

# Subjects and Predicates and Complements, Oh My!

## Searching the New Testament with Sensitivity to Syntax

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Presented at the Evangelical Theological Society's  
58<sup>th</sup> National Meeting  
November, 2006

Version: 2006-11-06

### Abstract

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Logos Bible Software have implemented an edition of the *OpenText.org Syntactically Annotated Greek New Testament*. One facet of OpenText.org's work isolates clause boundaries. Within each clause, subjects, predicators, complements and adjuncts are identified. This enables searching of the Greek New Testament with sensitivity to clause-level criteria. This advance raises certain questions: How should syntactic annotation be used? What sorts of things can be searched for?

This paper examines different sorts of searches that can be pursued from the starting point of a word. Questions like "When is [word] used as a subject?" or "What verbs are used when [word] is a subject?" will be examined and discussed.

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## Introduction

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With any textual annotation, one must become familiar with terminology and concepts that the annotation uses before the it can become a regular tool in one's study of the text.

For example, before one can competently use the textual apparatus of the Nestle-Aland Greek New Testament, one needs to become familiar with some general principles of textual criticism and also become familiar with the symbols and shorthand used by the apparatus to communicate information.

The same is true of syntax annotations. The OpenText.org group<sup>2</sup> have completed work on a syntactical analysis of the Greek New Testament. But, like the Nestle-Aland textual apparatus, one must become familiar with the annotation's vocabulary and implementation in order for it to become an active part of reading and study of the New Testament.

## The OpenText.org Syntactically Analyzed Greek New Testament

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As the scope of this paper involves searching at the clause level (that is, above the word level and its associated morphological annotation) it is necessary to begin the discussion with the clause level annotation of the *OpenText.org Syntactically Analyzed Greek New Testament*.

### Clause Level Annotation

The annotation is fairly simple in concept. **Clauses** are delineated and contain **clause components**.<sup>3</sup> These clause components contain either embedded clauses or word groups.<sup>4</sup>

A clause is something with a predication (verbal element) that is either explicit or implied. John 3.16a serves as an example of a clause:

Οὕτως	γὰρ	ἠγάπησεν	ὁ θεὸς	τὸν κόσμον
Thus	for	loved	the God	the world

This clause has a verbal element, along with other elements that combine to form a clause. The clause is defined by the OpenText.org group as:

**Clause:** A clause is a unit of language that contains a single proposition about which the language user is making an assertion, negation, query or suggestion. A clause will usually consist of a verbal element (the predicator) and its related elements. However, a verbal element will not always be present (e.g. the opening of many letters) and is not required in a clause. A clause may consist of a single word group (e.g. a one-word phrase).<sup>5</sup>

The entire string of words in John 3.16a is marked as a clause and it is comprised of clause components:

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<sup>2</sup> <http://www.OpenText.org> is the group web site.

<sup>3</sup> Or conjunctions, but this distinction will be discussed further below.

<sup>4</sup> Word groups are discussed further below.

<sup>5</sup> Citation from spec web page ...

## Primary Clause

<b>Adjunct:</b>	Οὕτως
<b>conjunction:</b>	γὰρ
<b>Predicator:</b>	ἠγάπησεν
<b>Subject:</b>	ὁ θεὸς
<b>Complement:</b>	τὸν κόσμον

John 3.16a is a good example because it is familiar to virtually every student of the Bible and it uses all four **core clause components** as well as one of the two **peripheral clause components**.<sup>6</sup>

### Core Clause Components

**Subject:** The subject of a clause is the word group or word groups providing greater specification regarding the grammatical subject of a finite verb form (the morphological indication of person and number). For finite verbs the head term of this group (or these groups) are in the nominative case. In infinitive clauses the subject may be indicated in the accusative case. In so-called genitive absolute constructions the subject component occurs in the genitive case. A clause will often have no subject component and can have at most one subject component.

**Predicator:** The predicator of a clause is its verbal element, which grammaticalizes the process of the clause.

**Complement:** A complement of a clause is a word group or the word groups that completes the predicator of the clause. The categories of direct and indirect object from traditional grammar are among those classified as complements. A clause may have no complement or many complements. With relation to the process of the clause, the complement(s) are those components of the clause that answer the question “who?” or “what?” is affected by the process.

**Adjunct:** An adjunct of a clause is a word group or the word groups that modify the predicator, providing an indication of the circumstances associated with the process. Common adjuncts are prepositional and adverbial phrases (adverbs) and also embedded “adverbial clauses”. With relation to the process of the clause, adjuncts provide answers to questions of the type “where?”, “when?”, “why?” and “how?”.

### Peripheral Clause Components<sup>7</sup>

**Addressee:** The addressee component serves an interpersonal function and contains words used to call attention to one of the participants (either internal or external) in the discourse.

**Conjunction:** The conjunction component contains words that function to link the clause to preceding or following clauses in the discourse.

### Application of Terminology

Taking into account the definitions, the following relationships and inferences can be made regarding the annotation of John 3.16a.

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<sup>6</sup> All definitions taken from: [http://blog.logos.com/archives/2005/11/greek\\_syntax\\_cl.html](http://blog.logos.com/archives/2005/11/greek_syntax_cl.html). Accessed August 16, 2006.

<sup>7</sup> Provided for completeness, but these peripheral level components will not be discussed in detail in this paper.

- The predicator (verb) of the clause is ἠγάπησεν.
- The adjunct οὕτως provides circumstance. It indicates God didn't just 'love' the world, but he loved the world *in a particular way*.
- The subject ὁ θεὸς indicates who or what is doing the loving. Note that this is not one word, and that it is not two words each tagged as a subject, but the two-word string (the group) is tagged as the subject while each word also has individual word-level morphological criteria.
- The complement (or 'object') τὸν κόσμον indicates who or what is being loved.

Walking slowly through the annotation, one can use the clauses and clause components to construct a view of the syntactic goings-on in a given portion of Scripture.

## Types of Clauses

In addition to denoting the components contained by each clause, clause type is also denoted. There are three clause types: Primary, Secondary and Embedded.<sup>8</sup>

**Primary Clause:** A *primary clause* is an independent clause (usually contains a finite verb form) that is not dependent on or subordinate to any other clause.

**Secondary Clause:** A *secondary clause* is a clause that depends on (is subordinate to) another clause. This dependency/subordination is usually indicated by the presence of certain particles/conjunctions (traditionally referred to as subordinating particles). Common secondary clauses are relative clauses and clauses beginning with words such as ὡς/καθώς and ὅτε/ὅταν. Non-embedded participle and infinitive clauses (*i.e.* genitive absolute and infinitive clauses beginning with a preposition + article combination) as also classified as secondary.

**Embedded Clause:** An *embedded clause* is a clause that occurs inside a component of another clause. Frequently the predicator of embedded clauses are non-finite (*i.e.* participal and infinitive clauses), but finite clauses can also be embedded.

Note that secondary clauses are considered to be “connected” to either another secondary clause or a primary clause because they tend to further modify or explicate the clauses they are connected with. An example is found in Matthew 5.3.<sup>9</sup>

c8 || C<sup>3</sup> μακάριοι | S οἱ πτωχοὶ τῷ πνεύματι ||  
 sc9 ^|| cj ὅτι | A αὐτῶν | P ἔστιν | S ἡ βασιλεία τῶν οὐρανῶν ||

The secondary clause explains why the “poor in spirit” are blessed; it is because theirs is the kingdom of heaven. Matthew 5.4 provides an example with an embedded clause:<sup>10</sup>

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<sup>8</sup> Definitions taken from: Porter, S., O'Donnell, M. B., Reed, J. T., Tan, R., & OpenText.org. (2006; 2006). *The OpenText.org Syntactically Analyzed Greek New Testament Glossary*. Logos Research Systems, Inc.

