SHEBANQ/EMDROS MQL-tutorial v1.26

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Basic introduction: Tool preparation

- Introduction 1.1
- 1.2 Database architecture
 - a) Selection of popular data categories (see Gen 20:1-4 CTT):

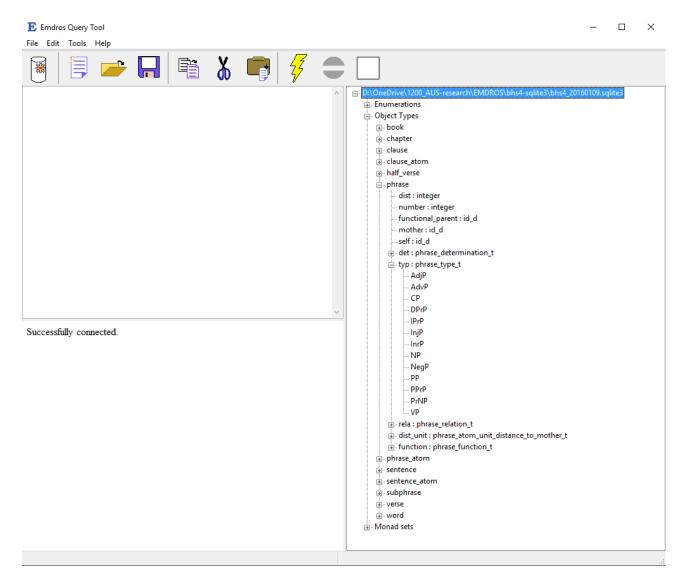
Level				
object types	Feature	Value		
text section				
verse	book	Genesis, etc.		
	chapter	1, 2, etc.		
	verse	1, 2, etc.		
syntax				
sentence	sentence			
clause	typ	WayX, Way0, etc.		
	rela	Attr, Objc, etc.		
	domain	N, Q, etc.		
phrase	typ	VP, NP, etc.		
	function	Pred, Subj, Objc, etc.		
lexeme/morphology				
word	lex	">BRHM/"		
	lex_utf8	"אברהם/"		
	gn	m, f		
	nu	sg, pl, du		
	ps	p1, p2, p3		
	st	a, c		
	VS	qal, nif, etc.		
	vt	perf, impf, etc.		

Query samples:

```
Finding Gen 1:1
```

```
=> [verse book IN (Genesis) AND chapter IN (1) AND verse IN (1)]
Finding attributive clauses
      => [clause rela IN (Attr)]
Finding the word "Abraham"
      => [word lex_utf8 = "אברהם"]
Finding "Abraham" as subject of an attributive clause in Genesis chapter 25-35:
    [verse book IN (Genesis) AND chapter IN (25,26,27,29,30,31,32,33,34,35)
       [clause rela IN (Attr)
            [phrase function = Subj
                   [word FOCUS lex = ">BRHM/"]
             ]
      ]
    1
```

- b) find all available object types, features and values here
 - i) SHEBANQ Documentation (Features by category):
 - (1) Full documentation: https://etcbc.github.io/bhsa/
 - (2) Quick reference: https://github.com/ETCBC/shebang/wiki/MQL-Quickref
 - ii) EMDROS Query Tool: right pane



c) In case you want to use transcription instead of the Hebrew fonts you can find the transcription table here: https://github.com/ETCBC/shebanq/wiki/BHSA-Transcription

1.3 Learning the MQL query language

- d) Read the Emdros Query Guide: https://github.com/ETCBC/shebang/wiki/Documents/MQL-Query-Guide.pdf
- e) Now you can build the most advanced queries. See for example: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=491

This query, for example, finds all cases in which the same direct speech introduction (same subject [e.g. Abraham] speaks to the same complement [e.g. to Abimelech]) is repeated after the initial direct speech has been heard. The query finds the following pattern:

X speaks to Y: "bla bla bla" X speaks to Y: "bla bla bla"

In the default Hebrew text-grammar one would expect after the initial

X speaks to Y: "bla bla bla"

