

# SCRIPTORIUM Part-of-Speech Tagsets for Sahidic Coptic

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## 1. Preamble

This document details guidelines for part-of-speech tagging Sahidic Coptic according to the SCRIPTORIUM project scheme. The tagging procedure assumes the text has already been normalized to the orthography and morpheme based segmentation described in the SCRIPTORIUM tokenization guidelines, which are closely related to the conventions found in Layton's (2004) grammar. In case of doubt we refer to Layton (2004) as well as Shisha-Halevy (1988).

As in all tagging projects, the aim is to achieve a practicable compromise between linguistic accuracy/usefulness, speed and reliability of human tagging, and performance of automatic tagging software. This means that in many cases concepts that are linguistically distinct are not distinguished since they are difficult to tell apart in practice in many cases, or determining some distinctions is too costly in terms of annotation time. Additionally, the project is using the CMCL lexicon, kindly provided by Prof. Tito Orlandi, which has its own, much more detailed scheme, so that in some cases the categories used here are chosen to be derivable from the CMCL scheme (see <http://cmcl.let.uniroma1.it/>).

There are two proposed tagsets, a coarse tagset with fewer tags for projects wishing to save annotation time, and a finer tagset with more detailed subcategories for some of the coarse grained tags, which is also expected to yield lower accuracy in automatic tagging. Links to the latest training models are provided from the SCRIPTORIUM website and have been tested and developed using the freely available TreeTagger (Schmid 1994, see <http://www.cis.uni-muenchen.de/~schmid/tools/TreeTagger/>).

## 2. Tagsets

The two tagsets described below are compatible with each other in that the fine-grained tagset uses the same overarching categories of the coarse one, but with further categories distinguished. The tag names are built 'hierarchically', so that additional letters in the name of a tag specify a special type of the superordinate category, e.g. all pronoun tags being with P, though not all tags with P are pronouns, as in PREP for prepositions.

In the coarse-grained list below, tags that have multiple fine-grained variants are followed by [\*] (this is **not** part of the tag within the coarse-grained tagset).

Additionally, both tagsets admit certain cases where a single form contains two categories and must therefore be assigned two tags. This results in special underscore separated **portmanteau tags**, which are described in Section 2.3.

## 2.1 Coarse-Grained Tagset

Tag	Name	Examples
A[*]	Auxiliary tripartite base	α[ϰ], με[ϰ], τρε[ϰ], ...
ADV	Adverb	εβολ, ον, πως
ART	Article	π(ε), τ(ε), ν(ε), ρεν, κε
C[*]	Converter	ε, ετε, νε, ...
CONJ	Conjunction	αυω, η, μη, και, ειτε, ...
COP	Copula	πε/τε/νε
EXIST	Existential/possessive	ουν/μη
FM	Foreign material	παρ τοϋτο
FUT	Future	να
IMOD	Inflected modifier	τηρ[ϰ], ρωω[τ], ...
N[*]	Noun	αθητ, ρωμε, αρχη, ...
NEG	Negation	ν, αν, τη[σωτη]
NUM	Numeral	ογα, αναγ, ...
PDEM	Pronoun, demonstrative	πει/παι, τει/ται, νει/ναι
PINT	Pronoun, interrogative	ογ, νιμ
PPER[*]	Pronoun, personal	ϰ,ϰ,ι,†,ν,ανοκ,ανῖ,...
PPOS[*]	Pronoun, possessive	πεϰ,τετῖ,πογ,πα,πωι,...
PREP	Preposition	ετβε, ρῖ, ν, ῖμο[ϰ], ...
PTC	Particle	δε, ῖσι, δε, ...
PUNCT	Punctuation	. , ' ...
UNKNOWN	Unknown morph, lacuna	в _ _ _ , _ _ _ _ _ , ...
V[*]	Verb	σωτη, σωτηι, σωτηι, ειρε, ο, αρι, ...
VBD	Verboid	νανογ[ϰ], πεχα[ϰ], πεχε,...

## 2.2 Fine-Grained Tagset

For descriptions of the added fine-grained tags, marked in cursive type, see the coarse tag descriptions below.

