

Did Greek Influence the Coptic Preference for Prefixing? A Quantitative-Typological Perspective

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Abstract

The present article takes a quantitative approach to investigating contact-induced change, using typological parameters established for the purposes of cross-linguistic comparison. Specifically, it examines the likelihood that a socio-politically dominant language, Greek (Indo-European), influenced the morphological structure of a socio-politically subordinate indigenous language, Coptic (Afroasiatic). Based on the high prefixing score of Coptic and the much lower prefixing score of Greek, it is concluded that it is highly unlikely that Greek had any significant or direct influence on the strong prefixing preference of Coptic.

Keywords

Coptic – Greek – morphological borrowing – typology

1 Introduction

The present article takes a quantitative approach to investigating contact-induced change, using typological parameters established for the purposes of cross-linguistic comparison. Specifically, it examines the likelihood that a socio-politically dominant language, Greek (Indo-European), influenced the morphological structure of a socio-politically subordinate indigenous language, Coptic (Afroasiatic).

Coptic has a typologically unusual preference for prefixes over suffixes (Grossman and Polis, 2015). Interestingly, Coptic differs in this respect from earlier stages of the language, which had more suffixes and fewer prefixes. Since Coptic was in significant contact with Greek from the first millennium BCE

onwards, as witnessed by the wealth of loanwords documented in Coptic and, to a lesser extent, in the immediately preceding stage of the language, late Demotic (Ray, 2007; Rutherford, 2010), it therefore stands to reason to ask whether language contact between the indigenous language of Egypt and Greek had anything to do with this.

I would like to point out that no one has made the explicit claim that Greek influenced the affixing preferences in Coptic, and in fact, the whole point of this article might be seen as a kind of overkill. However, since the structural influence of Greek on Coptic, beyond the massive attestation of loanwords, is still an open question, I consider it a valid question to investigate on empirical grounds. Essentially, this paper is an exercise in showing that questions that are often treated impressionistically can be dealt with in an objective way. Furthermore, since inflectional morphology can undergo contact-induced change, whether by matter or pattern replication (Sakel, 2007; Johanson and Robbeets, 2012; Gardani, 2008; Amiridze *et al.*, 2014), but is rare relative to other kinds of contact-induced change (Matras, 2014), the results of the present study allow one to evaluate one of the “upper limits” of the influence of Greek on Coptic.

In fact, while we know a good deal about the previous stages of Ancient Egyptian-Coptic, and about the pathways of language change that led to this prefixing preference (Grossman and Polis, 2015), one might entertain the weaker hypothesis that contact with Greek somehow catalyzed or facilitated these pathways of change. The present article shows that even this weak claim is untenable.

This article is structured as follows: in Section 2, I briefly sketch the relevant socio-historical and linguistic aspects of the contact situation between Coptic and Greek. In Section 3, I describe the method used. In Section 4, I examine ten features or parameters for both Coptic and Greek, and in Section 5, I discuss the conclusions.

2 The Contact Situation

Coptic is the latest stage of Ancient Egyptian (Afroasiatic), the indigenous language of Egypt, which is documented from around the turn of the 3rd millennium BCE; for overviews of Ancient Egyptian, see Loprieno (1995), Loprieno and Müller (2012), Grossman and Richter (2015), or Haspelmath (2015a). Coptic was spoken and written until its last speakers shifted to Arabic, probably in the 13th or 14th century CE. Coptic is documented in a dozen or so literary dialects, as well as a range of less standardized language varieties attested in non-literary texts, such as private letters, legal documents, and financial records. The main

literary dialects are Sahidic and Bohairic. The data for the present article are taken from the Sahidic dialect, which is the best described (Layton, 2004; Reintges, 2004a; Shisha-Halevy, 1986).

Ancient Egyptian was in contact with Greek since the early or mid-first millennium BCE. From Alexander the Great's conquest of Egypt in the 4th century BCE, up until the 8th century CE, Greek was the socially and politically dominant language of Egypt, in nearly every domain of written communication, and evidently, in many domains of spoken communication (Oréal, 1999; Ray, 2007; Torallas Tovar, 2010; van Minnen, 1998; Vierros, 2008).

However, it is only in Coptic, attested from around the 3rd century CE, that significant contact-induced change is observed in Ancient Egyptian. The main effect of this contact is the massive lexical influence of Greek on the indigenous language, with thousands of loanword types from a wide range of word classes and semantic fields.¹ Current estimates place the number of Greek loanwords in Coptic at upwards of 5000 lemmata. Greek loanwords include both lexical and grammatical items, as seen in Table 1.

The degree of structural borrowing or pattern replication (Sakel, 2007), however, is disputed. Some linguists consider Coptic to be a “bilingual language variety”, involving “code-mixing” (Reintges, 2001; 2004b). However, to date, there have been few empirical studies of structural borrowing. For an exception, see

TABLE 1 *Representative Greek-origin loanwords in Coptic*

Word class	Example	Translation
substantives	<i>psukhê</i>	‘soul’
adjectives	<i>anomos</i>	‘lawless’
verbs	<i>pisteue</i>	‘believe’
adverbs	<i>kalôs</i>	‘well’
conjunctions	<i>alla</i>	‘but’
interjections	<i>mê genoito</i>	‘God forbid’
prepositions	<i>kata</i>	‘according to’
discourse particles	<i>de</i>	‘and/but’

1 The study of Greek-origin loanwords in Coptic is currently the object of intensive research in the Database and Dictionary of Greek Loanwords in Coptic (DDGLC) project, headed by T. Sebastian Richter (Berlin). The state of the art can be seen on the project's website: <http://www.uni-leipzig.de/~ddglc/>. The enormous literature on the relationship between Greek and Coptic will not be cited here. See Grossman (2013) for a very brief survey.

Hasznos (2012), which argues for structural borrowing in the domain of subordinate clauses. The present article evaluates the likelihood of structural borrowing in a single domain, namely, that of bound morphology.