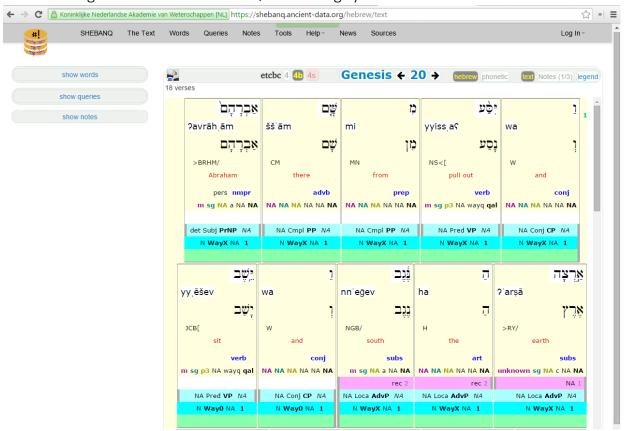
that

Y speaks/answers to X: "bla bla bla"

is following.

We are therefore searching for a rather uncommon pattern. The query was inspired by Genesis 20:9-10 where Abimelech initiated a direct speech twice without Abraham responding to Abimelech's first speech.

1.4 Looking at the text in SHEBANQ: Visualizing syntactic structure



- 1.5 Relation between SHEBANQ and EMDROS Query Tool
 - f) "userfriendly" Offline (Emdros) vs all-powerful Online (SHEBANQ)
 - g) Installing Emdros

2 Building Simple Queries

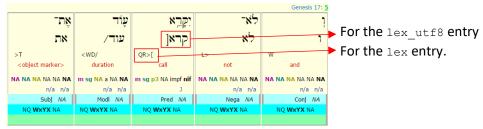
- 2.1 Searching on the WORD-level
 - a) Simple search for the word "Abraham" in the book of Genesis in the chapter 17-22.

```
select all objects where [chapter book = Genesis AND chapter IN (17,18,19,20,21,22) [word FOCUS lex = ">BRHM/"] //or write: [word FOCUS lex_utf8 = ""|]]
```

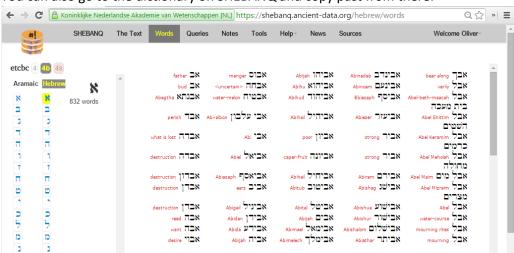
Link to this query: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1365

- => When you search for nouns you have to add "/" behind the word: "DBR/" (word)
- => When you search for verbs you have to add "[" behind the word. "DBR[" (to speak)

If you want to save time with typing Hebrew words or transliterated words, you can just copy/paste them from a concrete text. For example:



You can also go to the dictionary on SHEBANQ and copy past from there:



b) Word advanced: Searching "Abraham" in clauses that contain a predicate in Way tense in the book of Genesis.

```
select all objects where
[book book = Genesis
[clause
[word FOCUS vt = wayq]
..
[word FOCUS lex_utf8 = "אברהם"] //or write [word FOCUS lex = ">BRHM/"]
]
```

Link to this query: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1366

The full list of verbal tenses can be found in the ETCBC feature doc (go to https://etcbc.github.io/bhsa/features/hebrew/2017/0_home.html):

```
Edit on GitHub
Vt data
verbal tense
Form of the verb that indicates tense or mood
This feature is present on objects of type word.
The Hebrew verb has multiple stems, and each of these stems can be marked with tense/mood. For the possible stems, see vs. Not all words have verbal tense (e.g.
nouns) and these are marked as NA
Here is the list of possible values:
perf perfect
impf imperfect
wayq wayyiqtol
impv imperative
infa infinitive (absolute)
infc infinitive (construct)
ptca participle
ptcp participle (passive)
```

c) The query template for verbal morphology:

```
select all objects where
//section01: part of speech
 [word FOCUS sp = verb
  //section02: preformative
     AND g pfm ~ '\![J][.][A]\!'
  //section03: lexeme
     AND lex ~ '^[>BGDHWZXVJKLMNS<PYORFCT][>BGDHZXVKLMNS<PYORFCT][$"
   //section04: verbal ending
     AND g vbe = "[W."]
  //section05a: verbal stem
        AND vs IN (qal, nif, piel, pual, hit, hif, hof)
     //section05b
        //AND vbs = "HT" //alternatively one could use vbs ("absent"=qal,piel,pual; "HT"=hit;
"N"=nif, "H"=hif,hof)
     //section05c
        //AND g vbs ~ '\][N][IE]\]' (this would for example search for all cases in which we
would find the stem signs for the niphal ; and ;.
   //section06: pronominal suffixes
     AND g prs \sim '[+].' //this finds any suffix form
```