<i>AAOR</i>	<i>ALIM</i>	<i>AOPT</i>
<i>ACAUS</i>	<i>ANEGAOR</i>	<i>APREC</i>
<i>ACOND</i>	<i>ANEGJUS</i>	<i>APST</i>
<i>ACONJ</i>	<i>ANEGOPT</i>	<i>ART</i>
<i>ADV</i>	<i>ANEGPST</i>	<i>CCIRC</i>
<i>AFUTCONJ</i>	<i>ANY</i>	<i>CFOC</i>
<i>AJUS</i>		<i>CPRET</i>

CONJ	<i>NPROP</i>	PREP
COP	NUM	PTC
<i>CREL</i>	PDEM	PUNCT
EXIST	PINT	UNKNOWN
FUT	<i>PPERI</i>	V
IMOD	<i>PPERO</i>	VBD
N	<i>PPERS</i>	<i>VIMP</i>
NEG	PPOS	<i>VSTAT</i>

### 2.3 Portmanteau tags

In certain cases, one indivisible form corresponds to what normally constitutes two categories. This can happen either because of a phonological merger of two units, or because the formal marker of one category can be ‘zero’, i.e. have no form at all (usually in the case of 2<sup>nd</sup> person singular feminine forms). Portmanteau tags currently supported by the SCRIPTORIUM tools are:

tag	example	notes
AOPT_PPERS	εφε(σωτη)	Personal pron. within optative ε_ε. Note that ερε(σωτη) for 2nd pers. sg. fem. is also AOPT_PPERS, but nominal ερε(πρωμε σωτη) is only AOPT.
ACOND_PPERS	εφωαν(σωτη)	Personal pron. within conditional ε_ωαν. Note that ερωαν(σωτη) for 2nd pers. sg. fem. is also ACOND_PPERS, but nominal ερωαν(πρωμε σωτη) is only ACOND.
ACONJ_PPERS	τα(σωτη)	Truncated conjunctive 1st person (instead of ντασωτη)
ANEGPST_PPERS	μπε(σωτη)	Fused negative past 2nd pers. sg. fem. form.
APST_PPERS	αρ(σωτη)	Fused positive past 2nd pers. sg. fem. form.
CCIRC_PPERS	ερε(σωτη)	Fused circumstantial 2nd pers. sg. fem. form.
CFOC_PPERS	ερε(σωτη)	Fused focalized 2nd pers. sg. fem. form.
CPRET_PPERS	νερε(σωτη)	Fused preterit 2nd pers. sg. fem. form.
CREL_PPERS	ετερε(σωτη)	Fused relative 2nd pers. sg. fem. form.
IMOD_PPERO	μινμμο	The 2nd pers. sg. fem. form of ‘yourself’ (not to be confused with μινμμο(q) etc.)
PREP_PPERO	ερο	Any preposition where a 2nd pers. sg. fem. is realized as zero (not to be confused with ερο(q) etc.)
V_PPERO	(q)ντ	Verb forms with a fused 1st pers. sg. object, e.g. ντ ‘bring me’ from εινε ‘bring’, where the presuffixal form ντз is merged with the 1st pers. object marker -τ)

Note that in all cases, coarse grained tags can be substituted for fine grained ones, e.g. CCIRC\_PPERS and CFOC\_PPERS both become C\_PPERS. Further combination tags are not ruled out and new ones will therefore be added if they are determined to be necessary.

### 3. Guidelines

The following guidelines describe the recommended assignment of part of speech tags to segmented morphemes. Fine-grained tags are given in the section describing the corresponding coarse-grained tag. In each example, the area corresponding to the tag under discussion is underlined. Vertical lines (‘pipes’) are used to segment morphemes for added clarity only.

#### 3.1 Auxiliaries (A)

Auxiliaries include all conjugation bases in the tripartite patterns described in Layton (2004:251-290). These include both negative and positive variants and cover all lexical material preceding the subject noun or pronoun, e.g.:

- (1) а|q|сωτ̄ (3rd person masculine past tense)
- (2) аре|сωτ̄ (2nd person feminine past tense, with zero subject)
- (3) нпи|сωτ̄ (negative past tense)

Note that when used with pronominal subjects, the optative and conditional conjugation encompass the subject pronoun, leading to a portmanteau tag like AOPT\_PPERS (or A\_PPERS in the coarse grained tagset):

- (4) еqе/AOPT\_PPERS сωτ̄ (optative and 3rd pers. masc. pronoun)
- (5) еqωан/ACOND\_PPERS сωτ̄ (conditional and 3rd pers. masc. pronoun)