3 **Method**

In order to evaluate the possibility that Greek influences Coptic in the domain of its preference for affixing in general and for prefixing in particular, we compare the two languages, based on a set of criteria used by Dryer (2013a) for the purpose of cross-linguistic comparison. These criteria are a set of ten features (Table 2), which are the basis for calculating a language’s *affixing index* and its *prefixing* or *suffixing index*.

The calculation of the prefixing and suffixing indexes for a single language is done as follows: a language receives a single point for prefixing or suffixing if it is *predominantly prefixing* or *suffixing* for a given parameter, and half a point for each if it has *both prefixing and suffixing, with neither deemed dominant*. The first three affix types are considered to be especially important, so Dryer gives them double weight. As such, the highest score that a language could have for either prefixing or suffixing would be 13 (=3*2 + 7). The lowest score that a language could have for either would be zero.²

TABLE 2 *Dryer’s (2013) affixing parameters*

Parameter	
1	case affixes on nouns
2	pronominal subject affixes on verbs
3	tense-aspect affixes on verbs
4	plural affixes on nouns
5	pronominal possessive affixes on nouns
6	definite or indefinite affixes on nouns
7	pronominal object affixes on verbs
8	negative affixes on verb
9	interrogative affixes on verbs
10	adverbial subordinator affixes on verbs

2 Obviously, one could argue with both the selection of the parameters and the weighting given each parameter. However, since the point of the present article is to relate both languages in contact to a pre-determined standard, I simply follow Dryer’s methodology.

Before moving on, note that examples are taken from a range of sources cited in the secondary literature on Greek, primarily Smyth (1920) and on examples from the online *Encyclopedia of Greek Language and Linguistics* (Giannakis, 2014a). This is hardly a homogenous corpus. However, since we are dealing here with basic morphosyntactic structure, I do not think that this will affect my argument. Furthermore, if a particular parameter turns out to bear revision, it will only marginally affect the argument. The Coptic data are mostly taken from the Sahidic translation of the Bible, mainly the New Testament. The Coptic transliteration follows Grossman and Haspelmath (2015), while the Greek transliteration follows Giannakis (2014b).

4 Affixing Macro-preferences in Coptic and Greek

In this section, I examine Coptic and Greek in terms of their respective “macro-preferences” for affixing in general, and for prefixing vs. suffixing in particular. It is well known that the distinction between affixes and other bound elements is difficult at best, and quite possibly untenable (Bickel and Nichols, 2007; Haspelmath, 2011). There are several reasons for this. First, clitics often grammaticalize into affixes. Second, the criteria for distinguishing between clitics and affixes do not always match up, in which case linguists who want to maintain the distinction have to either choose to define a prototypical or canonical definition of these concepts, or to work with a comparative concept that allows for a many-to-many mapping between comparative concepts and linguistic items, or otherwise to establish a hierarchy of criteria, the last of which Croft has called “Crosslinguistic Methodological Opportunism” (2010: 337–341). Third, the distinction between affixes and clitics is ultimately based on the possibility of defining the notion “word” in a cross-linguistically meaningful way, which is strongly disputed (Haspelmath, 2011).

Since the aim of this article is to compare Coptic to an existing standard, I use Dryer’s (2013a) criteria for affixes. Basically, an affix is defined as a bound morpheme that is host-specific, has an invariable position within a morphosyntactic construction (i.e., it is not mobile), cannot be separated from its host by intervening material, does not show allomorphy that indicates host-sensitivity, and does not induce allomorphy in its host or in another bound form in the same construction. It is also considered here that affixes should ideally not have a corresponding free form (Himmelmann, 2014).

This does not mean that such bound elements “are” affixes in any ontological sense; I simply want to make clear why I considered a given element to be an affix for the purposes of this paper. This cannot be stressed enough: it is possible that some of the bound formatives presented here could be analyzed

as clitics, but in all cases they show properties that make an affix analysis possible as well, and when the latter was in line with Dryer's (2013a) criteria, I have considered the formative to be an affix.

We now turn to the individual parameters, and for each compare Coptic and Greek. It is important to stress that this is not a complete description of affixation in Coptic and Greek, but rather a particular set of features, selected for the purposes of cross-linguistic comparison.

4.1 *Pr: Case Affixes on Nouns*

Coptic has prefixed case markers.³ The nominative case prefix obligatorily occurs on postverbal noun phrases in S or A role, while the accusative case prefix obligatorily occurs on postverbal noun phrases in P role. Incorporated or pre-verbal arguments are not case-marked. While Coptic is not traditionally analyzed as having case markers, the reasons for doing so are explained in Engsheden (2008) and Grossman (2015).⁴

- (1) *a-s-ô* *nci-elisabet*
 PST-3SGF-conceive NOM-Elizabeth
 'Elizabeth became pregnant' (Luke 1: 24)

3 Dryer's definition: "A morpheme is considered a case affix for the purposes of this map if it attaches to nouns and signals a grammatical or semantic relation to some other word, most commonly a verb" (Dryer, 2013b).

4 This analysis was disputed by a reviewer on the grounds that it is not "widely accepted". This is true, since the analysis of these case markers was published in late 2014, several months before the submission of this article. One would expect that it would take time for a new analysis to become accepted, whether widely or otherwise, or else disproven. Nonetheless, the reader can find the explicit argumentation in favor of this analysis in the references cited above. The reviewer also points out that the accusative marker has a longer form (*mmo-*) when a bound person marker attaches to it (e.g., *mmo-f*ACC-3SGM), and wonders whether I am claiming that a prefix that attaches to an affix. It is not directly relevant to this paper, but I would say that the entire bound group *mmo-f*(ACC-3SGM) matches the comparative concept of accusative pronoun. Furthermore, such splits in Differential Object Marking (DOM) systems are not unusual. For example, in Modern Hebrew, which is widely accepted to have DOM (Bossong, 1991), the accusative marker *et* which occurs on definite lexical noun phrases (marked by the definite clitic (*h*)*a-*) is a clitic, in the process of grammaticalizing into a prefix (*ta- <et* (*h*)*a-*), while the bound allomorph of the accusative marker that occurs with bound person indexes is *ot-* (e.g., *ot-xa* ACC-2SGM). In both Coptic and in Hebrew, both the accusative marker's base and the person index are bound morphemes.

