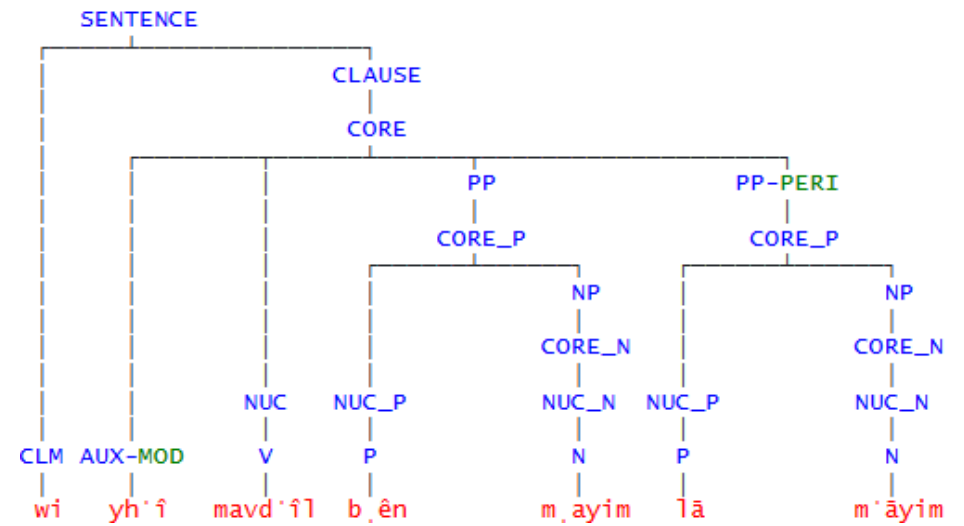
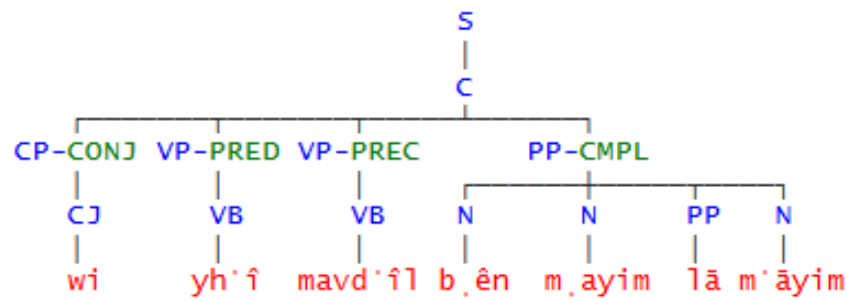
# PTB-trees of Biblical Hebrew



Genesis 1:6 (sentence 1172225)