<sup>9</sup> In this visualisation, the double-pipes (||) mark the boundaries of primary or secondary clauses, the single-pipes (|) mark the boundaries of clause components. Letters serve as abbreviations for each clause component. ‘c’ plus number indicate a primary clause, ‘sc’ plus number indicate a secondary clause. The arrow points to the connecting clause.

<sup>10</sup> The embedded clause is in the double-brackets.

c10 || C 4 μακάριοι | S [[ P οί πενθοῦντες ]] ||

sc12 ^|| cj ὅτι | S αὐτοὶ | P παρακληθήσονται ||

Here the subject consists of an embedded clause that is a predicator. In this case, it is a substantive participle, “the mourning ones”, functioning as the subject of the clause.

These are a few examples, but they provide a basic introduction to the clause level annotation.

## Word Group Annotation

The word group annotation will not be presented in much detail. Clause components may contain word groups, connectors,<sup>11</sup> or embedded clauses (which then contain other clause components, etc.). Word groups consist of groups of one word or more. Each word group has a head term; additional words in the group serve to modify that head term. In the OpenText.org terminology, this means that each word group contains a head term and optionally contains modifiers. Modifiers may be nested. There are four types of modifiers:

**Definer:** A *Definer* is a modifier that attributes features to or further defines the word it modifies. Common examples of definers are adjectives (both attributive and predicative structure), appositional words or phrases, and adjectival clauses.

**Qualifier:** A *Qualifier* is a modifier that in some way limits or constrains the scope of the word it modifies. Common examples of qualifiers are words in the genitive and dative case, and also negative particles functioning at the word group level.

**Specifier:** A *Specifier* is a modifier that classifies or identifies the word it modifies. Common examples of specifiers are articles, e.g. ἡ ἀδελφή, and prepositions, e.g. ἐν δόξῃ. In a prepositional phrase such as εἰς τὸν λόγον, both εἰς and τὸν are specifiers of λόγον.

**Relator:** A *Relator* is a modifier which is specified by a preposition (i.e. the *Relator* is the object of a preposition) that modifies another element within the word group. For example, in the word group τὸ κατ' ἐμὲ πρόθυμον, the term ἐμὲ is in a relator relationship with the head term πρόθυμον. This relationship only applies to prepositional phrases within word groups and not when the prepositional phrase functions as a clause component.<sup>12</sup>

When sifting clause-level criteria, searches designed to use particular words<sup>13</sup> are focused on where the target word occurs as the head term in a word group. The head term, as the recipient of all intra-group modification, usually contains the primary term in the group. The importance of this will be illustrated in later examples.

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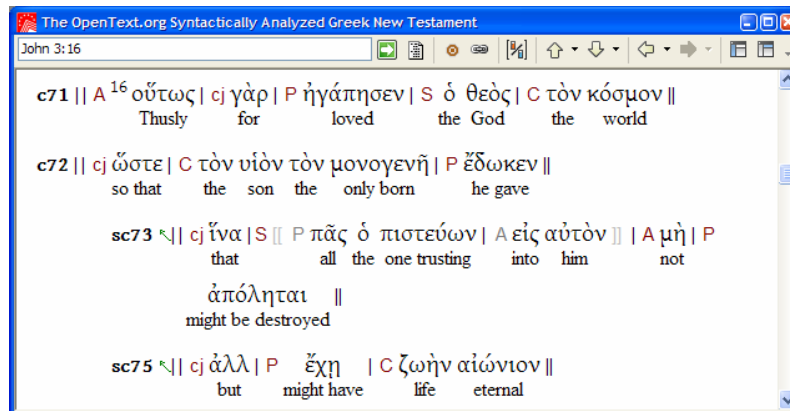
<sup>11</sup> A conjunction-like unit that functions either to join word groups within a clause component, or to join modifiers within a clause group.

<sup>12</sup> Porter, S., O'Donnell, M. B., Reed, J. T., Tan, R., & OpenText.org. (2006). *The OpenText.org Syntactically Analyzed Greek New Testament Glossary*. Logos Research Systems, Inc.

<sup>13</sup> e.g., when θεὸς occurs as subject.

## The Logos Bible Software Implementation

The Logos Bible Software implementation of the *OpenText.org Syntactically Analyzed Greek New Testament* (hereafter *OpenText.org SAGNT* or *SAGNT*) involves two views of the underlying information. Each view is a resource in the system. One view is a resource much like the other Bibles in Logos Bible Software: an interlinear resource with morphology, lexical forms, and glosses. It is different in that it breaks out clauses to individual lines and uses indentation to differentiate primary and secondary clauses. Also, vertical bars are used to delineate clause components. An image best conveys this:

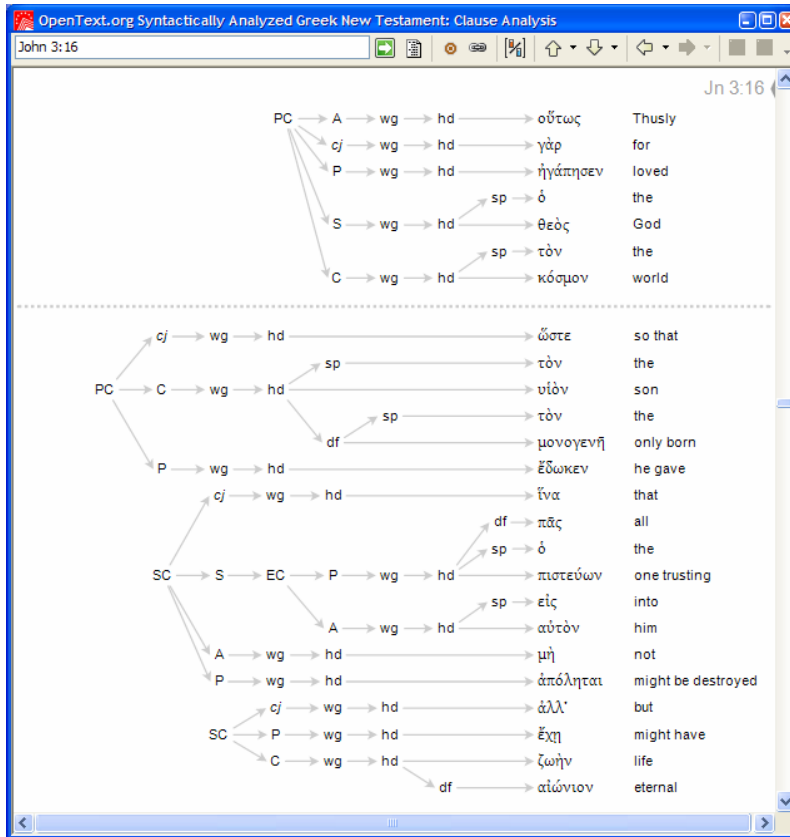


The clauses, clause components, and secondary clause “connection” arrows are visible. In the above view, the supplemental English literal gloss line is active in addition to the Greek manuscript line. Other supplementary lines with information for morphology and lemma (or ‘dictionary’) forms of the Greek words are also available.

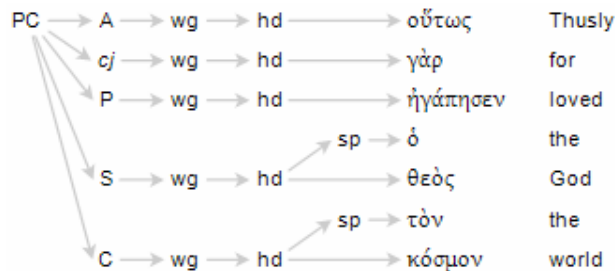
An alternate view is what is called the *Clause Analysis*. The *Clause Analysis* provides a picture of the underlying syntactic annotation (both clause level and word group level) using a directed acyclical graph:<sup>14</sup>

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<sup>14</sup> Further information on directed acyclical graphs and some of their benefits is available on the Logos Bible Software Blog: [http://blog.logos.com/archives/2005/11/syntax\\_why\\_grap\\_1.html](http://blog.logos.com/archives/2005/11/syntax_why_grap_1.html).