Template explanation:

This query is intended to showcase how to build complex morphological queries. Here are some explanations that should help anybody to modify the query for him/herself:

//section01:

here we define the part of speech (sp) as verbs (verb)

//section02:

here the graphical preformative (that is phenomenolgoical not pradadigmatic descritpion of the preformative)(g_pfm) is defined with the help of regular expression (~). Each pfm starts with "!" and ends with "!". Since I am using regular expressions I need to put a "\" before each "!" to make sure that the exclamation marks are not read as regular expressions but as ETCBC database values. The "[J]" stands for a Yod, the [.] stands for a Dagesh, and the [A] stands for a

Patach. A full transcription list for vowels and other Masoretic markers can be found here: https://shebanq.ancient-data.org/shebanq/static/docs/ETCBC4-transcription.pdf

//section03:

here we define the lexeme (lex) with the help of regular expressions. In the sample below we find 3 [>BGDHWZXVJKLMNS<PYQRFCT] blocks. The letters within the square brackets of block 1 and 3 are all 23 Hebrew consonants in transcribed form. Block 2 misses the letters "W" and "J" in order to exclude II"yod/waw verbs. Each block stands for one radical of the verb. The content within the square brackets allows for "OR" functionality. Thus, [BK] would stand for either "B" or "K". [>BGDHWZXVJKLMNS<PYQRFCT] then stands for one consonant of the alphabet. Before the first block I have placed the regular expression "^" in order to indicate that this is the very beginning of the lexeme. At the end of the third block you find "\[" marking the lexeme as a verb. The normal sign of verbs is "[". However, since we are using regular expression (regular expressions are enabled by the "~" signed after "lex" we have to make sure that "[" is not read as a regular expression but as a normal sign. This we do by putting "\" before "[". After the "\[" I have placed a "\$" indicating that this is the very end of the lexeme. Using "^" and "\$" guarantees that the verbal lexeme does not have more than 3 radical.

//section04:

here the graphical verbal ending (that is phenomenolgoical not paradigmatic description of the preformative)(g_vbe) is defined. Each g_vbe has to start with "[" and can then be followed by and consonant and vowel. In my case I have defined the "W" and "." (Dagesh) in order to define the 1 ending.

//section05a:

here the verbal stem (vs) is defined.

//section05b:

alternatively to "vs" one could also chose for "vbs" (still paradigmatic representation) en "g_vbs" if one wants to look only for the graphical/phenomenological representation of the verbal stem and not for the paradigmatic information. E.g.: vbs = "HT" (thee following values are available: "absent"=qal,piel,pual; "HT"=hit; "N"=nif, "H"=hif,hof)

//section05c:

alternatively to "vs" or "vbs" (both paradigmatic representations) one could search for "g_vbs" if one wants to look only for the graphical/phenomenological representation of the verbal stem and not for the paradigmatic information. E.g.: $g_vbs \sim '\[N][IE]\]'$ (this would for example search for all cases in which we would find the stem signs for the niphal g_vbs and g_vbs .