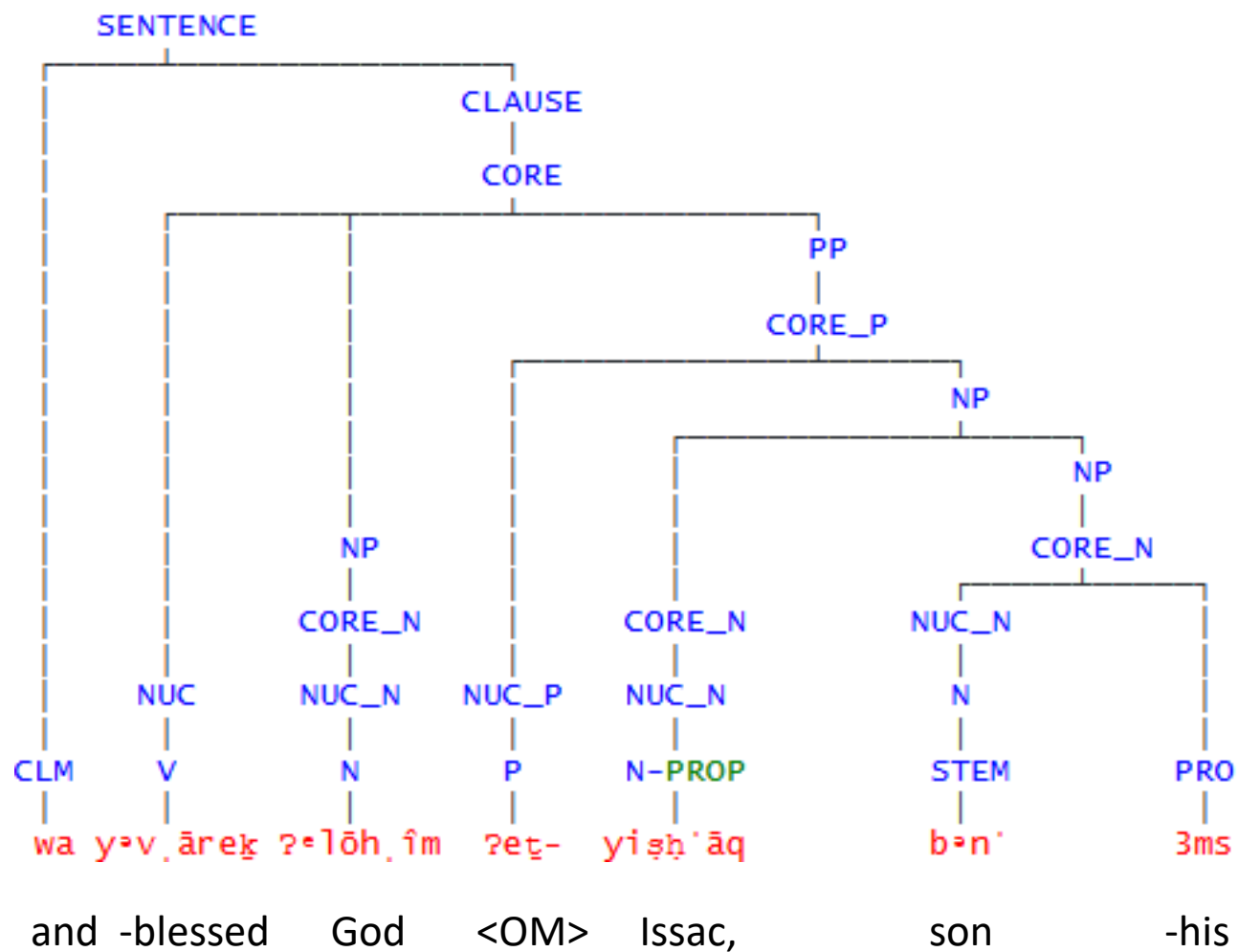
# From PTB trees to RRG trees





# Biblical Hebrew

A VSO-language



# Biblical Hebrew

## Dependency-marking vs. head-marking

*and they said*

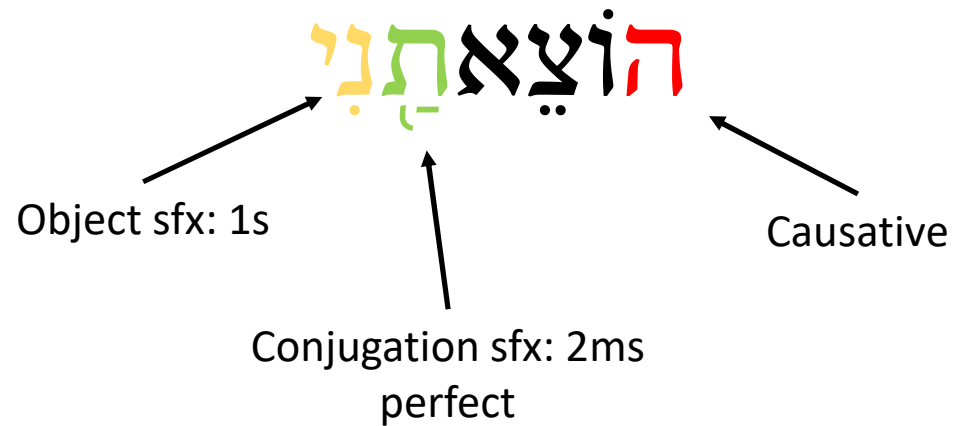
wa	-yy-	'ōm <sup>ə</sup> r	-'û
and	-3m	-say	-pl

- Subject not obligatory
- No co-indexing with other arguments, e.g. objects
