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Nominal Gender in Coptic Egyptian Typology and Morphological Analysis

Summary: The multidisciplinary research (philology, typology, morphology, phonology) reported here sets out to explore the role of gender in the meaning and morphology of nouns. Coptic has a predominantly grammatical gender system, albeit a niche for semantically based gender assignment. The Coptic gender system marks three-way semantic contrast between a [MALE] versus a [FEMALE] versus an [UNSPECIFIED] gender value, even where the morphology only draws on a two-way distinction between grammatical masculine and feminine gender. By integrating quantitative data and morphophonological analysis, we demonstrate that masculine gender is morphologically unmarked, whereas feminine gender is morphologically marked on nouns. No discrete morpheme can be identified as a gender marker: masculine and feminine nouns are distinguished in terms of their templates. Templatic structure, on its part, interacts in complex ways with vowel distributions, stress assignment and noun class.

Keywords: Linguistics – Coptic, gender, marked feminine, noun class, templates, vocalism

Of the different grammatical categories that nouns can be inflected for, grammatical gender in its rich and varied manifestations has remained elusive. There is a longstanding research history on Coptic nominal gender that goes back at least to Steindorff's (1884) doctorate thesis *Prolegomena zu einer koptischen Nominalklasse*. Since then, the focus of scholarly attention has shifted to using the extant linguistic material for the internal reconstruction of nomina agentis, nomina actionis, and participles in preceding stages of Ancient Egyptian where, due to the particularities of hieroglyphic writing, the phonological realities are less transparent. Exemplary in this regard are the monumental studies by Fecht (1960) and Osing (1976), which are both strongly committed to the Neogrammarian Comparative Method. Historical-comparative work can shed light on the diachrony-in-synchrony effects, whereby certain idiosyncratic patterns at the synchronic level can best be explained in diachronic terms of ongoing language change (see Ruszkiewicz 1997 with particular reference to phonology and morphology).¹ However, this approach is not well-suited to uncover more general grammatical principles that underlie the synchronic organization of gender and noun inflection.

The explorative study on the Coptic gender system presented here addresses these issues from a combination of typological and morphophonological perspectives. It comprises two main sections. The first section outlines the typological profile of the Coptic gender system. In this domain, the analytic challenge lies in the Janus face of gender as reflecting, on the one hand, a central property of human cognition, that of sorting things as alike or different, and, on the other hand, the exhaustive classification of nouns. Accordingly, the distinction between natural and grammatical gender is deeply rooted in this content–form dichotomy. We shall argue for a three-way semantic contrast in the Coptic gender system between a [MALE] versus a [FEMALE] versus an [UNSPECIFIED] gender value, even where the morphology only draws on a two-way distinction between grammatical masculine and feminine gender. In particular, grammatical masculine gender is associated with two gender values, [MALE] and [UNSPECIFIED], as opposed to grammatically feminine gender, which conveys a single [FEMALE] value. Of particular interest in this regard are so-called epicene nouns like **ⲡⲟⲙⲉ** /ro:me/ 'man, human being' (Crum 1939: 294b) and **ⲭⲟ(ⲉ)ⲓⲕ** /tʰɔjs/ 'lord/mistress' (Crum 1939: 787b), which denote referents of mixed, indeterminate or unknown gender. In terms of gender markedness, the feminine emerges as the functionally and formally marked term of the paradigmatic opposition.

With the typological issues put in place, the focus of the second section is on the morphophonological expression of nominal gender.² The received wisdom in Coptic linguistics is that

¹ To be sure, each Coptic grammar dedicates some space for a synchronic description of noun inflection and nominal syntagma. However, diachronic considerations have figured prominently in the Coptic descriptive tradition. Steindorff's (1951) posthumous *Lehrbuch der koptischen Grammatik* is representative for the mixing of synchronic and diachronic levels.

² Space limitations prevent us to enter into a detailed discussion of the Sahidic vowel system. We overall agree with Peust's (1999: 201–205) proposal that the vowel graphemes **ⲱ** and **ⲟ** represent, respectively, the mid-high and the mid-low back rounded vowels /o/ and /ɔ/. This interpretation finds further support in the sound correspondence between Sahidic **ⲟ** and

aside from notable exceptions, gender is not morphologically realized on nouns. For this reason, or so runs the traditional argument, nominal gender can only indirectly be inferred from the gender marking on the targets of agreement, for instance, the masculine or feminine form of the definite article (Hintze 1980: 43; Layton 2000: 41–43 §§48–49, 85 §105(a), Reintges 2018 [2004]: 52–53 §2.1.1). On the basis of quantitative data, we shall argue for a view to the contrary, which treats gender as an obligatory inflectional category of the noun. Despite appearances, feminine gender is morphologically marked. The peculiarity of Coptic feminine gender marking is that it is not expressed by a concatenative affix as it was in earlier stages of the Egyptian language. Rather the locus of gender exponence is to be sought in the template of nominal stems.