The Clause Analysis view makes explicit the underlying relationships encoded in the *OpenText.org SAGNT*. Consider the earlier example of the first clause in John 3.16:



Some abbreviations are in need of expansion:

- **Clauses**
  - PC: Primary Clause
- **Clause Components**
  - A: Adjunct
  - cj: conjunction
  - P: Predicator
  - S: Subject
  - C: Complement
- **Word Group Terminology**

- **wg:** Word Group
- **hd:** Head Term
- **sp:** specifier

In addition to the extent of primary and secondary clauses, the above graph notes things like:

- The **predicator** (P) is ἠγάπησεν. Because the SAGNT is also morphologically tagged at the word level, it is known that the lemma form of this word is ἀγαπάω.
- The **subject** (S, ὁ θεός) consists of one word group (wg). The head term (hd) is θεός, and it is modified by a specifier (sp), the article ὁ.
- The **complement** (C, τὸν κόσμον) consists of one word group (wg). The head term (hd) is κόσμον, and it is modified by a specifier (sp), the article τὸν.

Because of these levels of annotation, the OpenText.org SAGNT can be used as a way to ask “questions” of the text. Questions like:

1. Where else is ἀγαπάω the predicator (P) of a primary clause (PC)?
2. What subjects (S) occur when the predicator (P) of the clause is ἀγαπάω?
3. What complements (C) occur when the predicator (P) of the clause is ἀγαπάω?
4. When the head term (hd) of the subject (S) is θεός, what predicators (P) are used?

Note the last item above essentially asks the question “What sorts of actions does God *do*?” This is the sort of question that students of all training, ability and skill ask of the text as they study. The OpenText.org SAGNT can help retrieve some answers to these questions.<sup>15</sup>

## Asking Questions of the Text Through Syntax Searching

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The balance of this paper explores how to answer the above four questions using the OpenText.org SAGNT. Each search will build on previous searches and the process as a whole will reinforce concepts common to creating syntax queries of the OpenText.org SAGNT.

### Where else is ἀγαπάω the predicator (P) of a primary clause (PC)?

#### Explanation

In general terms (and not in terms specific to the OpenText.org SAGNT) this question is asking for all of the occurrences in the New Testament that have ἀγαπάω as the primary verb in the clause. More generally, where is ἀγαπάω (“to love”) the main action?

One might think that locating such references would be as easy as searching for all instances of the lexical form ἀγαπάω in the New Testament. However, this is not the case. At minimum, one needs to scale the

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<sup>15</sup> The answers retrieved are limited to the extent of the annotation, which means that only explicit mentions (and not implicit mentions, or anaphoric/cataphoric references) will be located. Note that participant reference is one area that the OpenText.org group desires to enhance, though there is no schedule at present for including such data.



search down to only finite verbs (so, no participles or infinitives), but that will still be inadequate as it will locate finite forms of ἀγαπάω subordinated to other verbs, or forms of ἀγαπάω that exist in embedded clauses (like relative clauses). In order to find where ἀγαπάω is the main verb in the clause, at least two things must be done: First, the text must have established clause boundaries; second, component pieces of the clause (in this case, the predicator or verb) must be explicitly marked within the boundary of the clause.

First, one must have a text that provides clause boundaries. These are more than sentence boundaries or even punctuation-based boundaries like accounting for full-stops, commas, semi-colons and colons.<sup>16</sup>

This is evident in John 3.16 in the UBS4 text. Here is the punctuated form from the UBS4 edition:

Οὕτως γὰρ ἠγάπησεν ὁ θεὸς τὸν κόσμον, ὥστε τὸν υἱὸν τὸν μονογενῆ ἔδωκεν, ἵνα πᾶς ὁ πιστεύων εἰς αὐτὸν μὴ ἀπόληται ἀλλ' ἔχη ζωὴν αἰώνιον. (Jn 3:16, UBS4)

Note the commas and sentence-ending punctuation. The OpenText.org SAGNT, however, breaks the same text into two primary clauses with the second primary clause having two secondary clauses.

c71 | | A <sup>16</sup>οὕτως | cj γὰρ | P ἠγάπησεν | S ὁ θεός | C τὸν κόσμον ||  
c72 | | cj ὥστε | C τὸν υἱὸν τὸν μονογενῆ | P ἔδωκεν ||  
sc73 ^ | | cj ἵνα | S [[ P πᾶς ὁ πιστεύων | A εἰς αὐτὸν ] ] | A μὴ | P ἀπόληται ||  
sc75 ^ | | cj ἀλλ' | P ἔχη | C ζωὴν αἰώνιον ||

There are two primary clauses because there are two distinct things going on in the text: God loving the world, and him giving his only-born Son. Recall from the definition of a clause stated above:

A clause is a unit of language that contains a single proposition about which the language user is making an assertion, negation, query or suggestion. A clause will usually consist of a verbal element (the predicator) and its related elements.

Thus a single primary clause cannot have two predicators, so there must be two primary clauses in this instance.

The secondary clauses in this case involves a ἵνα clause that expresses purpose. It begins to explain why God gave his only-born Son—so that all who believe on him will not perish. The second secondary clause further explains this purpose. Those who believe in the only-born Son will not perish, that is, they will have life eternal. Thus the secondary clauses support or further explicate the proposition stated in the primary clause. This agrees with the definition of a secondary clause provided by OpenText.org:

**Secondary Clause:** A *secondary clause* is a clause that depends on (is subordinate to) another clause. This dependency/subordination is usually indicated by the presence of certain particles/conjunctions (traditionally referred to as subordinating particles)<sup>17</sup>

Second, the clauses themselves must denote their individual components. Predicators (verbal elements) must be marked in order to search for the predicator of a primary clause. Relying only on a morphological analysis does not prevent finding verbs functioning substantively (e.g. participles, infinitives).

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<sup>16</sup> or even the sub-paragraph breaks of the NA27 edition.

<sup>17</sup> Porter, S., O'Donnell, M. B., Reed, J. T., Tan, R., & OpenText.org. (2006; 2006). *The OpenText.org Syntactically Analyzed Greek New Testament Glossary*. Logos Research Systems, Inc.

The OpenText.org SAGNT contains both of these necessary elements. The annotation provides clause boundaries, it distinguishes between primary clauses and structures subordinated to the primary clause, and it denotes clausal components.

## Constructing the Search

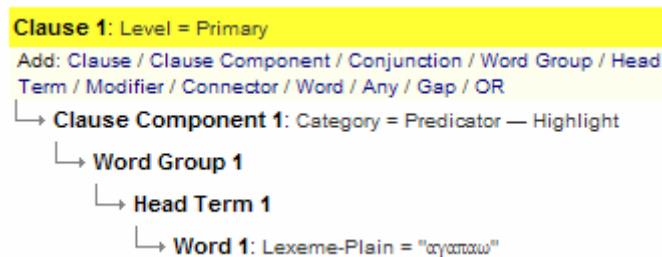
The searching process involves constructing a syntax query that locates all primary clauses that have a predicator of ἀγαπάω. Specifying this structure requires some understanding of the structure and hierarchy of the OpenText.org SAGNT. Much of this has been discussed above and it can be summarized in the following statements:

- Clauses contain Clause Components.
- Clause Components contain Word Groups.
- Word Groups contain Head Terms.
- Head Terms contain Words and Modifiers.

Therefore, this search involves searching for:

- A Primary Clause that contains a Predicator.
- A Predicator that contains a Word Group.
- A Word Group that contains a Head Term
- A Head Term that contains the word ἀγαπάω.

The representation inside of the **Syntax Search** dialog uses indentation and arrows to visually denote the sort of containment mentioned above.