- Closer to pro-drop languages

# Biblical Hebrew

## Rich morphology

*You shall bring me out*



# Biblical Hebrew

## Aspect vs. Tense

<i>Qatal:</i>	Perfect
<i>Yiqtol:</i>	Non-perfect

Our solution so far:

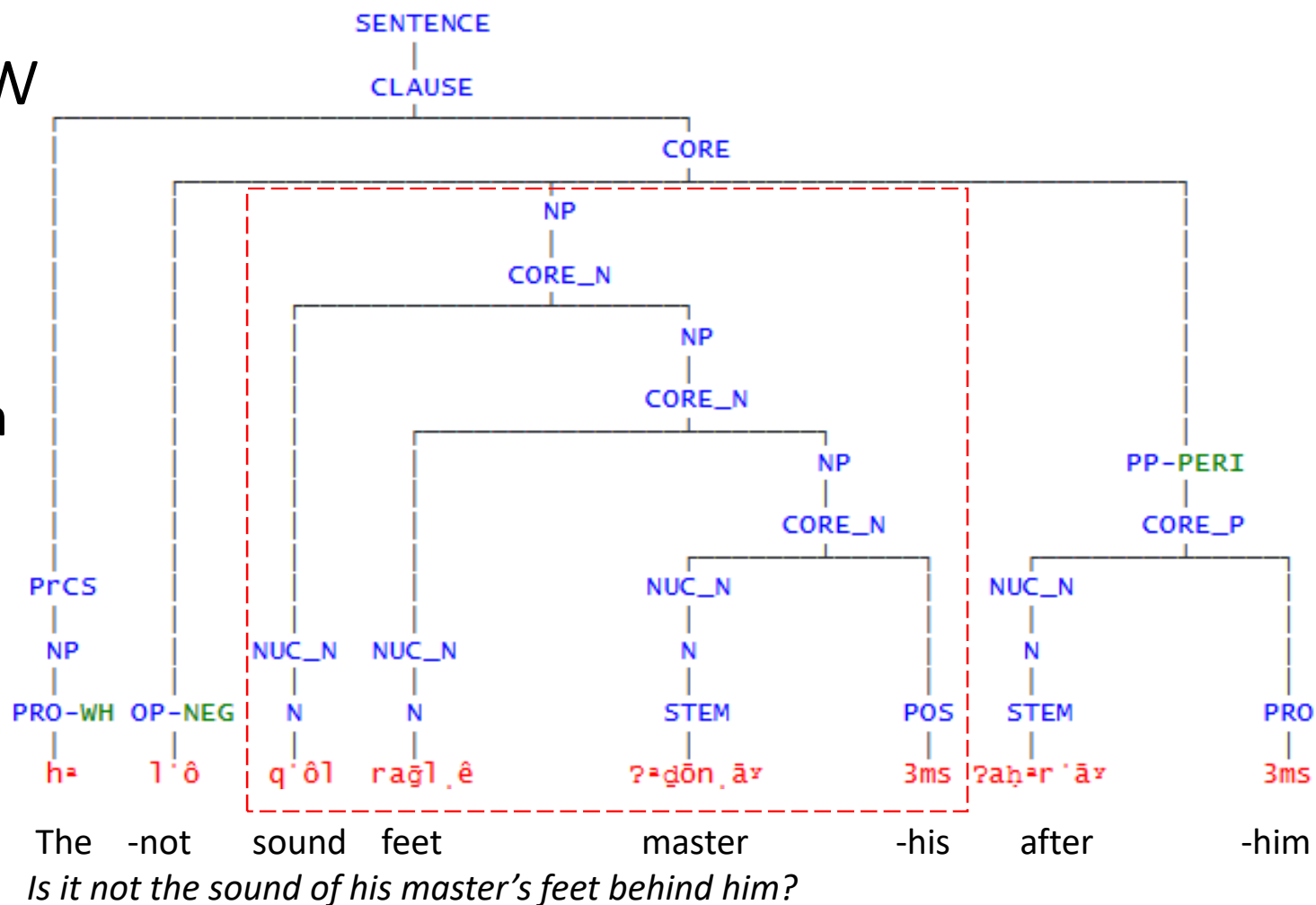
1. Aspect by default
2. Deontic modality if jussive
3. Tense if consecutive forms and discourse-marking functions