1. The Typological Profile of the Coptic Gender System

As often commented upon in the typological literature (e.g., Dixon 1986: 106; Aikhenvald 2004: 1032; Corbett 2014: 111), a minimal gender system requires at least two gender values. Binary gender systems are crosslinguistically widespread, appearing in 50 out of the 122 gendered languages (41%) in Corbett’s (2013a, b) *Word Atlas of Language Structures* [WALS] database. Akin to its Afroasiatic relatives, Coptic has a two-term gender system. As a rule, nouns must exhaustively be specified for masculine or feminine gender. This is the expected case under Corbett and Fedden’s (2015: 50) ‘Canonical Gender Principle’, according to which “in a canonical gender system, each noun has a single gender value”. This section deals with three typologically salient properties of the Coptic gender system, namely (i) the asymmetric gender/number relation in the inflectional paradigm of nouns, (ii) the morphological manifestation of gender agreement on associated targets, and (iii) the weak bias for semantically based gender assignment.

1.1. The Gender/Number Complementarity

In morphological research, gender is rarely analyzed as an inflectional category in its own right, which induces sets of inflected forms in systematic co-variation. Spencer (2002: 279–281) offers a more nuanced view on this matter, which we find compelling. As shown by Table 1, the inflectional paradigm for Coptic nouns comprises maximally three cells: masculine singular, feminine singular, and plural. The main point of note here is that the masculine–feminine contrast is only encoded in the singular, but not in the plural (see Reintges (2018 [2004]: 52–54 §§2.1.1–2.1.2 for morphological plurals).³

Akhmîmic **ⲁ** (**ⲃⲐⲛⲧⲉ**^S /βɔnte/ ~ **ⲃⲁⲛⲧⲉ**^A /βante/ ‘gourd’). We diverge from Peust’s (1999: 213) analysis of the vowel graphemes **ⲉ** and **ⲏ**, which we interpret, respectively, as the mid-high and the mid-low front unrounded vowels /e/ and /ɛ/.

		<u>The Sahidic vowel inventory</u>		
		FRONT	CENTRAL	BACK
HIGH	ⲉ /i/			ⲟⲮ /u/
MID-HIGH	ⲉ /e/			ⲟ /o/
			Supralinear stroke /ə/	
MID-LOW	ⲏ /ɛ/			ⲟ /ɔ/
LOW		ⲁ /a/		

³ The asymmetric gender/number system of Coptic differs considerably from the more symmetric system of Old and Middle Egyptian, in which the masculine/feminine opposition carries over to morphological plurals. Another way to look at the gender/number complementarity in Coptic would be in terms of the plural as a third gender value. With particular reference to Danish, Plank and Schellinger (1997: 96 footnote 1) note that, “It is on such grounds that a plural that is neutral as to gender is sometimes analyzed as a term on a par with the terms of gender distinguished in the singular, that is, as representing itself a gender”. Mous (2008) presents arguments for the plural as a gender exponent in Cushitic languages.

TABLE 1. The paradigm of gender- and number-inflected nouns

MASCULINE		FEMININE		PLURAL		GLOSS
ϢΟΝ	so:n	ϢΩΝΕ	so:ne	ϢΝΗΥ	snɛw	brother/sister/brethren
ϠΗΡΕ	ʃe:re	ϠΕΕΡΕ	ʃeʔere	ϠΗΡΗΥ	ʃrɛw	son/daughter/children
ϠΛΛΟ	hllɔ:	ϠΛΛΩ	hllɔ:	ϠΛΛΟΕΙ	hllɔj	old man/woman/(wo)men
ΧΟΕΙϢ	tʰɔjs	ΧΟϢΕ	tʰɔise	ΧΙϢΟΟΥϢΕ	tʰisɔ:we	lord/mistress/lords and mistresses
ΝΟΥΤΕ	nu:te	ΝΤΩΡΕ	ɛntɔ:re	ΕΝΤΗΡ	entɛr	god/goddess/gods and goddesses
ϠΤΟ	htɔ:	ϠΤΩΡΕ	htɔ:re	ΕϠΤΩΡ	ehtɔʔɔr	stallion/mare/horses
ϠΟϢ	hɔf	ϠϢΩ	hfo:	ϠϢΟΥΙ	hɔfwi:	male/female snake/s

Overall, the Coptic situation complies with Greenberg’s (1963: 95) Language Universal 37, according to which “a language never has more gender categories in nonsingular numbers than in the singular”. The notion of the gender/number complementarity can be sharpened by saying that plural morphology excludes the marked feminine gender. This, as we shall reason later on (§1.5), follows from the unmarked status of masculine and the marked status of feminine gender.