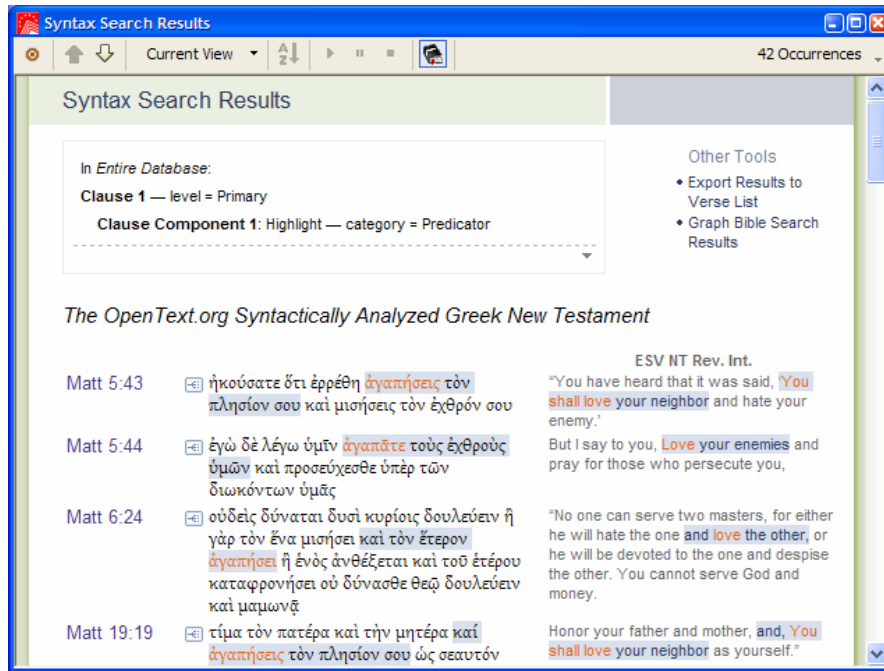
This is the actual representation of the query inside of Logos Bible Software. This search is strictly hierarchical, relying on the clause boundaries and clause component delineation. The above query is spelled out in more detail below:

- Find a “Clause” with “Primary” specified as the **level1**. It contains:
  - a “Clause Component” whose **category** is “Predicator”. Highlight this item in the results. It contains:
    - A “Word Group”. It contains:
      - A “Head Term”. It contains:
        - A Word with the value “αγαπαω” specified as the **lexeme-plain**.

## The Results

This query locates 42 instances in the New Testament. For comparative purposes, a search with a morphological database for the lexical form ἀγαπάω locates 143 instances in 110 verses. The syntax search weeds out just over 100 hits, or two-thirds of the hits retrieved by the lexical form search.

Below is the **Syntax Search Results** dialog. One can see the search hits in the Greek. The grey background reflects the extent of the hit. In this case, it marks the Primary Clause. The orange text is the object marked for *highlighting*. In this case, it is the predicator (as noted above).

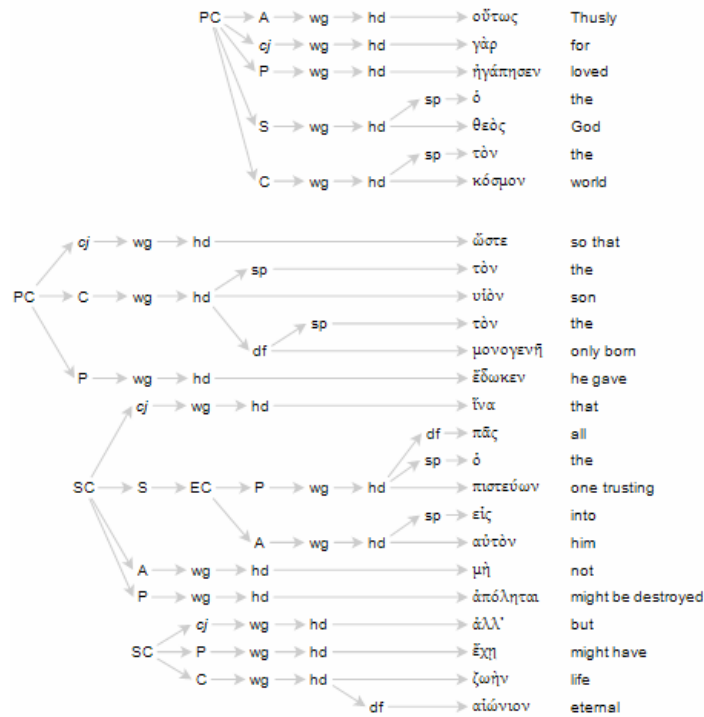


The search results also have the option of containing English text<sup>18</sup> with search highlighting reflecting the underlying Greek text. Below is what the sample verse, John 3.16, looks like in Syntax Search Results:

<p>Luke 16:13 <input type="checkbox"/> οὐδεις οικέτης δύναται δυσι κυρίοις δουλεύειν ή γάρ τον ένα μισήσει και τον έτερον αγαπήσει ή ένός άνθέξεται και του έτέρου καταφρονήσει ου δύνασθε θεω δουλεύειν και μαμωνά</p>	<p>No servant can serve two masters, for either he will hate the one and love the other, or he will be devoted to the one and despise the other. You cannot serve God and money."</p>
<p>John 3:16 <input type="checkbox"/> οὕτως γάρ ηγάπησεν ό θεός τον κόσμον ώστε τον υιόν τον μονογενή έδωκεν ήνα πας ό πιστεύων εις αυτόν μη απόληται άλλ' εχη ζωήν αιώνιον</p>	<p>"For God so loved the world, that he gave his only Son, that whoever believes in him should not perish but have eternal life.</p>
<p>John 3:35 <input type="checkbox"/> ό πατήρ αγαπά τον υιόν και πάντα δέδωκεν έν τη χειρι αυτού</p>	<p>The Father loves the Son and has given all things into his hand.</p>

This highlighting makes sense based on the specified query and on the OpenText.org SAGNT annotation of the verse, shown below:

<sup>18</sup> Logos Bible Software is working on a reverse interlinear of the 1960 Reina Valera New Testament (Spanish). Once that is available, syntax search results will have the option of using a Spanish text to reflect search hits in the New Testament.



## What subjects (S) occur when the predicator (P) of the clause is ἀγαπάω?

### Explanation

In general terms, this question builds on the last question. It is only concerned with clauses, so both secondary clauses (SC) and embedded clauses (EC) are included along with primary clauses (PC). Where a clause has ἀγαπάω as its primary verb, what are the subjects of those clauses? Or, more informally, who or what is doing the ἀγαπάω?

### Constructing the Search

Constructing this search involves modifying the previous search to include a subject (S) clause component in addition to the predicator (P) clause component created above. It also involves the addition of an “anything” block between the predicator and the subject to allow for any other clause components (adjuncts, complements or addressees) that may intervene. This can be spelled out in more detail:

Find a “Clause” It contains:

a “Clause Component” whose **category** is “Predicator”. It contains:

A “Word Group”. It contains:

A “Head Term”. It contains:

A Word with the value “ἀγαπαω” specified as the **lexeme-plain**.

*Anything*

a “Clause Component” whose **category** is “Subject”. Highlight this item in the results.

One change involves highlighting the subject clause component. This will effectively highlight all of the different subjects of the verb ἀγαπάω in the Syntax Search Results dialog, which will make it easy to pick out the different subjects returned by the query.

Additionally, because syntax queries innately specify the order of the query components, the alternate component order must be specified. The above will only locate where predicators precede subjects. To account for where subjects precede predicators, an “OR” block must be added with the alternate query:

Find a “Clause” It contains:

a “Clause Component” whose **category** is “Predicator”. It contains:

A “Word Group”. It contains:

A “Head Term”. It contains:

A Word with the value “ἀγαπαω” specified as the **lexeme-plain**.