# Biblical Hebrew

## A chaining language

No case-marking.

Relationships between nouns expressed in chains (constructus-absolutus)

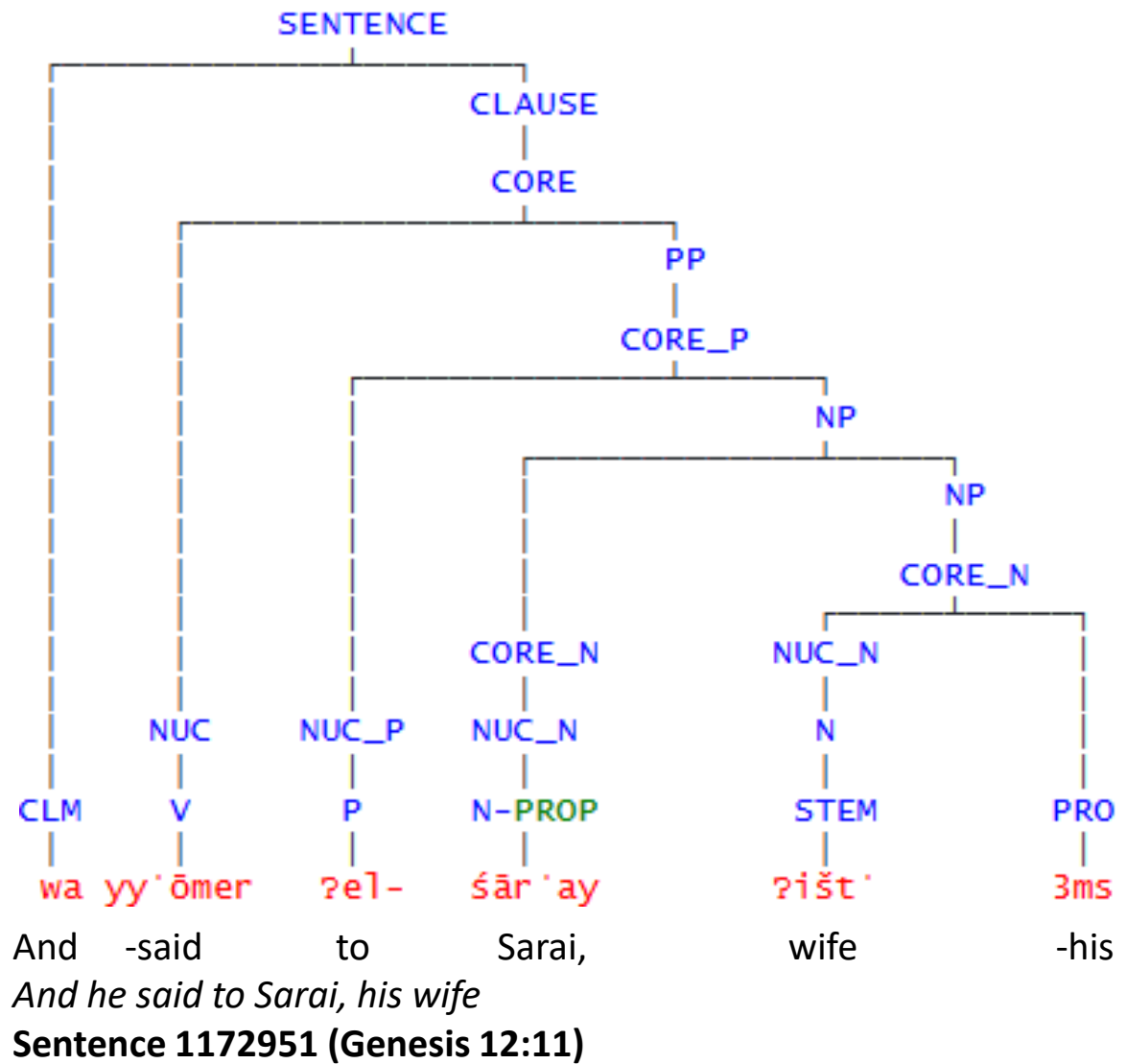




# Exploring the corpus

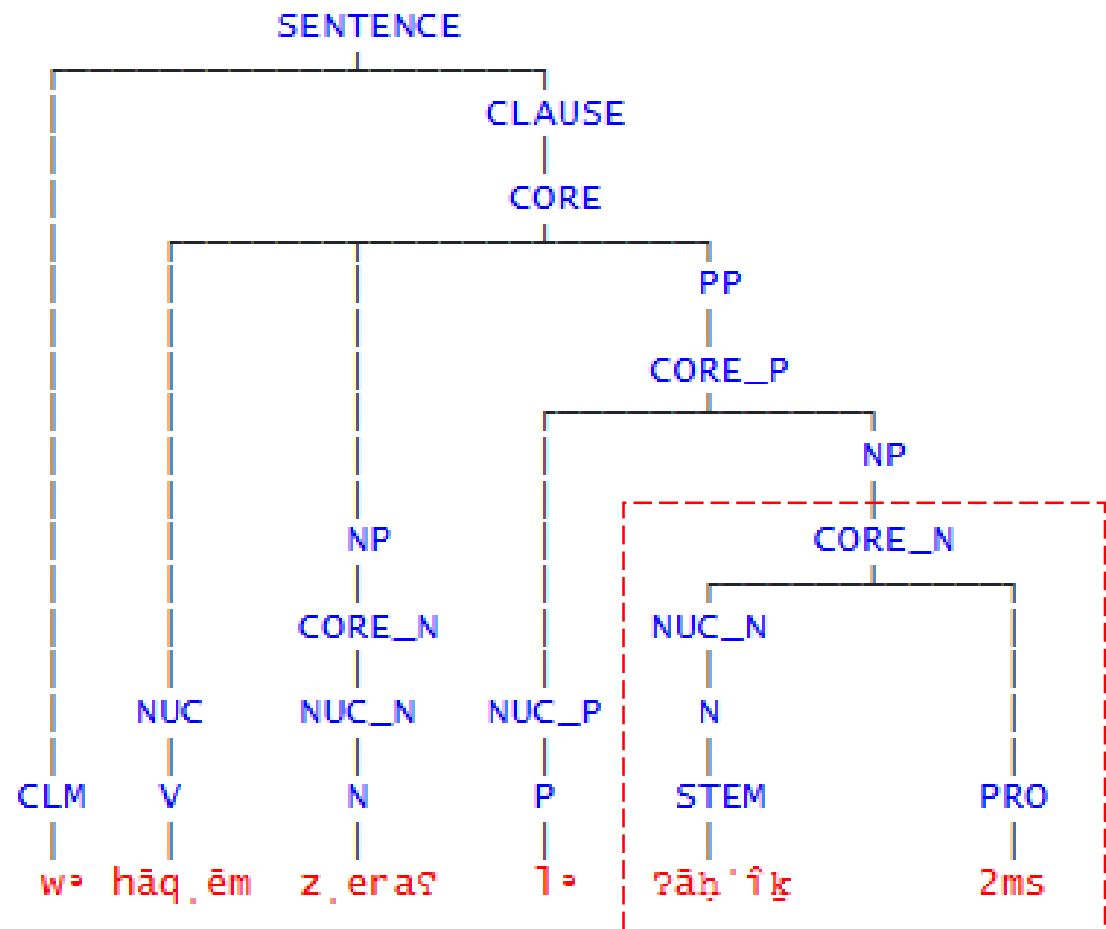
# 1. Annotating verbal sentences

No head-marking annotation of the verb.



## 2. Annotating pronominal suffixes

A head-marking strategy: The pronominal suffix has the same relationship to its head as a noun and its dependent – therefore core argument.