1.2. Gender Agreement on Associated Targets

Most language experts would probably subscribe to the view that Coptic nominal gender has no morphological correlate and can only indirectly be inferred from the morphologically realized gender on associated targets of agreement. Layton (2000: 41–43 §§48–49, 85 §105(a)) and Reintges (2018 [2004]: 52–53 §2.1.1) claim that gender agreement may be local, as in the case of prenominal determiners in (1), or non-local, as in the case of anaphorically related pronouns in (2).

- (1) **ΑΥΩ ΠΡΩΜΕ ΑΦΜΟΩϢΕ ΜΗ ΤΜΑΛΥ ΨΑΝΤϢΕΙ ΕΠΜΑ** (Shenoute, ed. Amélineau I.1 54:13)
 ‘and the man walked with the (his) mother until he came to the place’
- (2) **ΤΕϢΖΙΜΕ ΔΕ ΑϢΠΩΤ ΕϢΡΑΙ ΕΤΕΡΗΜΟϢ** (Apocalypse 12:6)
 ‘The woman fled to the desert.’

The masculine and feminine gender values of the left-dislocated noun phrases **ΠΡΩΜΕ** ‘the man’ and **ΤΕϢΖΙΜΕ** ‘the woman’ are evident from, respectively, the masculine and feminine forms of the definite article **Π-** [DEF.M.SG] and **ΤΕ-** [DEF.F.SG]. The above examples illustrate the non-local gender agreement between the left-dislocated topics and the co-referential third person masculine and feminine clitic pronouns =Ϣ ‘he’ and =Ϣ ‘she’, which indicate the subject function of the left-dislocated topic.

Nichols (1992: 137) presents typological data on the frequency of gender agreement with different targets. Adjectival modification is singled out as the cross-linguistically preferred locus for target gender, followed by subject–verb agreement. Consider for example the following possessive-like adjectives, which are inflected for gender: **ϢΑΒΕ** [MASC.SG] ~ **ϢΑΒΗ** [FEM.SG] ‘wise’ (Crum 1939: 319a).

- (3) **ΕϢΝΑϢΙΝΕ ΝΟΥΡΩΜΕ ΝϢΑΒΕ** (Matthew 7:24)
 ‘He will resemble a wise man (lit. a man of wise).’
- (4) **ΤΩΕΕΡΕ ΝϢΑΒΗ ΝΑΚΛΗΡΟΝ[ΟΜ]ΕΙ ΝΠΕϢΖΑἰ** (Sirach 22:4)
 ‘The wise girl (lit. the girl of wise) shall inherit her husband.’

In brief, there is conclusive evidence for gender outside the noun. Coptic must, accordingly, be classified as a gendered language.

1.3. A Reference-based Niche in Lexical Inventory

Corbett (1991: 8) has influentially proposed that “in a sense, all gender systems are semantic in that there is always a semantic core to the assignment system”. The Semantic Core Hypothesis is copiously supported by the typological record. Out of 122 gendered languages 53 have a semantic system assignment (47.32 %), as opposed to 59 languages (52.68 %) with a mixed system (Corbett 2013b). The

Coptic gender system complies with this picture. Table 2 presents a number of gender pairs in which gender assignment is based animacy and biological sex distinction. See Steindorff (1951: 49 §93) and Lambdin (1983: 1 §1.1) for preliminary observations to this effect.

TABLE 2. Gender pairs with different lexical items

MASCULINE		FEMININE		GLOSS
ⲡⲞⲙⲉ	ro:me	Ⲛⲓⲙⲉ	shi:me	man/woman
ⲉⲱⲧ	jot	ⲙⲁⲁⲮ	maʔaw	father/mother
Ⲓⲁⲓ	haj	Ⲛⲓⲙⲉ	shi:me	husband/wife
ⲠⲓⲠ	rir	ⲉⲑⲱ	eʃo:	boar/sow
ⲉⲙⲁⲮ ^B	ʃaw	ⲉⲙⲟⲮ	emu:	tomcat/molly ⁴
ⲕⲉⲮ	t ^f ew	ⲕⲁⲎ	kle:	tomcat/molly

The masculine and the feminine term in the above gender pairs are not morphologically related to each other, but are rather formed from distinct lexical items (on this point, see Bobaljik and Zocca 2011: 150 footnote 9 and Kramer 2015: 15–16).