#### *Fine-Grained Tags*

The different individual fine-grained tags cover all distinct conjugation bases, making auxiliaries the largest fine-grained tag group. They are divided as follows:

APST	Auxiliary, past	а
ANEGPST	Auxiliary, negated past	нп(е)
ANY	Auxiliary, ‘not yet’	нпaт(е)
AAOR	Auxiliary, aorist	ωа, ωаpе
ANEGAOR	Auxiliary, negated aorist	мe(рe)
AOPT	Auxiliary, optative	е[q]е, еpе
ANEGOPT	Auxiliary, negated optative	ннe
AJUS	Auxiliary, jussive	мaр(е)
ANEGJUS	Auxiliary, negated jussive	нпpтpе
APREC	Auxiliary, precursive (‘after’)	нтep(е)
ACOND	Auxiliary, conditional	е[q]ωаn, еpωаn
ALIM	Auxiliary, limitative (‘until’)	ωaнт(е)
ACONJ	Auxiliary, conjunctive	н(тe)
AFUTCONJ	Auxiliary, future conjunctive	тaр(е)
ACAUS	Auxiliary, causative	тpе

### 3.2 Adverbs (ADV)

Adverbs include indeclinable native Egyptian and Greek lexemes that modify verbs and other phrases as in the following examples.

- |     |                                 |                                       |
|-----|---------------------------------|---------------------------------------|
| (6) | τααυζανε ἡμοι <u>εματε</u> /ADV | ‘I shall glorify him <u>greatly</u> ’ |
| (7) | πετ ἡμαυ/ADV                    | ‘the one (who is) <u>there</u> ’      |
| (8) | ἡπρμου <u>κακως</u> /ADV        | ‘don’t die <u>badly</u> ’             |

The first part of ‘complex prepositions’ is also tagged as an adverb, as in the following examples:

- |      |                   |         |                                 |
|------|-------------------|---------|---------------------------------|
| (9)  | <u>εβολ</u> /ADV  | ζῆ/PREP | ‘from, out of’ (lit. ‘out in’)  |
| (10) | <u>εζουν</u> /ADV | ζῆ/PREP | ‘in towards’ (lit. ‘inside at’) |

This does not apply to etymologically complex one-word prepositions derived e.g. from nouns for body parts (see the tag PREP for details), nor is the initial ε in words such as εβολ separated from the adverb (see segmentation guidelines).

### 3.3 Articles (ART)

Articles include definite articles, indefinite articles and article-like words such as κε/σε ‘other’. The following examples illustrate some variants:

- |      |         |              |                      |
|------|---------|--------------|----------------------|
| (11) | π/ART   | ρωμε/N       | ‘the man’            |
| (12) | τε/ART  | κληρονομια/N | ‘the inheritance’    |
| (13) | ου/ART  | νομος/N      | ‘a law’              |
| (14) | zen/ART | zbnhe/N      | ‘(some) deeds’       |
| (15) | ke/ART  | ponhros/N    | ‘another wicked one’ |

Note that possessive pronouns like περ are not tagged as articles (see PPOS) and relative articles like πετ are segmented to contain a relative converter (see C and CREL).

Articles followed by a noun beginning with Ϸ and consequently spelled θ or φ e.g. σε ‘the way’ are normalized and tokenized as τ and ze before part-of-speech tagging, so that τ etc. can be tagged as an article alone (see segmentation guidelines).

### 3.4 Converters (C)

The class of converters, which is syntactically heterogeneous, is described in Layton (2004: 319-366). It includes four types of converters which have several realizations depending on their syntactic environment. In the coarse tagset, all converters are tagged as C, allowing for lower error rates in automatic tagging (especially by removing the distinction between circumstantial and relative conversions, which can be ambiguous). The examples below are for the four fine grained classes:

CCIRC	Converter, circumstantial	ε, ε[λ], επε
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CFOC	Converter, focalizing (a.k.a. 2 <sup>nd</sup> tenses)	ε, ερε, ετε, <u>ντ</u> [λ], <u>εντ</u> [λ]
CPRET	Converter, preterite	νε, νερε
CREL	Converter, relative	ετε, ετ, <u>ντ</u> [λ], <u>εντ</u> [λ], ετερε

Note that a following conjugation base is segmented separately from the converter (cf. segmentation guidelines), e.g.:

(16) ντ/CREL λ/APST ηλμογ ‘which he blessed’

The converter includes only ντ, while λ is a separate auxiliary base.