//section06:

here we define the presence of pronominal suffixes. The features "pfm" (paradigmatic) and "g_pfm" (phenomenolgical/graphical) are available. If the paradigmatic "pfm" features is used the following values apply:

Here follows a list of the paradigmatic forms of the pronominal suffix (Hebrew version)

```
1sgC="NJ", "J"
2sgM="K"
2sgF="K="
3sgM="W", "HW"
3sgF="H"
1plC="NW"
2plM="KM"
2plF="KN"
3plM="HM", "M", "MW"
3plF="HN", "N"
```

A possible query could look like this:

[word FOCUS sp IN (verb, subs, prep) AND prs ~ '[JKWHMN]'] // this finds all suffixes that come with at least one consonant (two consonants are possible)
OR

[word FOCUS sp IN (verb, subs, prep) AND prs = "J"] // this finds all suffixes that have only J as consonant and no other consonant following. OR

[word FOCUS sp IN (verb, subs, prep) AND prs \sim '[K][=]'] // this finds the homographic 2sg suffix OR

[word FOCUS sp IN (verb, subs, prep) AND prs \sim '[JKWHMN][JWMN]'] // this finds all suffixes that come with two consonants

2.2 Searching on the PHRASE-level

a) Searching "Abraham" as a subject

Link to this query: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1367

The full list of phrase functions can be found in the ETCBC feature doc (https://etcbc.github.io/bhsa/features/hebrew/2017/function.html):

```
function ....
phrase function
The phrase function denotes the syntactic function of the phrase.
This feature is present on objects of type phrase.
Adiu Adiunct
 Cmp1 Complement
Conj Conjunction
EPPr Enclitic personal pronoun
ExsS Existence with subject suffix
Exst Existence
 Frnt Fronted element
Intj Interjection
IntS Interjection with subject suffix
Loca Locative
Modi Modifier
ModS Modifier with subject suffix
 NCop Negative copula
NCoS Negative copula with subject suffix
Nega Negation
Objc Object
PrAd Predicative adjunct
PrcS Predicate complement with subject suffix
PreC Predicate complement
Pred Predicate
Pre0 Predicate with object suffix
PreS Predicate with subject suffix
Ptc0 Participle with object suffix
 Ques Question
Rela Relative
Subi Subject
Supp Supplementary constituent
Time Time reference
Unkn Unknown
Voct Vocative
I was unable to locate a definition of this feature.
Examples needed, or longer descriptions.
The ! appears where the QUEST documentation has a cross mark. I do not know why these values have been marked.
```

b) Phrase advanced: Searching for the predicates that have Abraham as subject.

```
[phrase FOCUS function = Pred]
..
[phrase FOCUS function = Subj
[word FOCUS lex_utf8 = "אברהם"]
]
```

Link to this query: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1368

2.3 Searching on the Clause/Sentence-level

a) Searching for a sentence that contains two clauses in Genesis 20

Link to this query: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1369

- b) Complex Sentence advanced:
 - i) Searching for a sentence that contains an independent clause and a dependent attributive/relative clause.

Link to this query: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1370

The full list of rela values can be found in the ETCBC feature doc (go to https://etcbc.github.io/bhsa/features/hebrew/2017/0 home.html):

Clause Adju Adjunctive clause Attr Attributive clause Cmp1 Complement clause Coor Coordinated clause Objc Object clause PrAd Predicative adjunct clause Prec Predicative complement clause Revo Referral to the vocative Resu Resumptive clause RgRc Regens/rectum connection Spec Specification clause Subj Subject clause

2.4 Miscellaneous searches

i) Searching for simple clauses with simple vocabulary (only possible on SHEBANQ): https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1106

```
select all objects where
[clause atom FOCUS
       [phrase FIRST AND LAST
                NOTEXIST [word rank lex > 200]
             //NOTEXIST [phrase function IN (EPPr, ExsS, Exst, Frnt, IntS, Intj,
ModS, Modi, NCoS, NCop, Nega, Objc, PrAd, PrcS, Conj, Rela, Supp, Unkn)]
             [word]
      1
] * { 10-}
OR
[clause atom FOCUS
       [phrase FIRST
                NOTEXIST [word rank lex > 200]
             //NOTEXIST [phrase function IN (EPPr, ExsS, Exst, Frnt, IntS, Intj,
ModS, Modi, NCoS, NCop, Nega, Objc, PrAd, PrcS, Conj, Rela, Supp, Unkn)]
       [phrase
             NOTEXIST [word rank_lex > 200]
             //NOTEXIST [phrase function IN (EPPr, ExsS, Exst, Frnt, IntS, Intj,
ModS, Modi, NCoS, NCop, Nega, Objc, PrAd, PrcS, Conj, Rela, Supp, Unkn)]
             [word]
      1 *
        [phrase LAST
               NOTEXIST [word rank_lex > 200]
             //NOTEXIST [phrase function IN (EPPr, ExsS, Exst, Frnt, IntS, Intj,
ModS, Modi, NCoS, NCop, Nega, Objc, PrAd, PrcS, Conj, Rela, Supp, Unkn)]
             [word]
      ]
] * { 10-}
```