1.4. Inflectional Gender Pairs

A sizeable number of Coptic nouns comes in pairs in which the masculine and the feminine member are morphologically related to each other. The alternations in the shape of these nouns are relatively systematic. Gender-inflected nouns, as we shall label them here, denote individuals and entities, which are located in the higher regions of the animacy hierarchy, where biological sex serves as an overriding factor for gender assignment (Dahl 2000a, b). Included in this class are human nouns (kinship and social role terminology) as well as domestic and pet animal nouns.

Our classification is based on Stern's (1880 [1971]: 56–57 §115) partition of nominal stems into consonant-final ('strong') and vowel final ('weak') ones. Gender-inflected feminine nouns fall into two distinct noun classes, referred to as class I and class II nouns. Class I feminine nouns, which are presented in Table 3, are characterized by an unstressed final vowel **-ⲉ** /-e/. Class II feminine nouns, which are presented in Table 4, terminate in a stressed final vowel **-Ⲏ** /-ɛ:/ and **-ⲱ** /-o:/. We shall return to the morphophonological description of both noun classes later.

⁴ Cf. Kasser (1964: 90a) ⲉⲙⲁⲮ « matou » [ⲕⲉⲮ 793a]. Of the Middle Egyptian pair *mjw/mjw.t* 'tomcat/molly', the feminine form survives into Coptic. Cf. Osing 1976: 354–355 note 16: *mjw.t* > **jmw.t* [with metathesis] > ⲉⲙⲟⲮ.

TABLE 3. Gender-inflected nouns with stem-final -ε /-e/ (Class I)

MASCULINE		FEMININE		GLOSS
CON	sɔn	COŃE	so:ne	brother/sister
ΦOM	ʃɔm	ΦOME	ʃo:me	father/mother in law
BAOYON	kjawɔn	BAYONE	kjawo:ne	male/female slave
XOEIC	tʰɔjs	XOCE ⁵	tʰɔ:se	lord/mistress
ΦOT	ʃot	EΦOTE	eʃo:te	male/female merchant
MNOYT	mənut	MNOOTE	mnoʔɔte	male/female guardian
ΦBHP	ʃβer	ΦBEPPE	ʃβeʔere	male/female comrade
ΦHPE	ʃe:re	ΦEERE	ʃeʔere	son/daughter
NOYTE	nu:te	NTWPE ⁶	ənto:re	god/goddess
ZTO	htɔ:	ZTWPPE	hto:re	stallion/mare
OYZOP	uhɔr	OYZWPPE	uhɔ:re	dog (male)/bitch
CHB	sɛkj	CEEBE	seʔekie	male/female foal
ZIEIB	hijβ	ZIEAIBE	hiʔajβe	male/female lamb
PIP	rir	PAAPPE, PAIPE ⁷	raʔare, rajre	male pig/sow/piglet
BAMOYΛ	kjamul	BAMAYΛE ⁸	kjamawle	male/female camel

Stern (1880: 100 §§204–205) and Steindorff (1951: 49 §92) analyzed the unstressed mid-high front vowel *ε* /*e*/ of class I feminine forms as the phonologically reduced cognate form of the inflectional feminine suffix *-t* in Pre-Coptic Egyptian. Steindorff (1884: 4–5 §2a) also suggested that feminine suffixation transforms a monosyllabic noun into disyllabic one. As a result, the internal vowel comes to stand in an open syllable and undergoes lengthening: *sɔn* (CON) ‘brother’ ~ *sô-nět* (COŃE ∴ CONI) ‘sister’ [Steindorff’s own transcription].⁹

Hintze (1980: 43 §5) takes a different stance on the issue, arguing that inflectional gender pairs of the kind CON ~ COŃE belong to the domain of the lexicon rather than that of the grammar. This has led the author to categorically reject an ‘allgemeine Genustransformationsregel’, according to which feminine nouns are derived from a masculine base by means of feminine suffixation and open syllable lengthening. Such rule would be formalized as follows:

- (5) A generalized gender transformation rule
 $CVC]_{N(oun).M} \Rightarrow C\bar{V}Ce]_{N(oun).F}$

Hintze (l. c.) puts forward a strong argument against deriving feminine nouns from masculine ones, which merits to be cited in full:

⁵ Cf. Osing (1976: 666–667 note 729) for the attestation of the feminine noun *XOCE* /tʰɔ:se/ ‘mistress’.