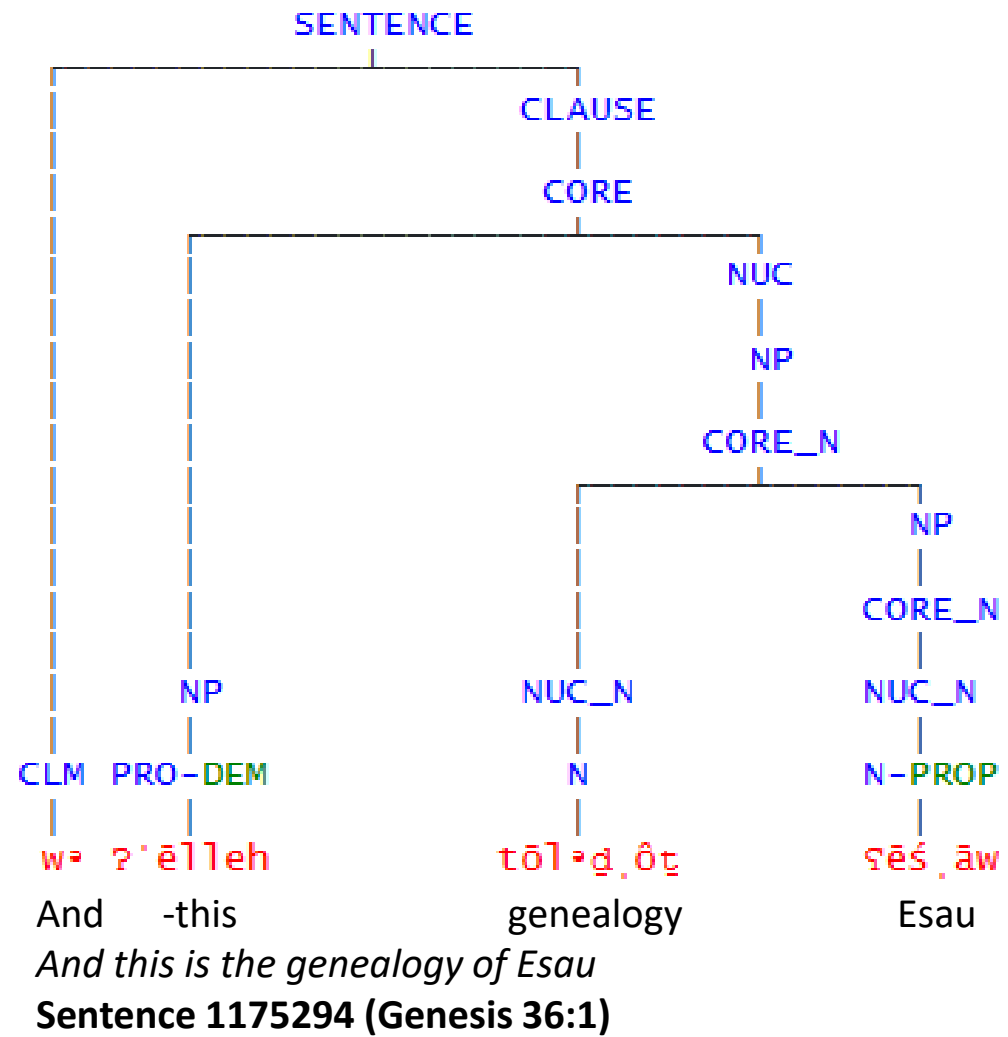
And -raise offspring for brother -your

*And you shall raise offspring on behalf of your brother.*

**Sentence 1175541 (Genesis 38:8)**

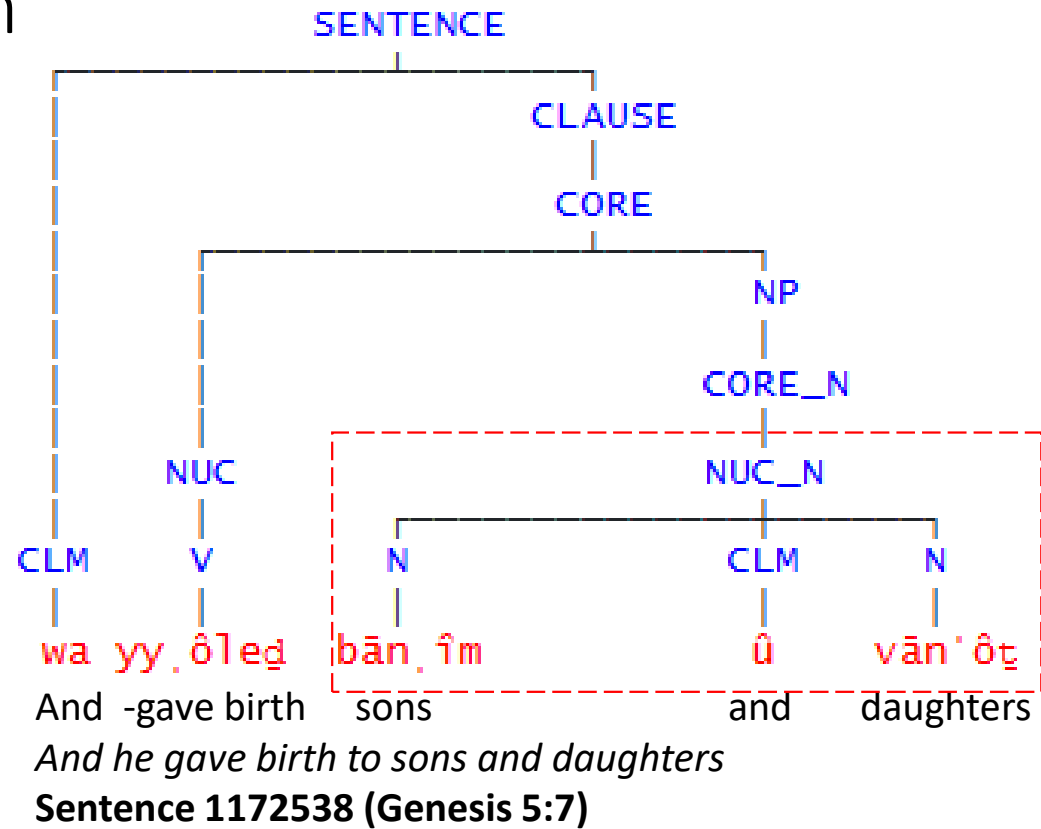