3 Utilizing Operators for Complex queries

3.1 UnorderedGroup

Every element that is contained directly under the UnorderedGroup can appear in any order. For example:

This query

Does exactly the same thing as this query:

3.2 PLACE HOLDERS

In some cases, one wants to include place holders in the query. In order to use placeholders, the simple dot-sign "." is used. However, the placeholder sign only functions when using in the context of regular expressions. In case one wants to search for , but only wants to use the consonants for the query since one is not familiar with the codes for the cantillation signs and vowel transliterations one could run the following search:

```
select all objects where
[word FOCUS g word ~ "^N.*W.*V.*J.*H.*M.*"]
```

See: https://shebang.ancient-data.org/hebrew/query?version=2017&id=2934

In the above case we activate the regular expression by using "~" instead of "=". With "^" we identify the "N" as the first sign of the word and with ".*" we create potential spaces between the consonants.

In the following query I look for any lexeme that has the consonants "DBR" in its word. This would catch words like "MDBR/", "LDBR/", "DBR[", "DBR/", "DBR=/", etc.

```
select all objects where
[word FOCUS lex ~ ".DBR.*"]
```

See: https://shebang.ancient-data.org/hebrew/query?version=4b&id=2934

3.3 NOTEXIST

See: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=1465

```
select all objects where
[clause kind=NC
      [word AS same_png FOCUS sp=prps]]

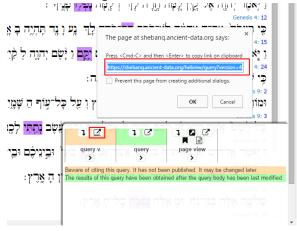
[clause typ IN (WQt0, WQtX)
      [word FOCUS sp=verb
          AND ps=same_png.ps
          AND nu=same_png.nu
          AND gn=same_png.gn
]
```

4 Publishing your query in an academic paper

- a) Once you have run your query you can publish your query and use a PID for reference purposes in your paper/article/book/etc.
- b) Click the share box under your query description:



c) In the bottom right corner click on "cite" and chose the right box over "query v":



- d) Now you can copy your PID and use it wherever you wish. I share my query no 491 with you here: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=491
- 2) Going wild:
 - a) Using operators: OR, AND, NOTEXIST, First AND Last, etc.
 - i) Search P"Nun: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=32
 - ii) Search same lexeme in different clauses: https://shebanq.ancient-data.org/hebrew/query?version=4b&id=36
 - b) Check MQL query guide: https://github.com/ETCBC/shebanq/wiki/Documents/MQL-Query-Guide.pdf

5 Advanced Queries

A couple of advanced queries can be found here. You can study them and learn from them how to translate your exegetical questions into electronic queries.

The concrete phenomenon triggering the	The query	The result
exegetical question		
A. Word level (Jer 1:11-12): Really a rhetoric device? נְי רְּאָה: אַלֵּי לָאמֹר מָה־אַתָּה רֹאֶה יִרְמְיָהְּוּ וָאַלֵּי תַשְׁלָּהְּאָנִי רֹאֶה: נְיְהְיָהְיָה אָלֵי הִיעַבְהְּ לְרְאָוֹת בִּי <mark>שְׁלָּדְרְ</mark> אָי עַל־דְּבָרֵי לְעֲשׂתְוֹ:	<pre>select all objects where [clause</pre>	SHEBANQ query no1002
B. Phrase level (Gen 4:1): Did Eve bore YHWH? אָריִרְהֵוּה מֹא מֶר קְנִיתִי אֵישׁ אֶּת־יְרְהֵוּה as complement: "I gained a man with the LORD." אָריִרְהֵּנָה as apposition to אָריִרְהָנָה "I gained a man, the LORD."	<pre>select all objects where [clause [phrase function = Objc [phrase_atom FOCUS rela = NA] [phrase_atom FOCUS rela = Appo</pre>	SHEBANQ queries no946 no947 no948 no1003
C. Clause level: To whom does YHWH speak?	select all objects where [clause [UnorderedGroup [phrase function = Subj	SHEBANQ query no448