- (2) *a-s-ô* *n-ou-šère*
 PST-3SGF-conceive ACC-a-son
 ‘She conceived a son’ (Luke 1: 36)

Greek has suffixed case markers (Smyth, 1920: §210).

- (3)
- | | | |
|--------|---------------------|-----------------|
| | ‘word’ ⁵ | ‘raven’ |
| NOM.SG | <i>lóg-os</i> | <i>kórak-s</i> |
| GEN.SG | <i>lóg-ou</i> | <i>kórak-os</i> |
| DAT.SG | <i>lóg-ôi</i> | <i>kórak-i</i> |
| ACC.SG | <i>lóg-on</i> | <i>kórak-a</i> |

4.2 P2: Subject Affixes on Verbs

Coptic has prefixed subject (A/S) affixes on verbs. While they may follow or precede TAM/Polarity affixes, they always precede the lexical verb.

- (4) *k-na-mooše*
 2SGM-FUT-walk
 ‘You will walk’ (Luke 1: 76)
- (5) *etbe-ou* *tetn-šine* *nsô-i*
 because-what 2PL-search after-1SG
 ‘Why are you looking for me?’ (Luke 2: 49)
- (6) *a-f-čī* *n-ou-oik*
 PST-3SGM-take ACC-INDEF-bread
 ‘He took some bread’ (Mark 6: 5)

Furthermore, the form of the prefix is determined by the construction in which it occurs, with only partial similarity between prefixes that occur verb-initially and those that occur between TAM prefixes and the lexical verb.

Table 3 shows two paradigms of the verb *me* ‘love’, the first of which shows the present tense, with verb-initial (prefixed) A/S person indexes, and the second of which shows the past tense, with verb-initial TAM markers followed by A/S person indexes. Note that while 2SGM, 3SGM, 3SGF, and 2PL person indexes are identical in both paradigms, those for 1SG, 2SGF, 1PL, and 3PL (marked in bold) differ.

⁵ I have glossed the thematic vowel as part of the ending.

morphosyntactically identical. First, lexical noun phrases and person indexes often condition different allomorphs of the TAM prefix.

- (8) *ša-fei* *ebol*
 AOR-3SGMS-come out
 ‘It comes out’ (Matthew 12: 43)
- (9) *šare-p-at^hêt* *-kmš-te-sbô* *m-pe-f-eiôt*
 AOR-DEF.MSG-fool -mock-DEF.FSG-wisdom GEN-POSS-3SGM-father
 ‘The fool mocks the wisdom of his father’ (Proverbs 15: 5)

This is not typical behavior of clitics, and is unexpected under the complementary distribution analysis, in which lexical noun phrases and bound person markers have the same distribution.

Second, the TAM-A/S-V template is a single bound group, while the template with a lexical noun phrase subject is a single morphological word, but is not a single bound group. This can be analyzed in several ways, but the main point is that a TAM-marked verb in Coptic is a morphological unit comprising, minimally, three slots in a template. The present tense, which does not have obligatory overt TAM marking, has two obligatory slots.⁷

Moreover, despite the claims of an anonymous reviewer, it is not argued here that subject (or object) affixes in Coptic are agreement markers, which assumes a very particular analysis of bound person markers. It is well known that agreement is not a unified phenomenon (Siewierska, 2004). Rather, subject affixes in Coptic are bound person indexes (Haspelmath, 2013), whose function is to refer to referents in discourse.

Assuming, however, for the sake of argument, that bound person markers in Dryer’s (2013a) sense are narrowly defined as agreement markers, then on statistical grounds, Coptic A/S indexes overwhelmingly co-occur with an explicit lexical noun phrase. In the two quantitative studies of Differential Subject Marking known to me, between 70%–85% of verbal clauses with overt noun phrases in A/S roles – in texts with multiple protagonists that can compete for the A/S role – involve non-incorporated A/S (Zakrzewska, 2006; Grossman, 2015). In other words, A/S prefixes have a strong statistical tendency to co-occur with lexical noun phrases. As such, in Coptic, there is a “soft constraint” or discourse preference for *cross-indexes*, i.e., person indexes that can occur with conominals (Haspelmath, 2013). More to the point, there is no way that

7 In fact, Coptic verb templates are much more complex than this, but in the present context this traditional analysis will suffice.

Coptic can be said to have subject *pro-indexes*, i.e., subject indexes that cannot co-occur with conominals (Haspelmath, 2013).⁸

In contrast to Coptic, Greek has subject suffixes on verbs.

(10)	‘release’		‘give’	
1SG	<i>lú-ō</i> ⁹	‘I release’	<i>dídō-mi</i> ¹⁰	‘I give’
2SG	<i>lú-eis</i>	‘you release’	<i>dídō-s</i>	‘you give’
3SG	<i>lú-ei</i>	‘s/he releases’	<i>dídō-si</i>	‘s/he gives’
1PL	<i>lú-omen</i>	‘we release’	<i>dído-men</i>	‘we give’
2PL	<i>lú-ete</i>	‘you release’	<i>dído-te</i>	‘you give’
3PL	<i>lú-ousi(n)</i>	‘they release’	<i>didó-asi</i>	‘they give’
		(Smyth, 1920: §383)		(Smyth, 1920: §416)

In the following pair of examples, we see that the verb has bound person markers that cross-reference the S or A argument role, in (8) and (9) respectively.