### 3. Verbless sentences



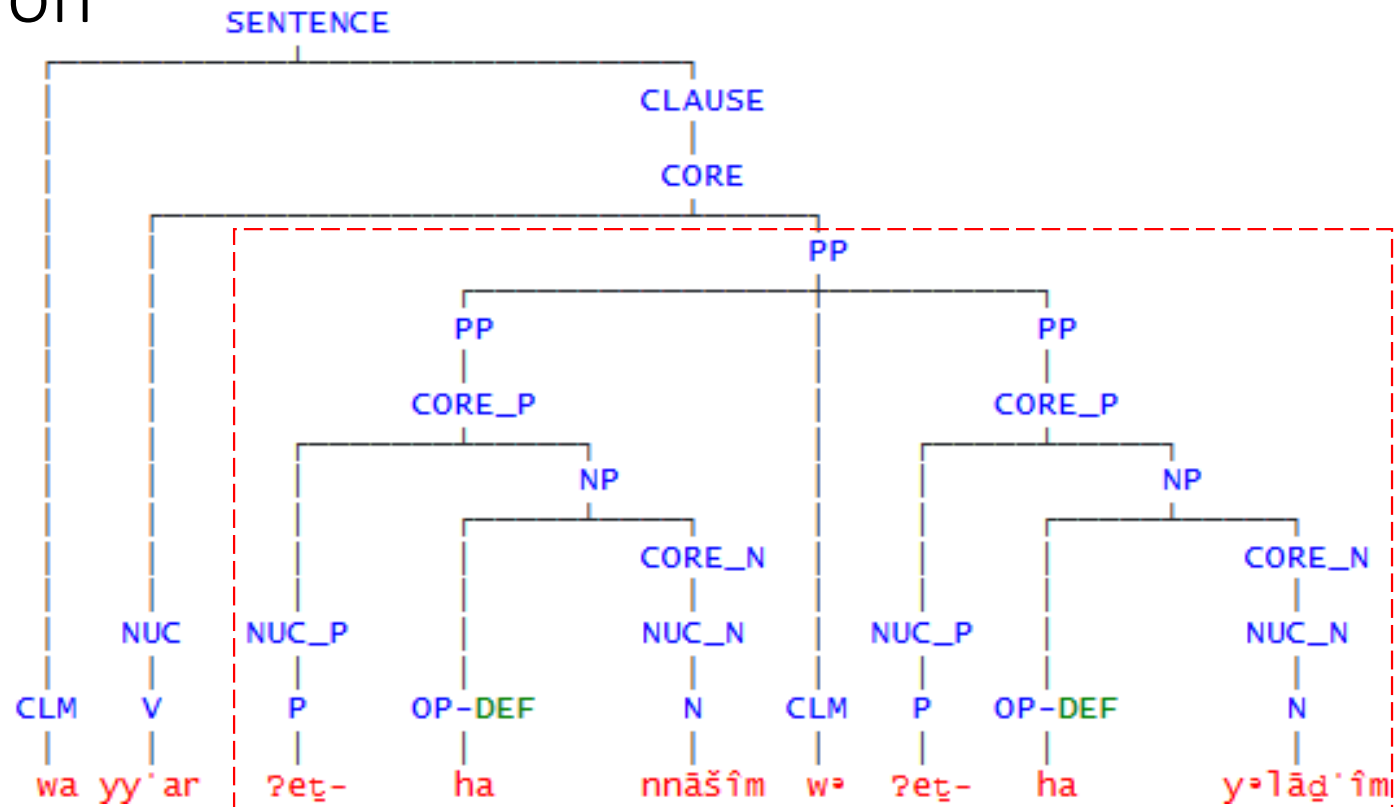
## 4. Nuclear coordination

Apparently shared operators on all levels.



# 5. Phrase coordination

Independent preposition and article for each phrase.