⁶ Crum (1939: 230b) assumed that the feminine noun *NTWPE* /ənto:re/ ‘goddess’ was only attested in personal names and toponyms. This view was corrected by Polotsky (1939: 110), who, in his review of Crum’s *A Coptic Dictionary*, already noted the occurrence of *NTWPE* ω ‘the Great Goddess’ as an epithet of Isis-Hathor in Old Coptic magical texts; see also Kasser (1964: 38b [NOYTE 230b]). Osing (1974: 213, 757 note 916) reconstructs a stress shift, which distinguishes the masculine and feminine member of the inflectional gender pair: *ntr* *nāʔ(a)r > *NOYTE* ~ *ntr.t* *n(a)ʔār.ʔt > *NTWPE*. It remains an open question why the preserved vowel becomes *oy* in the masculine but *ω* in the feminine form, given that both vowels appear in the same syllabic context.

⁷ The /i/ vocalization of the masculine noun *PIP* /rir/ ‘male pig’ reflects an originally ‘hollow’ trilateral root with a medial *yod* (*√rjr*). The diphthong /aj/ of the feminine form *PAIPE* /rajre/ ‘sow’ preserves this medial *yod*. The double vowel grapheme *aa* in the variant *PAAPPE* /raʔare/ corresponds to an originally trilateral hollow root with a medial glottal stop (*√rʔr*).

⁸ With respect to *BAMAYΛE* /kjamawle/ ‘she-camel’, Osing (1976: 363 note 41) argues that the diphthong /aw/ in the stressed penultimate syllable represents an innovative infixal formation rather than a radical *waw*.

⁹ Steindorff (1884: 5 §2a) acknowledged the exceptional character of the Bohairic gender pair *bōk* (BOK) ~ *bō-kēt* *bō-kēt* (BOKI) [FEM.] ‘male/female servant’, since the putatively long vowel *ω* /o:/ resists additional lengthening in open syllable. This is not a problem for Stern (1880: 100 §205): “Der stärkere stammvocal erträgt den antritt der weiblichen endung ohne dadurch berührt zu werden”.

Neben dem maskulinen *son*, das die Struktur /CoC/ hat, gibt es auch Feminina mit derselben Wortstruktur, z.B. *šoš* ‘Antilope’, *com* ‘Kraft’, und neben dem femininen *sōne*, das die Struktur /CōCe/ hat, gibt es auch Maskulina mit derselben Wortstruktur, z.B. *rōme* ‘Mensch’, *šōte* ‘Mehl’, usw. Im Koptischen gibt die Wortform (= phonologische Struktur) keinen Hinweis auf das Genus, wohl aber der Artikel.

TABLE 4. Gender-inflected nouns with stem-final -ω /-o:/ or -η /-e:/ (Class II)

MASCULINE		FEMININE		GLOSS
ΡΡΟ ¹⁰	ἄρρο:	ΡΡΩ	ἄρρο:	king/queen
ΖΛΛΟ	ἡλλο:	ΖΛΛΩ	ἡλλο:	old man/woman
ΡΜΜΑΟ	ρᾶμμαο:	ΡΜΜΑΩ ^{L11}	ρᾶμμαο:	rich man/woman
ΦΜΜΟ	ῥμμο:	ΦΜΜΩ	ῥμμο:	male/female stranger
ΖΟQ	ἡῶf	ΖQΩ ¹²	ἡῶ:	male/female snake
ΕCΟΟΥ	εCῶw	ΕCΩ	εCο:	ram/(female) sheep
ΕΙΩ	εjο:	ΕΩ	εʔο:	male/female donkey
ΤΕΦΕ	teʃe:	ΘΕΦΗ ^B	t ^h eʃe:	male/female neighbor
ΡΜΖΕ	rəmhe	ΡΜΖΗ	rəmhe:	free male/female person
ΒΛΛΕ	βlle:	ΒΛΛΗ	βlle:	blind male/female person
CΑΒΕ	saβe:	CΑΒΗ	saβe:	wise male/female person
ΚΑΜΕ	kame:	ΚΑΜΗ	kame:	black male/female person
ΘΑΕΙΕ	k ^l aʃe:	ΘΑΕΙΗ ¹⁴	k ^l aʃe:	ugly male/female person
CΑΕΙΕ	saje	CΑΕΙΗ ¹⁵	saje:	beautiful male/female person
ΨΕ	ʃe	ΕΨΩ	eʃo:	boar/sow