- (11) *é-seis-en* *ho=theós*
 PST-quake:IND.AOR.ACT-3SG DEF.NOM.SG.M=god
 ‘The god (i.e., Poseidon) quaked’ (in Viti, 2015)
- (12) *ho=gár=toi* *país=me* *ho=Sáturos* *apédr-a*
 DEF=PTCL=PTCL boy=1SG.ACC DEF=Satyrus run_away:IND.AOR.ACT-3SG
 ‘The boy Satyrus ran away from me’ (Plat. Prot. 310c3, in Luraghi, 2015a)

4.3 *P3: Tense-aspect Affixes on Verbs*

Coptic has prefixed tense-aspect affixes on verbs.¹¹ It is important to clarify that this does not mean that they immediately attach to lexical verbs, since

8 As such, I assume that the reviewer who claimed that “subject/object pronouns and nominal subjects/object mutually exclude each other” is misinformed about the structure of Coptic, at least with respect to subjects. As for objects, it is not unusual for P arguments to be indexed on the verb without an overt lexical P in the same clause, because lexical P is typically new and indexed P is typically given (Iemmolo, 2010).

9 In these examples, the thematic vowel is glossed together with the person marker. This is an arbitrary decision, but an arbitrary decision is made necessary by the fusional nature of Greek affixes.

10 The reduplication could be segmented in principle, but as Silvia Luraghi (p.c.) points out, it is part of the present stem, and is therefore left unsegmented.

11 Dryer (2013c) is not very explicit on his criteria for affixal status: “In deciding whether a morpheme indicating tense-aspect is an affix or a separate word, I follow the orthography of my sources. In some instances, more careful linguistic analysis would probably lead to an alternative analysis.”

the order of affixes can be either TAM-A/S-V, as in (10), or A/S-TAM-V, as in (11). However, the position of each TAM prefix has to be stipulated: the future tense marker (14) occurs directly before the lexical verb,¹² while other TAM markers occur either verb-initially or are discontinuous.

- (13) *a-f-sôtm*
 PST-3SGM-hear
 'He heard' (Matthew 2: 3)

- (14) *tetn-na-sôtm*
 2PL-FUT-hear
 'You will hear' (Matthew 24: 6)

An anonymous reviewer claims that these are not TAM prefixes, because in (13), the tense prefix is attached to the A/S index, rather than to the verb, and in (14), the A/S index is not a prefix on the verb because it attached to an auxiliary. This seems to be an idiosyncratic perspective, at least from the point of view of descriptive or typological linguistics. It assumes that a prefix has to attach directly to a host that is most semantically relevant, and it assumes that multiple prefixes cannot co-occur. Both assumptions are at odds with languages' structures and with linguists' practices.

First, in order for a formative to be considered a prefix, it is not necessary for it to attach directly to a host that is assumed to be the most semantically relevant. In fact, it is well known that Bybee's (1985) Relevance Hierarchy (PERSON < MOOD < TENSE < ASPECT < VOICE < VERB STEM) admits exceptions, e.g., Japhug (Sino-Tibetan, China), in which person indexes occur closer to the verb stem than mood prefixes, and the 1SG index occurs closer to the verb than the past tense marker (Jacques, 2013: 199). Jacques also points out that in Athabaskan languages, subject indexes are closer to the verb than TAM prefixes. Similarly, see (15) below for an example from Mohawk.

Second, a prefix does not have to occur at the edge of a word, since prefixes can stack. Otherwise, a typology like Dryer's (2013a) would be forced to admit only cases in which a host can bear only a single affix on either side. That is, a language could have either a TAM prefix or a person prefix on the verb, but not both. However, linguists often describe languages in which a series of prefixes can occur before a lexical root. For example, Mithun (1999: 58) describes the basic template of North Iroquoian verbs as follows:

12 In fact, the slot before the lexical verb stem allows a number of TAM prefixes as well as causative morphology, some of which can co-occur, but this is not directly relevant here.

PREPRONOM. PREFIXES	PRONOMINAL PREFIXES	REFLEXIVE PREFIX	NOUN STEM	VERB ROOT	DERIVATIONAL SUFFIXES	ASPECT SUFFIXES	FINAL SUFFIXES
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FIGURE 1 *Iroquoian verb template* (Mithun, 1999: 58)

Mithun provides examples of verbs with multiple prefixes, in which TAM pre-
fixes precede person prefixes, as in (15).

- (15) Mohawk (Iroquoian)
akaterohrókha?
a:-k-ate-rohrok-ha-?
OPT-1AGT-MIDDLE-watch-DISLOCATIVE-PRF
‘I would watch’ (Mithun, 1999: 59).

Such affix chains do not are not typically taken to indicate that the bound for-
matives are clitics.

Unlike Coptic, Greekhas tense-aspect suffixes on verbs (16–18), and prefixes
as well, if one considers the so-called “augment” (17) or the reduplicative per-
fect marker (18).¹³

- (16) *lu-s-ō*¹⁴ release-FUT-1SG ‘I will release’
(17) *e-lu-s-a* PST-release-AOR-1SG ‘I released’
(18) *le~lu-k-a* PRF~release-PRF-1SG ‘I have released’

Greek also has non-linear tense-aspect morphology (“ablaut”); different verb
stems occur in different tense-aspect forms of the verb.

- (19) *leíp-ō* release:PRES-1SG.PRES ‘I leave’
é-lip-on AUG-release:AOR-1SG.AOR ‘I left’
lé~loip-a PRF~release:PRF-1SG.PRF ‘I have left’

13 According to Silvia Luraghi (p.c.), the augment is not an aspectual prefix: it is a deictic
particle that indicates past tense, it occurs only in the indicative and is prefixed to the
imperfect (imperfective past) and to the aorist (perfective past).
14 Ilja Seržant points out (p.c.) that since the person markers are different in the different
tense-aspect forms, they too are, in a sense, tense-aspect markers.

4.4 *P4: Plural Affixes on Nouns*

The productive strategy in Coptic for plural marking involves prefixed plural markers on nouns, with a marginal plural-suffixing construction. These are in fact portmanteau prefixes (traditionally called “articles”), which mark number, gender, and definiteness. It is important to stress that the Coptic “articles” are affixes, and no other material can intervene between the article and the nominal base, unlike, e.g., German *der*.