*Anything*

a “Clause Component” whose **category** is “Subject”. Highlight this item in the results.

OR

Find a “Clause” It contains:

a “Clause Component” whose **category** is “Subject”. Highlight this item in the results.

*Anything*

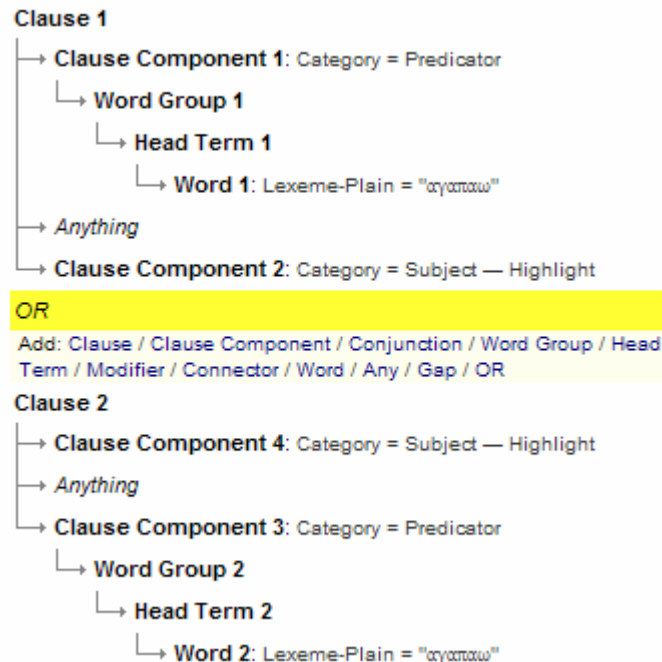
a “Clause Component” whose **category** is “Predicator”. It contains:

A “Word Group”. It contains:

A “Head Term”. It contains:

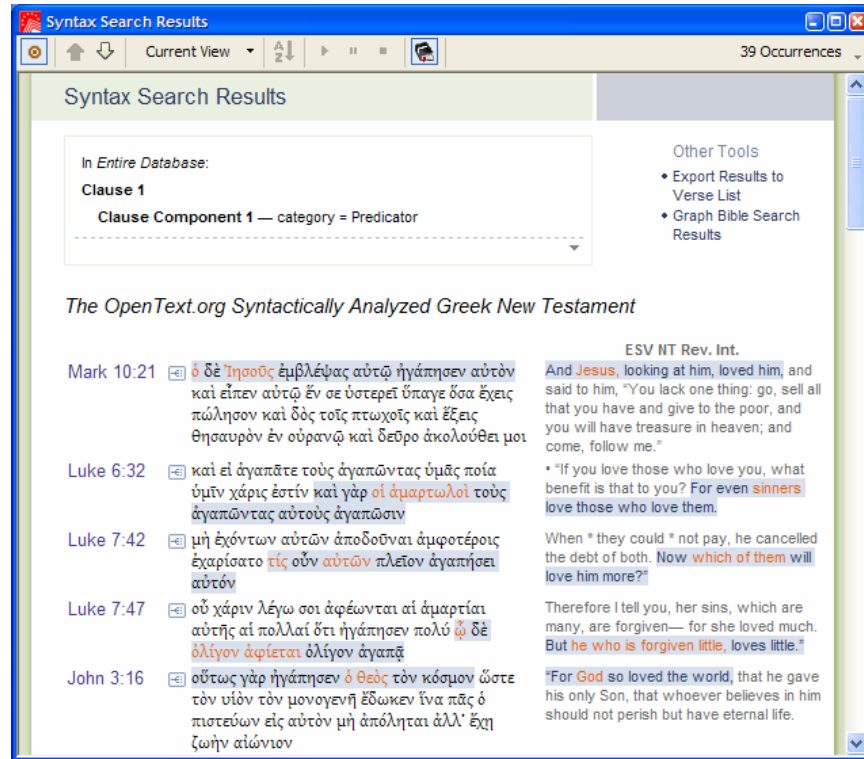
A Word with the value “ἀγαπαω” specified as the **lexeme-plain**.

Within the Syntax Search dialog, the above query looks like this:



## The Results

The query locates 39 instances in the New Testament. A screen shot of the Syntax Search Results is below:



In the above screen capture, each hit specifies a different subject: “Jesus”, “sinners”, “which of them”, “he who is forgiven little” and, from John 3.16, “God”.

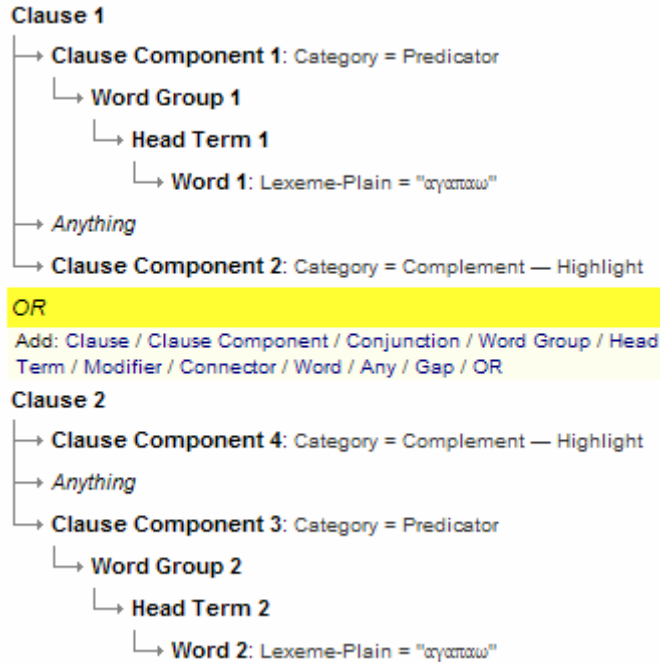
## What complements (C) occur when the predicator (P) of the clause is ἀγαπάω?

### Explanation

This search is almost exactly like the previous search, only it searches for complements (C) instead of predicators (P). More generally, instead of finding who or what loves, it is finding the things that are loved—the object of love.

### Constructing the Search

Because this search is almost exactly like the previous search, the previous search can be used as the starting point. Both of the subject (S) clause components can simply be switched to complements (C):



## The Results

The query locates 126 instances in the New Testament. Below is the result for the example verse, John 3.16:

John 3:16	<input type="checkbox"/> οὕτως γὰρ ἠγάπησεν ὁ θεὸς τὸν κόσμον ὥστε τὸν υἱὸν τὸν μονογενῆ ἔδωκεν ἵνα πᾶς ὁ πιστεύων εἰς αὐτὸν μὴ ἀπόληται ἀλλ' ἔχη ζωὴν αἰώνιον	<input type="checkbox"/> "For God so loved the world, that he gave his only Son, that whoever believes in him should not perish but have eternal life.
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One interesting result is found in Matthew 5.46. On first examination, it looks like a duplicate in the Syntax Search Results dialog:

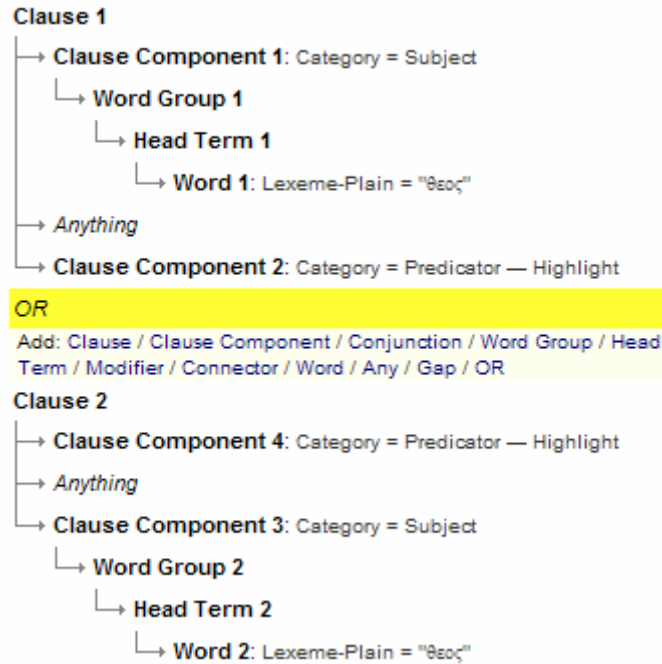
Matt 5:46	<input type="checkbox"/> εἰάν γὰρ ἀγαπήσητε τοὺς ἀγαπῶντας ὑμᾶς τίνα μισθὸν ἔχετε οὐκί και οἱ τελῶναι τὸ αὐτὸ ποιοῦσιν	<input type="checkbox"/> For if you love those who love you, what reward do you have? Do not even the tax collectors do the same?
Matt 5:46	<input type="checkbox"/> εἰάν γὰρ ἀγαπήσητε τοὺς ἀγαπῶντας ὑμᾶς τίνα μισθὸν ἔχετε οὐκί και οἱ τελῶναι τὸ αὐτὸ ποιοῦσιν	<input type="checkbox"/> For if you love those who love you, what reward do you have? Do not even the tax collectors do the same?

But the two instances are correct, this is not an instance of duplication. Matthew 5.46 is a primary clause that contains a secondary clause. The secondary clause has as its complement (C) an embedded clause with a substantive participle. The syntax graph clarifies this:





In the Syntax Search dialog:



## The Results

This query locates 228 instances in the New Testament. Below are the results located in the Gospel of John, which include the example verse of John 3.16.

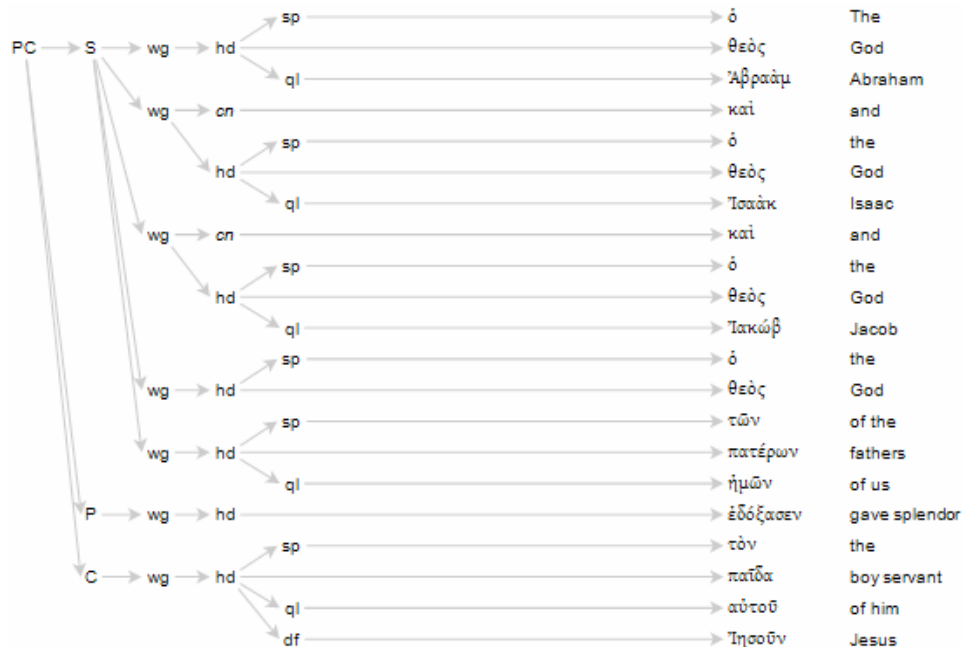
John 3:2	<input type="checkbox"/> οὗτος ἦλθεν πρὸς αὐτὸν νυκτὸς καὶ εἶπεν αὐτῷ ῥαββί οἶδαμεν ὅτι ἀπὸ θεοῦ ἐλήλυθας διδάσκαλος οὐδεὶς γὰρ δύναται ταῦτα τὰ σημεῖα ποιεῖν ἃ σὺ ποιεῖς ἂν μὴ ἢ ὁ θεὸς μετ' αὐτοῦ	This man came to Jesus by night and said to him, "Rabbi, we know that you are a teacher come from God, for no one can do these signs that you do unless God is with him."
John 3:16	<input type="checkbox"/> οὕτως γὰρ ἠγάπησεν ὁ θεὸς τὸν κόσμον ὥστε τὸν υἱὸν τὸν μονογενῆ ἔδωκεν ἵνα πᾶς ὁ πιστεύων εἰς αὐτὸν μὴ ἀπόληται ἀλλ' ἔχη ζωὴν αἰώνιον	"For God so loved the world, that he gave his only Son, that whoever believes in him should not perish but have eternal life.
John 3:17	<input type="checkbox"/> οὐ γὰρ ἀπέστειλεν ὁ θεὸς τὸν υἱὸν εἰς τὸν κόσμον ἵνα κρίνη τὸν κόσμον ἀλλ' ἵνα σωθῆ ὁ κόσμος δι' αὐτοῦ	For God did not send his Son into the world to condemn the world, but in order that the world might be saved through him.
John 3:33	<input type="checkbox"/> ὁ λαβὼν αὐτοῦ τὴν μαρτυρίαν ἐσφράγισεν ὅτι ὁ θεὸς ἀληθὴς ἐστίν	Whoever receives his testimony sets his seal to this, that God is true.
John 3:34	<input type="checkbox"/> ὃν γὰρ ἀπέστειλεν ὁ θεὸς τὰ ῥήματα τοῦ θεοῦ λαλεῖ οὐ γὰρ ἐκ μέτρου δίδωσιν τὸ πνεῦμα	For he whom God has sent utters the words of God, for he gives the Spirit without measure.

In these verses, God “is” (Jn 3.2, 33), God “loved” (Jn 3.16), and God “did send” or “has sent” (Jn 3.17, 34).

One interesting hit from this query is Acts 3.13, which for all intents and purposes appears to be repeated in the results four times:

Acts 3:13	☒	ὁ θεὸς Ἀβραάμ καὶ ὁ θεὸς Ἰσαὰκ καὶ ὁ θεὸς Ἰακώβ ὁ θεὸς τῶν πατέρων ἡμῶν ἐδόξασεν τὸν παῖδα αὐτοῦ Ἰησοῦν ὃν ὑμεῖς μὲν παρεδώκατε καὶ ἠρνήσασθε κατὰ πρόσωπον Πιλάτου κρίναντος ἐκείνου ἀπολύειν	The God of Abraham, • the God of Isaac, and the God of Jacob, the God of our fathers, glorified his servant Jesus, whom you • delivered over and denied in the presence of Pilate, when he had decided to release him.
Acts 3:13	☒	ὁ θεὸς Ἀβραάμ καὶ ὁ θεὸς Ἰσαὰκ καὶ ὁ θεὸς Ἰακώβ ὁ θεὸς τῶν πατέρων ἡμῶν ἐδόξασεν τὸν παῖδα αὐτοῦ Ἰησοῦν ὃν ὑμεῖς μὲν παρεδώκατε καὶ ἠρνήσασθε κατὰ πρόσωπον Πιλάτου κρίναντος ἐκείνου ἀπολύειν	The God of Abraham, • the God of Isaac, and the God of Jacob, the God of our fathers, glorified his servant Jesus, whom you • delivered over and denied in the presence of Pilate, when he had decided to release him.
Acts 3:13	☒	ὁ θεὸς Ἀβραάμ καὶ ὁ θεὸς Ἰσαὰκ καὶ ὁ θεὸς Ἰακώβ ὁ θεὸς τῶν πατέρων ἡμῶν ἐδόξασεν τὸν παῖδα αὐτοῦ Ἰησοῦν ὃν ὑμεῖς μὲν παρεδώκατε καὶ ἠρνήσασθε κατὰ πρόσωπον Πιλάτου κρίναντος ἐκείνου ἀπολύειν	The God of Abraham, • the God of Isaac, and the God of Jacob, the God of our fathers, glorified his servant Jesus, whom you • delivered over and denied in the presence of Pilate, when he had decided to release him.
Acts 3:13	☒	ὁ θεὸς Ἀβραάμ καὶ ὁ θεὸς Ἰσαὰκ καὶ ὁ θεὸς Ἰακώβ ὁ θεὸς τῶν πατέρων ἡμῶν ἐδόξασεν τὸν παῖδα αὐτοῦ Ἰησοῦν ὃν ὑμεῖς μὲν παρεδώκατε καὶ ἠρνήσασθε κατὰ πρόσωπον Πιλάτου κρίναντος ἐκείνου ἀπολύειν	The God of Abraham, • the God of Isaac, and the God of Jacob, the God of our fathers, glorified his servant Jesus, whom you • delivered over and denied in the presence of Pilate, when he had decided to release him.