We wish to call attention to two often overlooked points. The first point is that a morphological derivation of feminine nouns from masculine ones cannot directly account for the differences in the stem shape of a number of inflectional gender pairs, e.g. **ΝΟΥΤΕ** /nu:te/ ~ **ΝΤΩΡΕ** /ənto:re/ ‘god/goddess’, **ΡΙΡ** /rir/ ~ **ΡΑΡΕ** /raʔare/, **ΡΑΙΡΕ** /rajre/ ‘male pig/sow/piglet’, and **ΒΑΜΟΥΛ** /kɪamul/ ~ **ΒΑΜΑΥΛΕ** /kɪamawle/ ‘male/female camel’. The second point is that even the most paradigmatic examples for a derivational account do not entirely go through. Take, for instance, the Akhmîmic cognate pair **CΑΝ** /san/ ~ **CΩΝΕ** /so:ne/ ‘brother/sister’, where the predicted feminine forms of the pair ***CΑΝΕ** /sa:ne/ and/or ***CΑΛΑΝΕ** /saʔane/ are not attested in the extant documentation of this dialect (Crum 1939: 343b; Kasser 1954: 55b [CON 342b]). An alternative analysis is called for. We shall argue in the second part of this article that the masculine and feminine forms of gender-inflected nouns are derived independently from each other from the underlying consonantal root.

¹⁰ Osing (1976: 483 note 149, 587 note 511) derives the masculine noun **ΡΡΟ** /ἄρρο:/ (Crum 1939: 299a–b) from Middle Egyptian *pr-* ʕ ‘pharaoh’ (lit. ‘Great House’), which he reconstructs as *(pa)r(ʔw)-ʕāʔ. The initial *pa* unit has erroneously been reanalyzed as a form of the definite article—a process of wrong segmentation that is known in French linguistic terminology as ‘déglutination’. One might envisage an alternative analysis, in which the variant **ΟΥΡΟ** /wrɔ:/ represents the input form from which **ΡΡΟ** is derived via initial glide deletion and compensatory consonant lengthening. Fecht (1960: 212 §432 and note 506) underlines that the etymological questions are far from being resolved. Peust (1999: 264–265) claims that “the sonorant graph is written double before vowels, probably in order to unambiguously indicate the syllabic nature of the sonorant”. The minimal pair **ΡΟ** /rɔ:/ ‘mouth’ (Crum 1939: 288a–b) ~ **ΡΡΟ** /r,ʔɔ:/ is in terms of the syllabic status of the initial liquid **ρ** /r/: **ΡΟ** /rɔ:/ ~ **ΡΡΟ** /r,ʔɔ:/ (Peust 1999: 267).

¹¹ The feminine gender of **ΡΜΜΑΩ**^L seems to us philologically plausible: **ΟΥCΖΙΜΕ ΔΕ ΧΕ ΤΡΥΦΑΙΝΑ ΕΧΥΨΜΑΩ ΤΕ** ‘A woman called Tryphaina who (was) rich’ (Acta Pauli, ed. Schmidt, S.21:20–21 [*15]).

¹² The gender pair **ΖΟQ** ~ **ΖQΩ** ‘male/female snake’ differs from the comparable noun **QNT** ‘worm’, which is an epicene noun. Because of their culture-specific relevance, snakes are not grouped together with amphibians and other reptiles, but are rather assimilated to potentially dangerous higher animals. The inflectional gender pair is already attested in Middle Egyptian: [rʔ n(j)] *mk.t hʔ.w r hʔβ.w nb r hʔβ.t nb[.t]* ‘Charm to protect the body against all male and female snakes’ (pap. Ramesseum 10 [pap. BM EA 10763, 1,1]). See Altenmüller (1979) for the philological analysis of this passage.

¹³ The variant **ΕΕΙΩ** /εjɔ:/ ‘male donkey’ (Crum 1939: 75b) is the original form, from which the more common variant **ΕΙΩ** /jɔ:/ is derived by vowel deletion. In the feminine noun **ΕΩ** /eʔɔ:/ ‘female donkey’, the internal glide /j/ is replaced by a glottal stop /ʔ/. See Osing (1976: 755–756 note 915 and 757–758 note 917) for an alternative analysis.

¹⁴ Cf. Crum (1939: 466a) under **ΘΑ(Ε)ΙΗ**: (–η sometimes f)

¹⁵ Cf. Crum (1939: 315b) under **CΑΕΙΗ**: (–η sometimes f); cf. also Kasser (1960: 52a [315b CΑΙΗ]).

1.5. Epicene Nouns and Gender Markedness

At first sight, epicene nouns appear to furnish a niche in the Coptic noun inventory, which is orthogonal to the exhaustivity requirement of noun classification as well as to the otherwise stable correlation between natural and grammatical gender. The non-attribution of a particular gender value to a given noun is all the more surprising, considering that members of this class have the same types of human/animate referent as gender-inflected nouns.