- | | | | | |
|------|-----------------|--------------|--------------|-----------------|
| (20) | <i>p-rôme</i> | DEF.MSG-man | ‘the man’ | (Matthew 4: 4) |
| | <i>n-rôme</i> | DEF.PL-man | ‘the men’ | (Matthew 5: 13) |
| (21) | <i>ou-rôme</i> | INDEF.SG-man | ‘a man’ | (Matthew 7: 26) |
| | <i>hen-rôme</i> | INDEF.PL-man | ‘(some) men’ | (Acts 4: 13) |

Coptic also has a lexically-restricted strategy for plural marking, in which a suffix or a stem-internal change marks plurality. However, I consider these to be marginal for the following reasons. First, these constructions have low type-frequency (about 100 nouns, according to Layton, 2004: 87), and within this group there is no consistent plural marker; rather, there are a number of different allomorphs, which are lexically determined. Second, they overwhelmingly tend to co-occur with a prefixed plural marker of some sort; in the Sahidic New Testament, for example, 100% of the 79 tokens of the lexical plural form *eiote* (‘fathers’) occurs with an overt (in)definiteness prefix of some sort, while none occurs as bare nouns. Third, these forms have limited syntactic distributions (Layton, 2004: 87).

As such, it cannot be maintained that “the definite articles encode the referential status of the noun phrases and, as part of their morphology, also show agreement/concord in gender and number with the head noun”, as an anonymous reviewer has claimed. This can be seen from the simple fact that number is consistently marked by the number prefixes, while the noun can be either in the singular or plural form.

- | | | | |
|------|-----------------|----------------------|--------------------------|
| (22) | <i>hen-snêu</i> | INDEF.PL-brother.PL | ‘brothers’ (Acts 28: 14) |
| (23) | <i>hen-son</i> | INDEF.PL-brother[SG] | ‘brothers’ (Mark 10: 30) |

In fact, the “singular” form of the lexical noun, as such, is unmarked for number; it is rather the prefix that unambiguously indicates number, and which determines agreement. All in all, it is clear that the portmanteau gender/number/definiteness prefixes are the productive strategy for marking number in Coptic. More importantly, however, Dryer (2013d) uses the most frequent or most productive strategy for the purposes of his typology,¹⁵ so the analysis of Coptic adopted here is in line with Dryer’s methodology.

Greek, in contrast, has suffixed plural affixes on nouns (Smyth, 1920: §195).

- | | | |
|------|-------------------|-------------------|
| (24) | <i>anthrop-os</i> | <i>anthrop-oi</i> |
| | man-NOM.SG | man-NOM.PL |
| | ‘man’ | ‘men’ |
| (25) | <i>glôss-a</i> | <i>glôss-ai</i> |
| | tongue-NOM.SG | tongue-NOM.PL |
| | ‘tongue’ | ‘tongues’ |

4.5 *P5: Pronominal Possessive Affixes on Nouns*

The productive means of expressing pronominal possessors in Coptic is prefixed possessive prefixes on nouns, which code the number and gender of the possessee and the person of the possessor. See Egedi (2010) and Haspelmath (2015b) for recent studies.¹⁶

- | | | | | |
|------|-------------------|----------------------|----------------|-----------------|
| (26) | <i>p-a-eiôt</i> | POSS.MSG-1SG-father | ‘my father’ | (Matthew 7: 21) |
| | <i>pe-k-eiôt</i> | POSS.MSG-2SGM-father | ‘your father’ | (Matthew 6: 18) |
| | <i>pe-f-eiôt</i> | POSS.MSG-3SG-father | ‘his father’ | (Matthew 2: 22) |
| | <i>pe-n-eiôt</i> | POSS.MSG-1PL-father | ‘our father’ | (Matthew 3: 9) |
| | <i>pe-tn-eiôt</i> | POSS.MSG-2PL-father | ‘your father’ | (Matthew 6: 8) |
| | <i>pe-u-eiôt</i> | POSS.MSG-3PL-father | ‘their father’ | (Matthew 4: 21) |

Coptic also has a non-productive construction in which possessors are suffixed to the possessed noun.

15 “Note that if a language employs more than one method, such as both plural prefixes and plural suffixes, but one method is used with at least twice as many nouns as any other method, then the language is shown on the map according to the more common type” (Dryer, 2013d).

16 This is not a full paradigm, but is rather intended just to illustrate the structure under discussion.

- (27) *rnt-k*
name-2SGM
'Your name' (Matthew 5: 9)

However, even for these nouns, the possessive prefix is more common (Haspelmath, 2015).

- (28) *pe-k-ran*
POSS.MSG-2SGM-name
'Your name' (Matthew 7: 22)

An anonymous reviewer asks what this last statement is based on. There is no study of the frequency and distribution of these two strategies across the Coptic lexicon, but there are now such studies for earlier stages of the language, when the earlier possessive affix was still productive but the possessive prefix was rising in frequency. By the end of the New Kingdom (around 1070 BCE), the possessive prefix was more frequent across the board, both in terms of token frequency and type frequency (Winand, forthcoming).

Winand (forthcoming) also traces the shift from 100% occurrence of particular nouns (e.g., *snt* 'sister') with the possessive suffix at the beginning of the period investigated, to 100% occurrence with the possessive prefix. Similar results are obtained in Gardiner (forthcoming), which uses a logistical regression model to identify the factors that correlate with the rise of the newer possessive prefix. In fact, Gardiner's results are even more striking, with 66.7% of the tokens in her corpus bearing the possessive prefix, as opposed to 33.3% bearing the older possessive suffix.¹⁷

In Coptic, the possessive suffix is so unproductive that grammars simply list the 20-odd nouns with which it can occur (Layton, 2004: 102–104), which are mostly body parts. In fact, the noun roots that occur with the possessive

TABLE 4 *The overall token frequency of possessive suffixes vs. prefixes (Winand, forthcoming)*

	Suffix	Prefix
Stage 1 (ca. 250 y.)	75% (n=90)	25% (n=30)
Stage 2 (ca. 107 y.)	47% (n=513)	53% (n=572)
Stage 3 (ca. 120 y.)	42% (n=350)	58% (n=480)

17 The difference between these two figures probably stems from the fact that the two analyses used different corpora and looked at different parameters.

suffix are actually mostly grammaticalized as parts of prepositions or as parts of complex verbs, via incorporation; the body part names that occur as free lexical items are often different from those that occur with the possessive suffix, e.g., *e-toot-f* (to-hand-3SGM 'to him') vs. *cič* 'hand' (Layton, 2004: 104).