### 3.5 Conjunctions (CONJ)

Conjunctions are indeclinable words of Greek and Egyptian origin which link phrases and clauses. No distinction is made between subordinating conjunctions which introduce clauses (‘because’, ‘lest’) and coordinating conjunctions which connect phrases (e.g. ‘and’, ‘or’).

(17) αγω/CONJ λειβεγ ‘and I became thirsty’

(18) ειλω μμος ξε/CONJ μηποτε/CONJ ταειβε ‘saying [that:] lest I become thirsty’

In the first example, the coordinating conjunction αγω ‘and’ appears. Note that it is still tagged as a conjunction even if the first coordinated phrase is missing. In the second example, two consecutive conjunctions appear: ξε ‘that, saying’ introduces the direct speech and the Greek origin μηποτε ‘lest’ is a conjunction within the direct speech clause. Also note that the word ξε, originally derived from xω ‘say’ is not considered a verb in this usage.

### 3.6 Copulas (COP)

Copulas are markers in so-called nominal sentences which express predications of the sort A is B. The copula forms are πε/τε/νε. The tag COP is given also to copulas following a verbal clause for focalizing emphasis (i.e. ‘it is the case that...’), as illustrated below.

(19) ογδαειν πε/COP ‘he is a doctor’

(20) νεφτωβε μπχοεις πε/COP ‘(it is that) he prayed to God’

In the latter example, it is less obvious that πε is the copula, as its predicate is formally a clause and the form never changes its gender or number (i.e. as τε/νε; this is also referred to as ‘invariable πε’). Though the English translation cannot convey the presence of the copula adequately, these types of cases are still tagged as COP (see Layton 2004:223).

### 3.7 Existentials (EXIST)

Existentials include the unique lexemes οὐν and μν in both pure existential and possessive forms, positive and negative, illustrated in the following examples.

- (21) οὐν/EXIST οὐα εφεινε μμοκ ‘there is one who is like you’  
(22) μν/EXIST ḡḡαλ εφχοσε επεφχοειс ‘there is no servant who is above his master’

The same tag is also used for the indefinite durative present and the fixed phrase οὐν σομ ‘be able’ literally ‘there is power’.

- (23) οὐντα/EXIST n/PPERO ḡμαγ/ADV μπενειωτ αβραζαμ  
‘we have Abraham our father’, lit. ‘exists to us ... of Abraham...’  
(24) ḡḡḡ/EXIST σομ нте|те|γραφη βωλ εβωλ ‘scripture cannot be broken’

Note that the possessor pronoun is segmented apart from οὐντα and tagged as a pronoun, and the accompanying ḡμαγ is an adverb.

### 3.8 Foreign Material (FM)

Foreign material includes text that is lexically and syntactically from a foreign language. It is distinct from loan words. Loan words are lexical entries that originate in another language (e.g., Greek, Latin) but are used in Coptic with Coptic syntax. Foreign material consists of words, especially multiword expressions, with foreign syntax. The writer has momentarily switched languages rather than embedded a loan word into a Coptic construction

- (25) οὐ παρα τουτο/FM νογ εβωλ αν ḡμπωμα τε ‘it is therefore not part of the body’

### 3.9 Future Marker (FUT)

The future marker να, derived from the verb ‘go’ is not considered an independent verb form when introducing a second verb and marking future tense. The following example illustrates the construction.

- (26) † να/FUT ḡοτбек ‘I will kill you’

In rare cases, forms other than να can be considered for the future marker, e.g. α in:

- (27) нер/CPRET\_PPERS α/FUT αωα ‘you would despise’ (2nd pers. fem.)

Contractions of multiple н are usually restored in the normalization, so that a diplomatic sequence like тетн<sub>α</sub>рп<sub>α</sub>εεεε ‘you will think’ are usually normalized and only then tagged as follows:

- (28) тетн/PPERS να/FUT р/V

### 3.10 Inflected modifiers (IMOD)

Inflected modifiers are a somewhat heterogeneous class of suffixally inflecting non-verboids, including the quantifier τηρ= ‘all of’, the focus particle ογαα(τ)= ‘only’ and the reflexive ἑμῆμῆμῶ= ‘oneself’ (see Layton 2004: 118-123 and contrast the tag VBD). The suffix itself is tokenized apart and tagged as PPERO. These items are tokenized apart even within larger phrases, as in the second examples below.