TABLE 5. Epicene nouns

MASCULINE		FEMININE		GLOSS
ΠΧΘΕΙC	pə-tʰɔjs	ΤΧΘΕΙC	tə-tʰɔjs	the lord/mistress
ΠΡΩΜΕ	pə-ro:me	ΤΡΩΜΕ	tə-ro:me	the man/woman
ΠΧΑΧΕ	pə-tʰatʰe	ΤΧΑΧΕ	tə-tʰatʰe	the male/female foe
ΠΑΛΟΥ	p-alu:	ΤΑΛΟΥ	t-alu:	the boy/girl
ΠΑΛΟΥ	pə-lelu:	ΤΑΛΟΥ	tə-lelu:	the boy/girl
ΠΖΜΖΑΛ	pə-həmhal	ΤΖΜΖΑΛ	tə-həmhal	the manservant/maidservant
ΠCΑΕΙΝ	pə-sajn	ΤCΑΕΙΝ	tə-sajn	the male/female physician
ΠΨΘΕΙΧ	pə-ʃɔjtʰ	ΤΨΘΕΙΧ	tə-ʃɔjtʰ	the male/female athlete
ΠΕΙΩ	p-ejo:	ΤΕΙΩ	t-ejo:	the male/female donkey
ΠΕΙΟΥΧ	pə-joɫ	ΤΕΙΟΥΧ	tə-joɫ	deer stag/hind
ΠΕΖΕ	p-ehe	ΤΕΖΕ	t-ehe	ox/cow
ΠΨΟΥ	pə-ʃɔʃ	ΤΨΟΥ	tə-ʃɔʃ	the male/female antelope
ΠΦΝΤ	pə-fənt	ΤΦΝΤ	tə-fənt	the male/female worm

The above-listed nouns fit into the crosslinguistic pattern of epicene nouns as denoting antecedents of mixed, indeterminate or unknown gender (Bobaljik and Zocca 2011; Percus 2011). The following doublet of a gender-inflected and an epicene noun illustrates this point.

(6)		<u>MASCULINE</u>		<u>FEMININE</u>	
	GENDER-INFLECTED NOUN	ΠΧΘΕΙC	pə-tʰɔjs	ΤΧΘΕ	tə-tʰɔ:se
	EPICENE NOUN	ΠΧΘΕΙC	pə-tʰɔjs	ΤΧΘΕΙC	tə-tʰɔjs

The masculine member **ΧΘΕΙC** /tʰɔjs/ ‘lord’ of the gender pair is morphologically identical to the epicene noun. Consequently, epicene nouns must bear grammatical masculine gender. This argues that grammatical masculine gender can express a [UNSPECIFIED] gender value, which makes no assertion about the referent’s biological sex. In particular, it does not assert [–FEMALE], i.e. [MALE] sex. The feminine term **ΧΘΕ** /tʰɔ:se/ ‘mistress’, on the other hand, can never serve as an epicene noun. Since feminine nouns are morphologically marked for gender, they carry an implicature that their referents are female. This implicature inevitably excludes reference to antecedents with mixed gender.

FIGURE 1. Gender markedness and gender exponence

		MASCULINE		FEMININE
SINGULAR	Semantic gender value	[MALE]	[UNSPECIFIED]	[FEMALE]
	Gender exponence	No		Yes
PLURAL	Semantic gender value	[UNSPECIFIED]		non-existent
	Gender exponence	No		

In conclusion, the Coptic gender system displays a three-way semantic contrast between a [MALE] versus a [FEMALE] versus an [UNSPECIFIED] gender value, even where the inflectional morphology only draws on a two-way distinction between grammatically masculine and feminine gender. Our findings comply with Jakobson’s (1932 [1971]: 3–6 §I) theory of gender markedness, which treats the feminine as the formally and functionally marked member of a paradigmatic opposition.

2. Gender Exponence and Templatic Morphology

The morphological expression of gender features on nouns is a central issue in nominal classification typology. We have presented evidence and arguments for a markedness opposition in the Coptic gender system, but up to now, we have not identified an affix for the marked feminine gender. This would seem to support the received wisdom that gender has no morphological correlate. On the basis of quantitative data and morphological analysis, we shall argue for a view to the contrary. Masculine nouns and feminine nouns differ systematically from each other in regard to their stem-internal vocalic melody. To be more specific, masculine nouns do not show any restriction of their vocalization patterns, whereas feminine nouns are heavily constrained in this regard. This will lead us to the conclusion that the feminine gender exponence is to be sought in the templatic structure of feminine nouns.