In light of this, it is useful to check a noun that occurs in both constructions. Based on the Sahidic New Testament, the following results obtain for the noun *ran* 'name'. All tokens ($n = 210$) were classified as (a) possessive prefix, (b) possessive suffix, (c) neither, because the possessor is a lexical noun phrase, or (d) neither, because the noun is unpossessed.

Under the assumption that all four are in principle equiprobable, these results are significant ($\chi^2(3) = 216.5$, $p < .001$).¹⁸

Based on the descriptive statistics above, 87% of the tokens of the noun *ran* 'name' are possessed, as opposed to 13% unpossessed. Of the possessed tokens, 71% have pronominal possessors, and of these, nearly 97% have the possessive prefix. Of those with the older suffix, 4 out of 5 tokens occur as incorporated noun roots in the derived verb *ti-ran* 'name someone or something'. As such, one can conclude that the possessive prefix is significantly more frequent than the possessive suffix, although the exact numbers might vary for different nouns, and that the prefix is the productive strategy for marking bound possessor indexes.¹⁹

TABLE 5 *The frequency of possessive suffixes vs. prefixes in Coptic*

Possessed			Unpossessed	Total
Prefix	Suffix	Lexical NP		
69% ($n = 142$)	2% ($n = 5$)	16% ($n = 34$)	13% ($n = 27$)	210

18 Of course, it is likely that a noun meaning 'name' will be more frequently possessed than unpossessed. However, if both possessive prefixes and possessive suffixes were equally productive, then it should be just as likely for a given noun to occur with a prefix or a suffix, which is clearly not the case in Coptic.

19 Dryer (2013e): "if there is a reason to view either prefixes or suffixes as primary, the language is shown according to that primary type." Interestingly, Dryer notes a language whose distribution of prefixes and suffixes is similar to that of Coptic: "Alune (Austronesian; Ceram, Indonesia) employs possessive suffixes for inalienable possession, but possessive prefixes for alienable possession." However, it is not even fair to say that Coptic uses suffixes for inalienable possession, since most of the noun roots that can occur with possessive suffixes do not in fact occur in referential noun phrases.

On the other hand, Greek has possessive enclitics (29) and possessive adjectives (30). Neither is affixed to the noun.

- (29) *epì tòñ* *lógon=mou*
 on DEF.ACC.MSG word=POSS.1SG.GEN
 ‘(the assault that you have made) on my theory’ (Pl.Resp. 5.472a)

- (30) *hē* *emē* *gunē*
 DEF.NOM.FSG POSS.1SG.NOM.FSG woman
 ‘my wife’ (Smyth, 1920: §1199)

4.6 *P6: Definite or Indefinite Affixes on Nouns*

Coptic has definite and indefinite prefixes on nouns. While they are traditionally called “articles” in Coptic linguistics, they are bound to the noun, and no other material can intervene between them and the noun. It should be pointed out that definite prefixes show allomorphy conditioned by the phonological structure of the noun: nouns beginning with clusters select an allomorph with a vowel, while other nouns condition a vowelless allomorph (31). See the discussion in Section 4.4 above.

- (31) *p-ran* *n-ran* *pe-šlél* *ne-šlél*
 DEF.MSG-name DEF.PL-name DEF.MSG-pray DEF.PL-pray
 ‘the name’ ‘the names’ ‘the prayer’ ‘the prayers’
 (Matthew 28: 19) (Apocalypse 21: 14) (Matthew 21: 13) (Acts 2: 42)

- (32) *ou-ran* *hen-ran*
 INDEF.SG-name INDEF.PL-name
 ‘a name’ ‘(some) names’
 (Apocalypse 3: 1) (Apocalypse 21: 12)

Greek has proclitic definite markers, which are not affixed to the noun. For example, postpositive particles can intervene between the definite article and the noun.

- (33) *ho=gár=toi* *país=me* *ho=Sáturos* *apédra-a*
 DEF=PTCL=PTCL boy=1SG.ACC DEF=Satyrus run_away:IND.AOR.ACT-3SG
 ‘The boy Satyrus ran away from me’ (Plato *Prot.* 310c3, in Luraghi, 2015a).

Greek does not have grammaticalized indefinite markers.

4.7 *P7: Pronominal Object Affixes on Verbs*

Coptic has pronominal object suffixes on verbs, which attach to a bound form of the lexical verb.

- (34) *a-f-sepsôp-t*
 PST-3SGM-comfort-1SG
 'He comforted me' (Acts 23: 18)

- (35) *a-s-sepsôp-n*
 PST-3FSG-comfort-1PL
 'She comforted us' (Acts 16: 15)

- (36) *a-f-sepsôp-ou*
 PST-3SGM-comfort-3PL
 'He comforted them' (Acts 3: 3)

That these behave more like affixes (and not clitics) can be seen from the fact that they condition a particular bound allomorph of the verb stem, which differs from the forms of the verb stem that occur when there is no direct object or when the object is incorporated into the verb. For example, the verb *sôtp* 'choose' has three allomorphs:

These allomorphs are exemplified in (37–39).

- (37) *a-f-sôtp* *n-ne-n-eiote*
 PST-3SGM-choose ACC-POSS.PL-1PL-fathers
 'He chose our fathers' (Acts 13: 7)

- (38) *maria=gar a-s-setp-t-to*
 Mary=for PST-3SGF-choose-DEF.FSG-share
 'For Mary chose the share' (Luke 10: 42)

TABLE 6 *Verb stem allomorphy in Coptic*

Conditioning environment	Verb allomorph
No object or case-marked object	<i>sôtp</i>
Incorporated lexical noun phrase object	<i>setp-</i>
Indexed object	<i>sotp-</i>

- (39) *a-tetn-sotp-t*
PST-2PL-choose-1SG
'You chose me' (John 15: 16)

This is not behavior typical of clitics. Another affix-like feature is the fact that P indexes themselves are only partially identical with A indexes. In other words, their paradigms depend on the nature of the host, i.e., whether they are pre-fixed or suffixed to the verb. Table 7 presents the paradigms of A and P indexes in the past tense of the verb *sōtp* 'choose'. In bold print are those indexes that differ for A and P. The verbs in the final column are constructed examples, based on Layton (2004: 69–70).