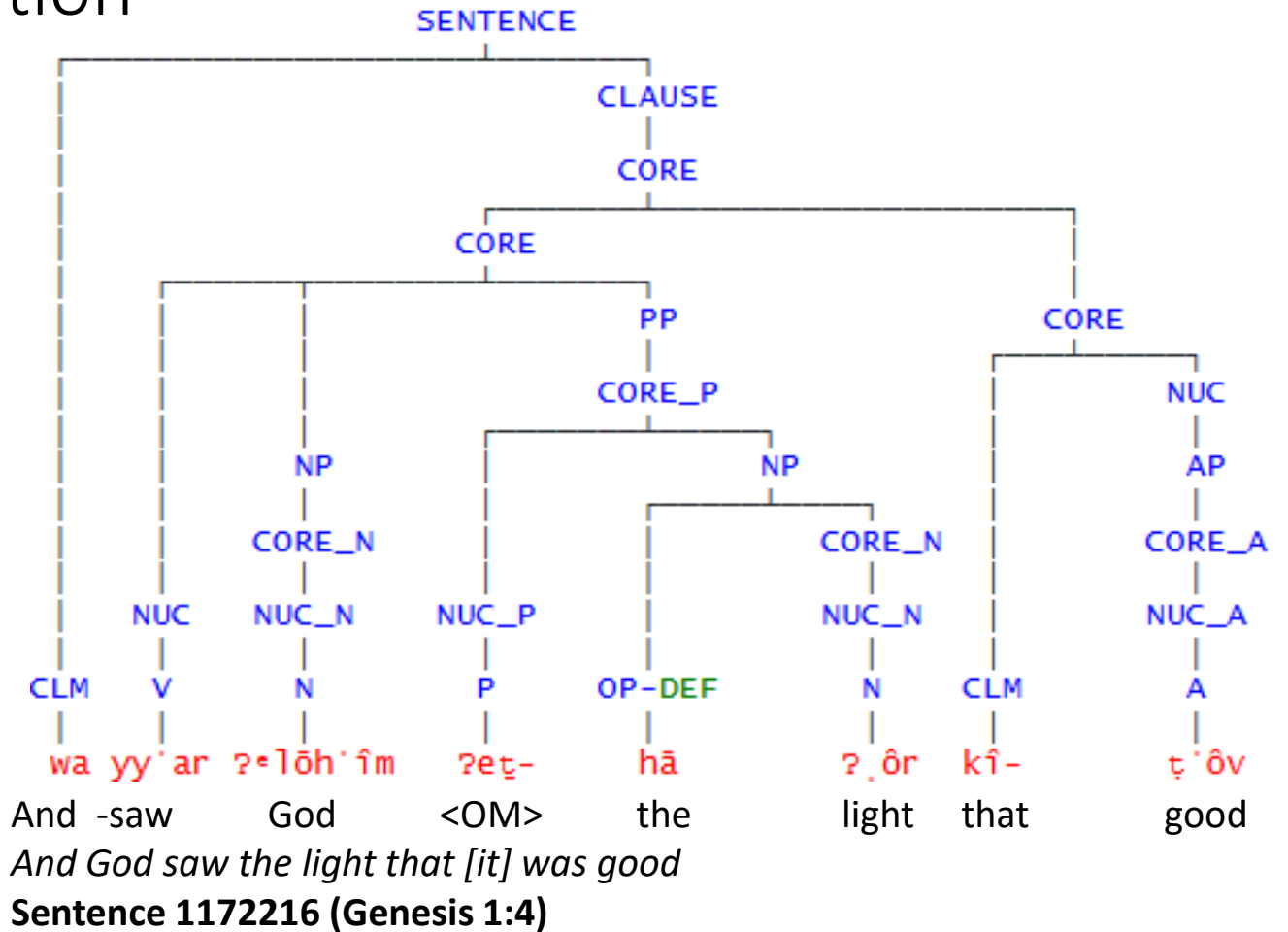
And -saw <OM> the women and <OM> the children