D. Level of text-linguistics (Gen 20:9-10): Is Abraham silent? Genesis 20:9-10 (NRSV) 9 Then Abimelech called Abraham, and said to him, "What have you done to us? How have I sinned against you, that you have brought such great guilt on me and my kingdom? You have done things to me that ought not to be done." 10 And Abimelech said to Abraham, "What were you thinking of, that you did this thing?" (Alio

```
select all objects where
                                                                                      SHEBANQ query
                                                                                      no491
        [clause domain = "N"
               [phrase function = Pred
                        [word
                                [word lex = "DBR["]
                                [word lex = ">MR["]
                                [word lex = "QR>["]
                [phrase FOCUS function = Subj
                        [word AS samesubject]
                [phrase FOCUS function = Cmpl
                       [word AS samecomplement]
        [clause domain = "N"]* \{0-1\}
        [clause domain = "Q"]* {1-50}
        [clause domain = "N"
               [phrase function = Pred
                        [word
                                [word lex = "DBR["]
                                [word lex = ">MR["]
                                [word lex = "QR>["]
                ]
                [phrase FOCUS function = Subj
                       [word lex = samesubject.lex]
                [phrase FOCUS function = Cmpl
                       [word lex = samecomplement.lex]
       1
OR
[
        [clause domain = "N"
                [phrase function = Pred
                       [word
                                [word lex = "DBR["]
                                [word lex = ">MR["]
                                [word lex = "QR>["]
                [phrase FOCUS function = Cmpl
                        [word AS samecomplement2]
                [phrase FOCUS function = Subj
                        [word AS samesubject2]
        [clause domain = "N"] * \{0-1\}
```

```
[clause domain = "Q"]* {1-50}
        [clause domain = "N"
               [phrase function = Pred
                       [word
                               [word lex = "DBR["]
                               [word lex = ">MR["]
                               [word lex = "QR>["]
                [phrase FOCUS function = Cmpl
                      [word lex = samecomplement2.lex]
                [phrase FOCUS function = Subj
                      [word lex = samesubject2.lex]
OR
        [clause domain = "N"
               [phrase function = Pred
                       [word
                               [word lex = "DBR["]
                               [word lex = ">MR["]
                               [word lex = "QR>["]
               ]
                [phrase FOCUS function = Subj
                      [word AS samesubject3]
                [phrase FOCUS function = Cmpl
                     [word AS samecomplement3]
        [clause domain = "N"]* {0-1}
        [clause domain = "Q"]* {1-50}
        [clause domain = "N"
               [phrase function = Pred
                      [word
                               [word lex = "DBR["]
                               [word lex = ">MR["]
                               [word lex = "QR>["]
               ]
                [phrase FOCUS function = Cmpl
                       [word lex = samecomplement3.lex]
                [phrase FOCUS function = Subj
                      [word lex = samesubject3.lex]
```

```
[clause domain = "N"
       [phrase function = Pred
              [word
                      [word lex = "DBR["]
                      [word lex = ">MR["]
                      [word lex = "QR>["]
       [phrase FOCUS function = Cmpl
              [word AS samecomplement4]
       [phrase FOCUS function = Subj
              [word AS samesubject4]
[clause domain = "N"]* {0-1}
[clause domain = "Q"]* {1-50}
[clause domain = "N"
       [phrase function = Pred
              [word
                      [word lex = "DBR["]
                      [word lex = ">MR["]
                      [word lex = "QR>["]
       [phrase FOCUS function = Subj
              [word lex = samesubject4.lex]
```

- 6 ETCBC in Accordance
- 7 ETCBC in Logos
- 8 ETCBC in Paratext
 - ⇒ Download here: https://ldrv.ms/u/s!Al0u8U0ZQlv3ho4cRCXy-01groquSQ