Moreover, P index paradigms show allomorphy, depending on the final segment of the lexical verb. However, this is not phonological in the strict sense, since there is no *phonological* rule that takes an underlying representation like */-i/* (1SG) and derives from it */-t/* (1SG). See Table 8, which simplifies matters somewhat; for a more exhaustive description, see Layton (2004: 69).

TABLE 7 *A and P affixes in the past tense*

Person	A prefix	P suffix	'choose oneself'
1SG	<i>i</i>	<i>t</i>	<i>a-i-sotp-t</i>
2SGM	<i>k</i>	<i>k</i>	<i>a-k-sotp-k</i>
2SGF	∅	<i>e</i>	<i>a-∅-sotp-e</i>
3SGM	<i>f</i>	<i>f</i>	<i>a-f-sotp-f</i>
3SGF	<i>s</i>	<i>s</i>	<i>a-s-sotp-s</i>
1PL	<i>n</i>	<i>n</i>	<i>a-n-sotp-n</i>
2PL	<i>tetn</i>	<i>têutn</i>	<i>a-tetn-setp-têutn</i>
3PL	<i>u</i>	<i>ou</i>	<i>a-u-sotp-ou</i>

TABLE 8 *Allomorphy of P suffixes*

Verb ends in	Example	Gloss	Translation
single vowel	<i>taho-i</i>	touch-1SG	'touch me'
double vowel or most consonants	<i>aa-t</i>	make-1SG	'make me'
<i>-t</i>	<i>fot-∅</i>	obliterate-1SG	'obliterate me'

Furthermore, P cannot be indexed on loan verbs (Grossman, forthcoming), which makes little sense if they are clitics, which should not be particular about the type of host, and would be even less expected to be sensitive to the whether a verb is borrowed or not. Finally, note that both A and P affixes can have paradigmatic zero realizations, 2SGF for A and 1SG for P: this would be highly unexpected if they were clitics.

Interestingly, while Coptic P-indexes are typically pro-indexes, i.e., indexes that do not occur with conominals in the same narrow clause, a small class of cross-indexes, i.e., indexes that can co-occur with a conominal in the same narrow clause, is emergent in Coptic. These cross-indexes developed as the result of the reanalysis of erstwhile possessor indexes on incorporated body part nouns (Grossman, forthcoming). In example (40a), the clause is glossed etymologically, while in (40b) it is glossed in accordance with its synchronic analysis.

- (40a) *a-s-r-ana-f* *n-hêrôdês*
 PST-3SGF-do-beauty-3SGM GEN-Herod
 ‘She pleased Herod’ (Mark 6: 22)
- (40b) *a-s-r-ana-f* *n-hêrôdês*
 PST-3SGF-please-3SGM ACC-Herod
 ‘She pleased Herod’ (lit. ‘she pleased him ACC-Herod’) (Mark 6: 22)

On the other hand, Greek does have pronominal object clitics, which can occur after the verb but also elsewhere in the clause. In example (33) above, the object clitic is within the subject noun phrase, which precedes the verb.

4.8 P8: Negative Affixes on Verb

In verbal main clauses, Coptic has portmanteau prefixes that code both TAM values and polarity.

- (41) *nne-k-hôtb*
 NEG.OPT-2SGM-kill
 ‘Thou shalt not kill’ (Matthew 5: 21)
- (42) *mpr-hôtb*
 PROH-kill
 ‘Don’t kill’ (Mark 10: 19)

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- (48) *nûn ou=perì dóxēs oud'=hupèr mérous khóras polemoûsin*
 now NEG=for glory:GEN NEG.CONN=over piece:GEN land:GEN fight:PRES:3PL
 'They do not now fight for glory nor for a piece of land' (Dem. 1.5, in Luraghi, 2015a).

4.9 Pg: Interrogative Affixes on Verbs

Coptic has unmarked direct yes/no questions.

- (49) *k-nau e-tei-shime*
 2SGM-see ALL-DEM.FSG-woman
 'Do you see this woman?' (Luke 7: 44)

A more complex issue is that of the relationship between focus morphology and interrogative constructions. Coptic has a series of prefixes that code the utterance as being characterized by a marked information structure. Typically, the function of this prefix is to mark the verb itself as backgrounded, and an adjunct as focus (Polotsky, 1944; Layton, 2004; Shisha-Halevy, 1986; Haspelmath, 2015a).

- (50) *e-k-čô na-n n-tei-parabolê*
 FOC-2SGM-say DAT-1PL ACC-DEM-parable
 'Are you telling this parable *for us*?' (Luke 12: 41)

However, this focus morphology is strongly associated with interrogative constructions (Polotsky, 1944; Shisha-Halevy, 1986; Reintges, 2003), and it can occur even where no focal element is clearly present.

- (51) *e-k-nkotk*
 FOC-2SGM-sleep
 'Are you asleep?' (Mark 14: 37)

As such, it is considered here to have grammaticalized an interrogative marker function as part of its polysemy.²¹

21 An anonymous reviewer points out that the prefix described here is not an "interrogative suffix". That is true, because it is a prefix. S/he further observes they are not limited to interrogative contexts, which is also true. However, the analysis of an item as being associated with a particular grammatical function does not entail that this function is the only one associated with the linguistic item. Otherwise, grammatical markers would never be polyfunctional, which they in fact often are. The point is that this prefix, which

Greek, like Coptic, has unmarked direct yes/no questions.