- (29) ἀνοκ ρωω/IMOD τ/PPERO ‘I, as for me / me too’  
(30) ε π τηρ/IMOD ϣ ‘in all of it, at all, wholly’

If the suffix is a 2nd pers. sg. fem. realized as zero, a portmanteau tag is assigned:

- (31) μμῖνμῖμο/IMOD\_PPERO ‘yourself (2nd pers. sg. fem.)’

### 3.11 Nouns (N)

The tag N is used for all nouns, common and proper, though the fine-grained tagset offers the specific tag NPROP for proper nouns.

- (32) πεν εἰωτ/N ‘our father’  
(33) ἀντωνιος/NPROP ‘Antonius’

Note that verbal infinitives in the durative patterns and elsewhere, though technically and etymologically nominal in nature, are nevertheless tagged as verbs in order to facilitate the retrieval of verbal lexemes across constructions.

- (34) † πιστεύε/V ἐπισογτε ‘I trust in God’

### 3.12 Negations (NEG)

The tag NEG is used for independent negative items that are not part of an auxiliary base. The following lexemes are given the tag NEG: ν, αν, τῃ. The former two tags can occur in the same sentence, in which case one NEG tag is used for each. The latter tag negates infinitives and is tokenized separately from the verb and surrounding auxiliaries.

- (35) ν□/NEG ϣ□νακληρονομει ἡμοκ αν/NEG ‘he will not inherit you’  
(36) ἐγωαν τῃ/NEG σωτῃ ‘if they do not listen’

### 3.13 Numerals (NUM)

The tag NUM is given to numerals and numerical constituents of complex numerals, as well as suffixed numerals as in the last example below.

- (37) †ογ/NUM ἡοεκ ‘five (loaves) of bread’  
(38) χογτ/NUM αγτε/NUM ‘twenty-four’  
(39) ἡ|σεπ σανγ/NUM ‘two times, twice’





### 3.17 Possessive pronouns (PPOS)

Much like demonstratives, all possessive pronouns, both attributive and standing in for a noun are tagged as PPOS. The personal suffix at the end of the pronoun is not separated, rather the entire forms, including  $\pi\epsilon\upsilon$  ‘his’,  $\mu\alpha$  ‘my’ and ‘the one that belongs to’,  $\pi\omicron\upsilon$  ‘your (fem.)’,  $\mu\omega$  ‘mine’ etc. The following example illustrates these different types of possessives:

- (48)  $\tau\alpha$ /PPOS  $\mu\alpha$ /PPOS  $\kappa\omicron\iota$   $\tau\omega$ /PPOS  $\tau\epsilon$  ‘the one of my brother is  
mine’

### 3.18 Prepositions (PREP)

This tag is used for all prepositions in both independent, prenominal states and presuffixal forms (which are tokenized apart from following suffixes). Note that prepositions that are historically derived from unverbized phrases but are now unsegmentable are tagged as one preposition, but complex prepositions involving a separable adverb are given two tags, ADV and PREP (cf. the tag ADV). Additionally, the *nota relationis* and accusative marker  $\kappa\alpha\tau\omicron$  is regarded as a preposition. The following examples illustrate these principles.

- (49)  $\epsilon\tau\epsilon$ /PREP  $\omicron\upsilon$  ‘for what? why?’  
(50)  $\epsilon\beta\omicron\lambda$ /ADV  $\epsilon\tilde{\nu}$ /PREP ‘from, out of’ (lit. ‘out in’)  
(51)  $\epsilon\chi\tilde{\nu}$ /PREP ‘upon, on account of’ (from ‘to head of’)

Also note that 2nd pers. sg. fem. objects often lead to portmanteau tags, e.g.:

- (52)  $\mu\mu\omicron$ /PREP\_PPERO ‘you (2nd pers. sg. fem. accusative)’

If in doubt as to whether a lexicalized combination is considered a single preposition, please refer to the formatted CMCL lexicon supplied with the project’s tokenization module. This lexicon will be updated with future versions of the guidelines to accommodate dubious cases as they arise.