However, it is not repeated four times. The subject of this clause is a compound subject consisting of multiple word groups: “The God of Abraham, the God of Isaac, the God of Jacob, the God of our fathers”. Each word group in the subject specifies θεὸς as its head term (hd). This is evident upon consulting the syntax graph:



Each one of those instances of θεὸς as a head term is a unique match to the query, so the same text is reported as four hits instead of one hit.

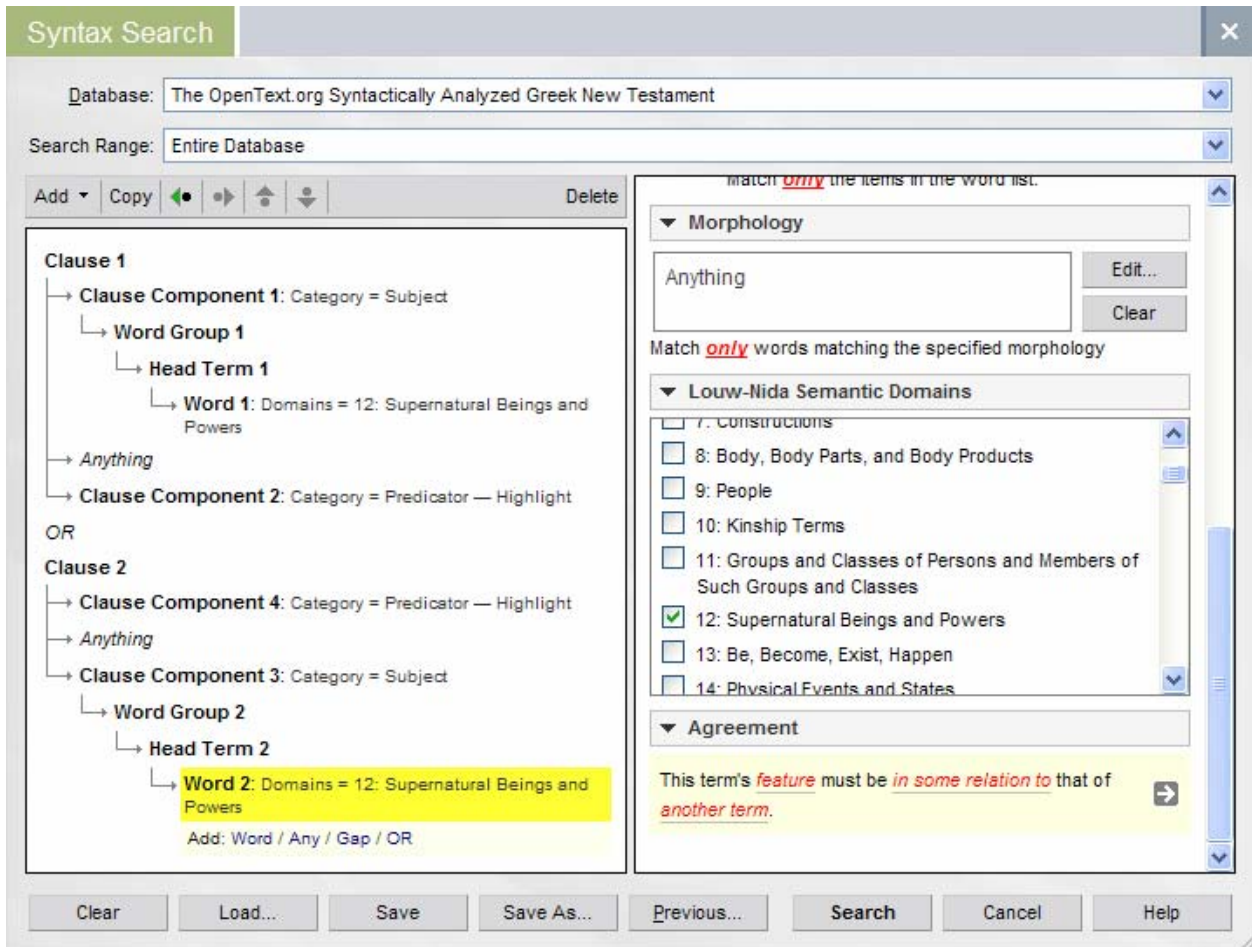
### Variation: Using Semantic Domains Instead of θεὸς

One problem with this search is that it assumes a single method of representing “God” in the text, the word θεὸς. However, the word θεὸς is not the only word used to refer to God. Sometimes Jesus speaks of

his “Father”. Sometimes the word “Lord” is used. It is possible to construct a list of words and then search for where that list of words is in the subject.

But such a list already exists. A semantic classification of Greek words has been compiled in the *Greek-English Lexicon of the New Testament based on Semantic Domains* (Louw-Nida) by Johannes P. Louw and Eugene A. Nida. This classification consists of 93 top-level domains of classification. The OpenText.org SAGNT lists all possible domains that a word may occur in. Therefore it is possible to use these domains to refer to broad concepts instead of words.

Domain 12 in Louw and Nida’s classification is “Supernatural Beings and Powers”. This classification is morally neutral, so it contains references to God and to Satan, among others. But it allows easy selection of these classifications as attributes of words in a query. An example search dialog is below.



In the above query, the word within the subject is not a specified lexical form, it is a specified domain. Instead of looking for all instances of the lexical form θεός, it locates where domain 12 is a property of the word.

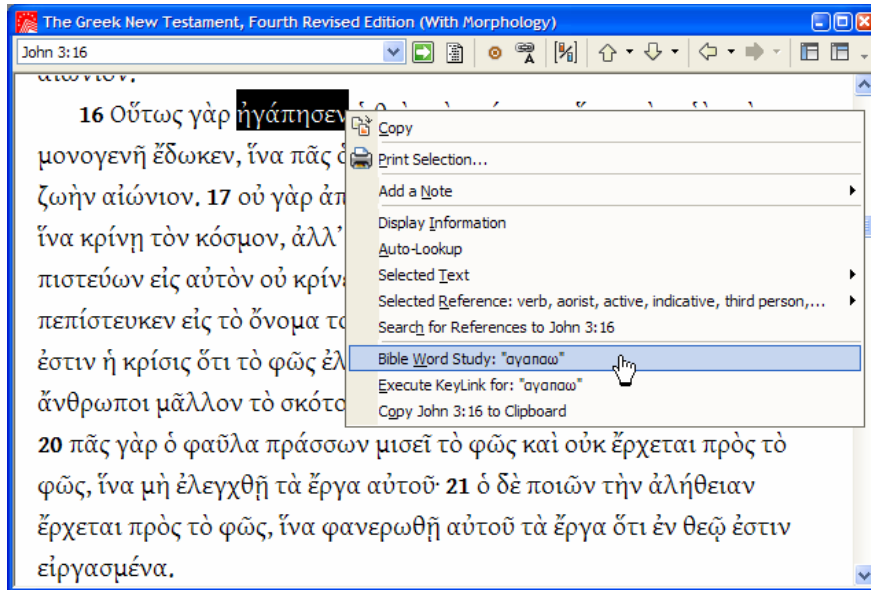
This search, with domains instead of lexical forms, locates 729 instances in the New Testament. Some of these can be seen in the below screen capture which again includes the example verse of John 3.16:

Luke 22:3	εισηλθεν δε Σατανᾶς εἰς Ἰουδαν τὸν καλούμενον Ἰσκαριώτην ὄντα ἐκ τοῦ ἀριθμοῦ τῶν δώδεκα	Then Satan <b>entered</b> into Judas called Iscariot, who was of the number of the twelve.
Luke 22:29	καὶ ἐγὼ διατίθεται ὑμῖν καθὼς <b>διέθετό</b> μοι ὁ πατήρ μου βασιλείαν	and I assign to you, <b>as my Father assigned</b> to me, a kingdom,
Luke 22:31	Σίμων Σίμων ἰδοὺ ὁ Σατανᾶς <b>ἐξητήσατο</b> ὑμᾶς τοῦ σιτιάσαι ὡς τὸν σίτον	"Simon, Simon, behold, Satan <b>demanded to have</b> you, that he might sift you like wheat,
Luke 22:43	<b>ὤφθη</b> δὲ αὐτῷ ἄγγελος ἀπ' οὐρανοῦ ἐνισχύων αὐτόν	And <b>there appeared</b> to him an angel from heaven, strengthening him.
Luke 22:61	καὶ στραφεὶς ὁ κύριος <b>ἐνέβλεψεν</b> τῷ Πέτρῳ καὶ ὑπεμνήσθη ὁ Πέτρος τοῦ ῥήματος τοῦ κυρίου ὡς εἶπεν αὐτῷ ὅτι πρὶν ἀλέκτορα φωνῆσαι σήμερον ἀπαρνήσῃ με τρίς	And the Lord turned and <b>looked at Peter</b> . And Peter remembered the saying of the Lord, how he had said to him, "Before the rooster crows today, you will deny me three times."
Luke 24:34	λέγοντας ὅτι ὄντως <b>ἠγέρθη</b> ὁ κύριος καὶ ὤφθη Σίμωνι	saying, " <b>The Lord has risen</b> indeed, and has appeared to Simon!"
Luke 24:39	ἴδετε τὰς χεῖράς μου καὶ τοὺς πόδας μου ὅτι ἐγὼ εἰμι αὐτός ψηλαφήσατέ με καὶ ἴδετε ὅτι πνεῦμα σὰρκα καὶ ὀστέα οὐκ <b>ἔχει</b> καθὼς ἐμεθεωρεῖτε ἔχοντα	See my hands and my feet, that it is I myself. Touch me, and see. <b>For a spirit does not have</b> flesh and bones as you see that I have."
John 3:2	οὗτος ἦλθεν πρὸς αὐτὸν νυκτὸς καὶ εἶπεν αὐτῷ ῥαββί οἶδαμεν ὅτι ἀπὸ θεοῦ ἐλήλυθας διδάσκαλος οὐδεὶς γὰρ δύναται ταῦτα τὰ σημεῖα ποιεῖν ἃ σὺ ποιεῖς ἂν μὴ ἢ ὁ θεὸς μετ' αὐτοῦ	This man came to Jesus by night and said to him, "Rabbi, we know that you are a teacher come from God, for no one can do these signs that you do <b>unless God is with him.</b> "
John 3:8	τὸ πνεῦμα ὅπου θέλει <b>πνεῖ</b> καὶ τὴν φωνὴν αὐτοῦ ἀκούεις ἀλλ' οὐκ οἶδας πόθεν ἔρχεται καὶ ποῦ ὑπάγει οὕτως ἐστὶν πᾶς ὁ γεγεννημένος ἐκ τοῦ πνεύματος	<b>The wind blows</b> where it wishes, and you hear its sound, but you do not know where it comes from or where it goes. So it is with everyone who is born of the Spirit."
John 3:16	οὕτως γὰρ <b>ἠγάπησεν</b> ὁ θεὸς τὸν κόσμον ὥστε τὸν υἱὸν τὸν μονογενῆ ἔδωκεν ἵνα πᾶς ὁ πιστεύων εἰς αὐτὸν μὴ ἀπόληται ἀλλ' ἔχη ζωὴν αἰώνιον	<b>"For God so loved</b> the world, that he gave his only Son, that whoever believes in him should not perish but have eternal life.

## Asking Questions Automatically: The Bible Word Study Report

Because the sorts of questions discussed above are commonly asked when researching and studying the Bible text, it makes sense to provide an automated method to make such inquiries. This is one thing that the **Bible Word Study** report is designed to do.

The Bible Word Study report will ask these sorts of questions for a given word from a right mouse click in the New Testament Greek text. Again, John 3.16 is a good example. Simply right-click the word ἠγάπησεν and select the Bible Word Study option from the right-click menu.



This is all that the program needs to begin asking questions. It will ask questions like:

- What clauses have αγαπάω as predicator?
- What subjects are used when the predicator is αγαπάω?
- What complements are used when the predicator is αγαπάω?

Additionally, the Bible Word Study report extracts relevant text, counts occurrences, and lists the text ordered by frequency of occurrence. The top 5 instances are listed automatically. The list may be expanded by clicking “More” if the balance of the instances are desired.

Subjects of clauses where αγαπάω is the Predicator (verb) (40)	
⊞ ὁ Ἰησοῦς (5)	the Jesus
⊞ τις (3)	some
⊞ ἐγώ (3)	I
⊞ ὁ θεός (2)	the God
⊞ ὁ πατήρ (2)	The father
More »	

Each of these hits can also be expanded. The display is the same as the Syntax Search Results dialog. Thus one sees not only the unique hits, but the full context of each hit, in Greek and English with syntactic structures highlighted, is available to consult. In the below case, a list of all the instances where Jesus loved someone or something is compiled and ready to be explored further.



## Conclusion

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A syntactic annotation of the New Testament like the OpenText.org SAGNT opens new possibilities that were not formerly possible. Textual queries can be bounded by syntactic criteria such as clause boundaries. Syntactic structures can be used along with word-level data such as morphology and lexical forms to make ones querying of the text more precise.

One immediate benefit is the ability to take relationships between clause level components into account when searching the text. Relationships like the below:

1. Where else is ἀγαπάω the predicator (P) of a primary clause (PC)?
2. What subjects (S) occur when the predicator (P) of the clause is ἀγαπάω?
3. What complements (C) occur when the predicator (P) of the clause is ἀγαπάω?
4. When the head term (hd) of the subject (S) is θεός, what predicators (P) are used?

More colloquially, a syntactic annotation allows one to start “asking questions” of the text. The above questions could be generally restated as follows:

1. When is ἀγαπάω the main verb of a clause in the New Testament?
2. Who or what “does” ἀγαπάω in the New Testament?
3. What sorts of things is ἀγαπάω done to in the New Testament?
4. What sorts of things does θεός (“God”) do in the New Testament?

Students, professors and researchers are no longer required to approximate such structures using an imprecise conglomeration of word-level criteria such as morphology, lexical form, case agreement and proximity. Higher-level relationships between words, word groups, clause components and clauses can now be routinely examined for the whole of the New Testament corpus.

Searching the New Testament can now be done with sensitivity to syntactical issues. It will be very interesting to see what sorts of research and application this new development will foster.