- (52) *hēgouméthá=ti* *tòn* *thánaton* *eînai?*
 regard:PRES:MED-1SG=anything DEF.SG.ACC death.ACC be:INF
 ‘Do we regard death as anything?’ (Plato *Phd.* 64c, in Welo, 2015)

- (53) *blépeis* *taútēn* *tēn* *gunaîka?*
 see:PRES-2SG DEM.FSG.ACC DEF.FSG.ACC woman.ACC
 ‘Do you see this woman?’ (Luke 7: 44, in Welo, 2015)

Greek also has clause-initial interrogative markers, which are not affixes on verbs.

- (54) *ê* *téthnēken* *Oidípou* *patēr*
 Q die:PRF-3SG Oedipus:GEN father[NOM]
 ‘Is Oedipus’ father really dead?’ (Welo, 2015; Smyth, 1920: §2650)

4.10 *Pio: Adverbial Subordinator Affixes on Verbs*

Coptic has a set of verbal prefixes that indicate subordinate-clause status, e.g., the so-called Limitative (‘until’):

- (55) *šant-n-hôtb* *m-paulos*
 LIMIT-1PL-kill ACC-Paul
 ‘until we kill Paul’ (Acts 23: 12)

Grossman *et al.* (2016) argues that Coptic, as well as several other languages, e.g., Japhug (Sinto-Tibetan, China) and Cree (Algonquian, USA), provides counter-examples to the otherwise robust generalization that adverbial subordinator prefixes do not exist (Dryer, 2013f).

In contrast, for many adverbial clause functions, Greek uses participles.

- (56) *lipónt-es* *tēn* *hodòn* [...] *olíg-oi* *apéthnēsk-on*
 leave.PTCPL-NOM.PL DEF.ACC road.ACC few-NOM.PL kill:AOR.PASS-3PL
 ‘Leaving the road [...], few were killed’ (X.A. 4.2.7, Smyth, 1920: §2056).

was originally associated with adjunct focus, acquired a range of functions that include, in Sahidic Coptic, the marking of interrogative utterances as such.

While these participles are verb forms with suffixal inflection, I do not consider this inflection to be “adverbial subordinator affixes”, because participles are deverbal adjectives, which can occur as modifiers of nouns.

- (57) *h-oi* *hónt-es* *ekhthr-oí*
 DEF-NOM.PL be.PTCPL-NOM.PL enemy-NOM.PL
 ‘ADD TRANSLATION HERE’ (D 16.15, Smyth, 1920: §2049)

In finite contexts, explicit subordinating markers (“conjunctions”) are not affixed to verbs.

- (58) *hóte* *Náxos* *heálo*
 when Naxos conquer:AOR:3SG
 ‘when Naxos was conquered’ (Aristoph. *Vesp.* 354)

5 Discussion

Table 9 summarizes the findings of the previous section.

As Table 9 shows, Greek has a much lower affixing score than Coptic, with 53.85% for the former as opposed to 100% for the latter. Furthermore, Greek is predominantly suffixing, which in Dryer’s (2013a) sample, characterizes 41.90% of the world’s languages. Coptic, on the other hand, has an unusually high prefixing preference (92.3%).

As such, it can be concluded that it is highly unlikely that Greek-Egyptian contact played a direct role on the prefixing preference of Coptic. Moreover, since Greek has a much lower affixing preference overall, it is unlikely that Greek-Egyptian contact played a significant overall role in the development of Egyptian morphosyntax, at least in the domain of affixing.

In general, this is unsurprising, for several reasons. First of all, contact-induced morphological change, while attested, is not very common, and seems to be characteristic of particular types of contact situations. Second, the Coptic-Greek contact situation is a typical “adoption” scenario, in which language users were not necessarily bilingual (Fewster, 2002). Characteristic of such situations, unlike “interference through shift” (Thomason and Kaufman, 1988) or “imposition”, in which non-native speakers retain patterns of their native language, is the borrowing of lexical items as opposed to structural features (Haspelmath, 2009).

The reasons for the prefixing preference of Coptic must be sought elsewhere: in Grossman and Polis (2015), it is argued that this cross-linguistically unusual

TABLE 9 *Calculation of the affixing index and of the suffixing vs. prefixing strategies*

		Coptic		Greek			
	Parameter	Prefixing or suffixing	Suffixing score	Prefixing score	Prefixing or suffixing	Suffixing score	prefixing score
1	case affixes on nouns	exclusively prefixing	0	2	exclusively suffixing	2	0
2	pronominal subject affixes on verbs	exclusively prefixing	0	2	exclusively suffixing	2	0
3	tense-aspect af- fixes on verbs	exclusively prefixing	0	2	prefix- ing and suffixing	1	1
4	plural affixes on nouns	predominantly prefixing	0	1	exclusively suffixing	1	0
5	pronominal possessive affixes on nouns	predominantly prefixing	0	1	not affixing	0	0
6	definite or in- definite affixes on nouns	exclusively prefixing	0	1	not affixing	0	0
7	pronominal object affixes on verbs	exclusively suffixing	1	0	not affixing	0	0
8	negative affixes on verb	exclusively prefixing	0	1	not affixing	0	0
9	interrogative affixes on verbs	exclusively prefixing	0	1	not affixing	0	0
10	adverbial subordinator af- fixes on verbs	exclusively prefixing	0	1	not affixing	0	0
Total			1	12		6	1
Affixing index			100%			53.85%	
Suffixing vs. prefixing strategies			7.7%	92.3%		85.71%	14.29%

prefixing preference is the result of long-term but local, i.e., construction-level, processes of regular language change, which occurs at different times and at different rates. However, it seems safe to say that these processes were not catalyzed or facilitated by the influence of Greek.

Acknowledgments

I would like to thank Nadav Asraf (Jerusalem), Maya Inbar (Jerusalem), Silvia Luraghi (Pavia), Stéphane Polis (Liège), Ilja Seržant (Mainz) and Søren Wichmann (Leiden) for their helpful comments. The analysis of Greek presented here does not necessarily reflect their views. I would also like to thank three anonymous reviewers for their helpful comments, and the editor of the *Journal of Language Contact*, Robert Nicolai, for his outstanding fairness and patience. All errors are of course my own.

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