### 3.19 Particles (PTC)

The class of particles contains all indeclinable words that do not belong to one of the other classes, most notably and frequently the apposition marker  $\kappa\omicron\iota$  ‘that is...’ and a large number of, mostly Greek origin, sentence modifying particles that tend to appear in the second, Wackernagel position as they do in Greek as well (e.g.  $\Delta\epsilon$ ,  $\gamma\alpha\rho$ ).

### 3.20 Punctuation (PUNCT)

All punctuation marks, including periods at any height in the line, commas (including punctuation added in editions when annotating edited texts) or even question marks, colons etc. if they are used, are all given the uniform tag PUNCT. If decorations are

tokenized (tildes, clusters of dots etc.), they may also be tagged as PUNCT, though refer to the tokenization guidelines for recommendations on normalizing text before tagging.

### 3.21 Unknown, damaged and lost items (UNKNOWN)

The tag UNKNOWN is given to fragmentary word forms damaged or missing beyond the ability to reach a reliable part-of-speech assignment. It is understood in the case of larger lacunae that the string used to encode the visible part of a word may in fact contain several words. In cases where it is clear where word divisions occur, multiple tokens with corresponding UNKNOWN tags are given.

- (53)  $\underline{\epsilon[\dots]}/\text{UNKNOWN}$  “?”  
 (54)  $\underline{\epsilon[\dots]}/\text{UNKNOWN} \Pi[\dots]/\text{UNKNOWN}$  “?”

Generally UNKNOWN tags are given even if the range of possibility is limited, i.e. even if we are certain a damaged morpheme is either an article or a possessive pronoun, an uncertain case is usually tagged as UNKNOWN.

### 3.22 Verbs (V[\*])

The coarse tag V is given to all lexical verb forms that are not conjugation bases, also not including verboids, which receive a separate tag even in the coarse tagset due to their distinct syntax (see the tag VBD). In the fine-grained tagset, normal verb forms (V) are distinguished from stative verb forms (VSTAT) and imperatives (VIMP) as shown in the examples below. Note that verbal infinitives in the durative present are still tagged as verbs, although they are historically nominalized in this position, whereas nominalized infinitives following an article are understood as nouns, as in the last example. Verbs are tagged as VIMP only when they appear in the specific imperative form.

- (55)    λ ϣ σωτῆ/V ἐρο κ                   ‘he heard you’  
(56)    † οβε/VSTAT                   ‘I am thirsty’  
(57)    λχι/VIMP σ                   ‘say it!’  
(58)    ζῆ π σοογν/N ῆ π νογτε           ‘in the knowledge of God, the knowing of  
          God’

Also note that in rare cases, object pronouns that are realized as zero will lead to portmanteau tags, e.g.:

- (59)  $\tau\epsilon\tau\eta$ /PPERS NT/V\_PPERO ‘you bring me’

Since NT= as the presuffixal form of *eine* ends in *τ*, the object pronoun *-τ* ‘me’ is subsequently dropped. However the portmanteau tag reflects the presence of a grammatical object.

For compound verbs (see §180 in Layton), the entire compound is considered “a single unit in boundness, syntax, and meaning.” Therefore, the entire compound is tagged V.

The components of the compound may be annotated further on a morph level annotation. (See Transcription guidelines for more information on bound groups, morphemes, and word segmentation.) Common examples include compound verbs formed with *ḥ-*, *p-*, and *ḫ-*.

(60) *ḥṯ*/CREL *pnoḃḥ*/V

(61) *ḥ*/CCIRC *κ*/PPERS *ḥCBḳ*/V

### 3.23 Verboids (VBD)

The category VBD is given to a small class of suffixally inflected predicates described in Layton (2004: 297-304), including the common *peḫḥ*-/*peḫḫ*ḥ ‘say’, *naḥnoḡ*ḥ ‘be good’ etc., but not including possessive existentials of the type *oḡntḥ*ḥ- (see the tag EXIST). The personal suffix following a VBD is tagged as its subject, i.e. PPERS (or simply PPER in the coarse tagset).

(62) *peḫḫ*ḥ/VBD *q*/PPERS ‘he said’

(63) *naḥnoḡ*ḥ/VBD *c*/PPERS ‘she/it is good’

## 4. References

- Layton, Bentley (2004), *A Coptic Grammar*. Second Edition, Revised and Expanded. (Porta linguarum orientalium 20.) Wiesbaden: Harrassowitz.
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