*And he saw the women and the children*

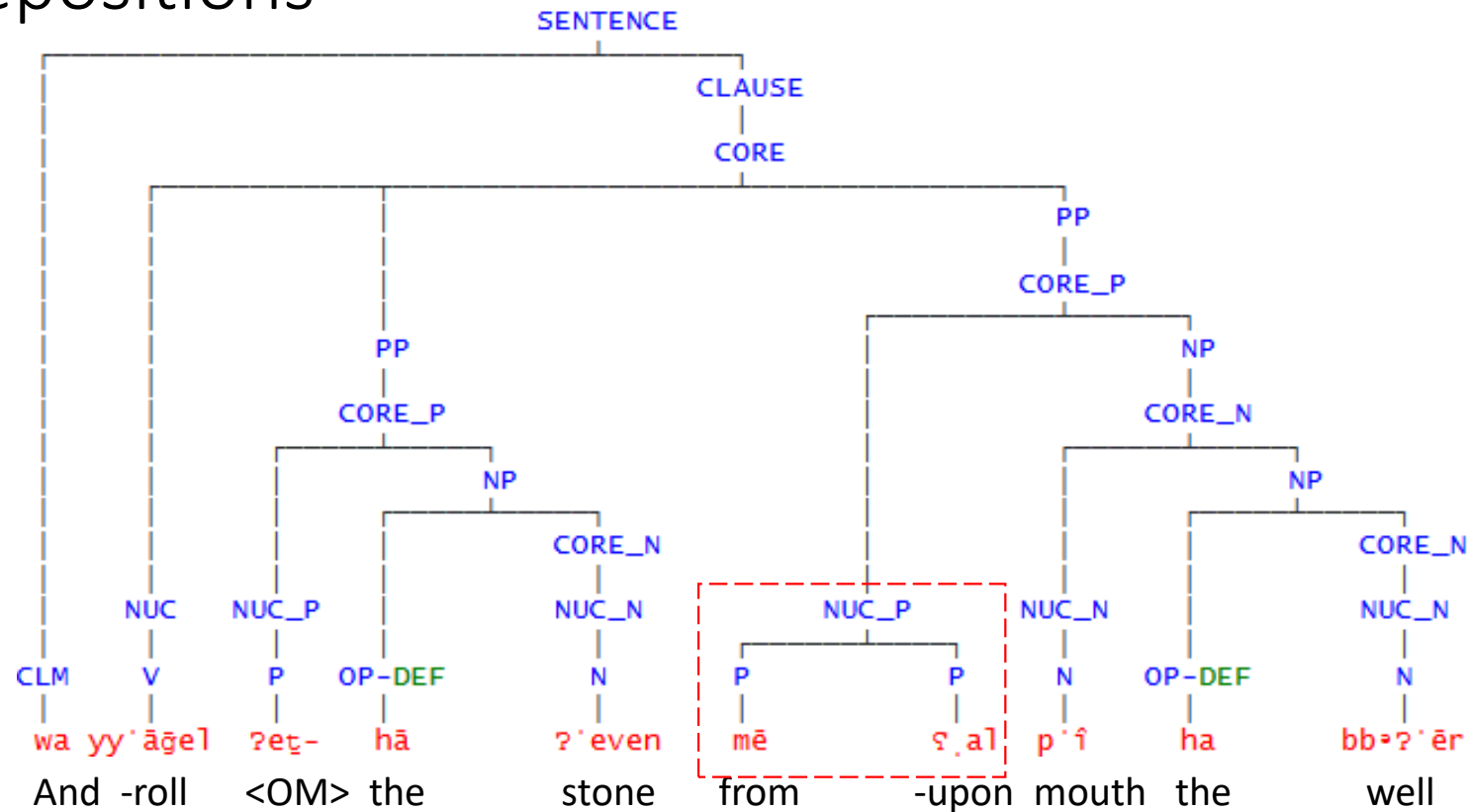
**Sentence 1175071 (Genesis 33:5)**

## 6. Core cosubordination

Shared argument ("light"), and the last core is dependent on the first.



## 7. Composite prepositions

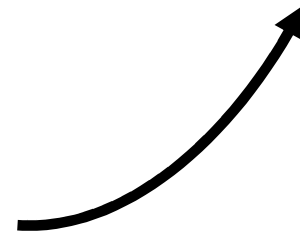
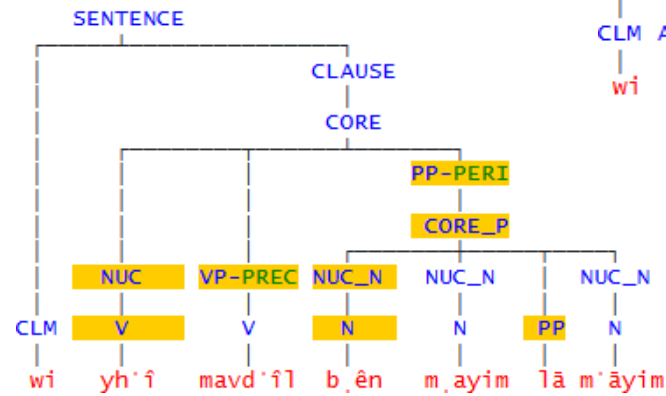
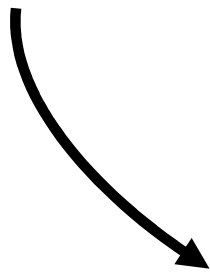
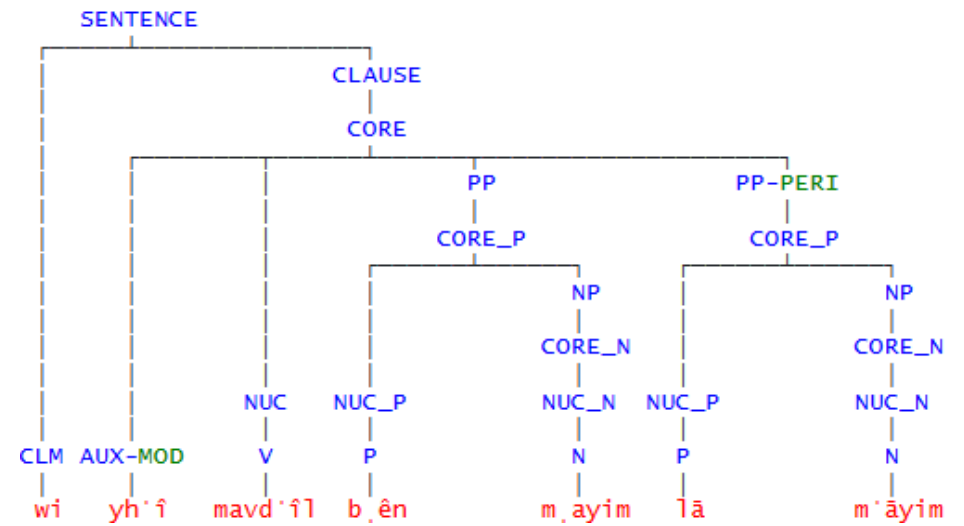
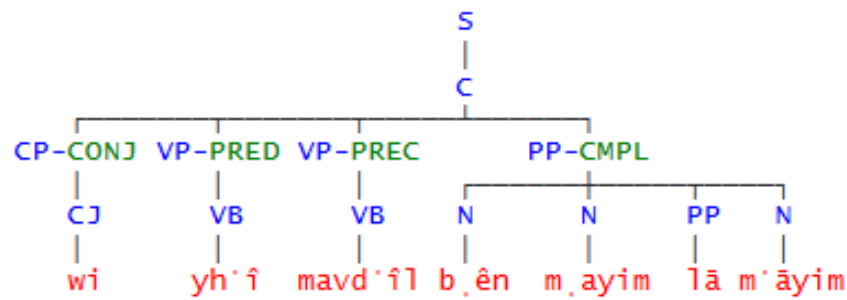


*And he rolled the stone away from the opening of the well*

**Sentence 1174539 (Genesis 29:10)**



# From PTB trees to RRG trees



Thank you!

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