2.1. Data Collection and Statistics

The morphological analysis of engendered nouns we are about to embark on is based on a near-exhaustive survey of Westendorf's (1965/1977) comprehensive etymological dictionary, *Koptisches Handwörterbuch*. Problematic cases were rechecked with other dictionary sources (Crum 1939; Kasser 1964) and, where appropriate, with historical-comparative works (Fecht 1960; Osing 1974). For the purpose of the present study, only freestanding noun lexemes were considered. We thus excluded Noun–Noun and Noun–Adjective compounds, in which the head noun occurs in a phonologically reduced construct state form. As for noun borrowings, Semitic loans were included, while Greek nouns were systematically excluded, even if they belong to a more ancient layer of cultural borrowings. In contrast to Semitic borrowings, phonologically adapted Greek-origin nouns and adjectives never made it into the recipient language's root-and-pattern system. Our sample size comprises a total of 931 Sahidic noun lexemes. For a small portion of the lexicon, we lack sufficient philological evidence to determine the gender value of the relevant items. This furnishes a rest category of 57 nouns of unknown gender, which makes up a little more than 6% of the sample. Excluding this rest category reduces the total sample size to 874 items. Table 6 gives the break-down of the different groupings.

TABLE 6. Distribution of noun lexemes among genders (N = 874)

	CATEGORIES	TOKENS	PERCENTAGE	EXAMPLES		
(i)	Masculine nouns	477	54.6%	ⲃⲏⲪ	βɛkj	falcon
(ii)	Feminine nouns	276	31.6%	ⲡⲓⲧⲈ	pi:te	bow
(iii)	Epicene nouns	14	1.6%	ⲭⲐⲈⲒⲘ	tʰɔjs	lord/mistress
(iv)	Inflectional gender pairs	58	6.6%	ⲘⲐⲚ/ⲘⲐⲚⲈ	sɔn/so:ne	brother/sister
(v)	Ambigendered nouns	49	5.6%	ⲈⲣⲱⲧⲈ ¹⁶	ero:te	milk

An eye-catching result of our quantitative research is that masculine nouns outnumber feminine ones. This asymmetry becomes even clearer once we add epicene nouns to masculine nouns. We collected a total of 29 inflectional gender pairs, which makes up 58 items. A small portion comprises so-called ambigendered nouns, for which both genders are attested, albeit with different frequencies of occurrence. We suspect this variation to be due to an ongoing process of gender switch. The exclusion of ambigendered nouns leaves us with a total sample size of N = 825 tokens. Table 7 illustrates the ratio between grammatically masculine and feminine nouns:

TABLE 7. The ratio between masculine and feminine nouns (N = 825)

GENDERED NOUNS	TOKENS	PERCENTAGE
Masculine nouns	520	63%
Feminine nouns	305	37%

¹⁶ Steindorff (1884: 5 §2 note 1) already noted the ambigendered nature of the food item ⲈⲣⲱⲧⲈ /ero:te/ 'milk'. According to Brunsch (1983: 124 (II.4)), the unambiguously feminine cognate *irt.t* (< *irt.t*) is well documented in Demotic.

We present a basic taxonomy of form classes that engendered nouns can be assigned to. To the already familiar class I and class II, we add a third class of consonant-final nouns (class III). Table 8 shows the token frequency of feminine nouns across the three principal noun classes.

TABLE 8. The distribution of feminine nouns among noun classes I–III (N = 305)

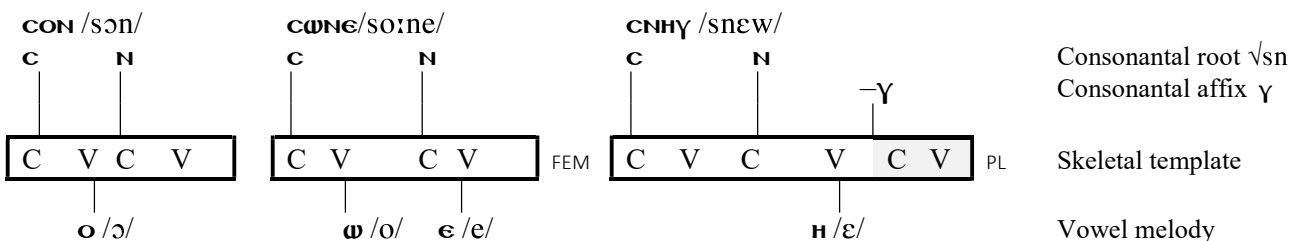
CLASSES OF FEMININE NOUNS	TOKENS	PERCENTAGE	EXAMPLES
Class I with final vowel -ε /-e/	183	60%	CHQE sɛ:fe sword
Class II with final vowel -ω /-o:/ and -η /-ɛ:/	84	27.5%	CBΩ sβo: doctrine
Class III with final consonant	38	12.5%+7	COM kɔm power

The quantitative evidence is difficult to reconcile with an analysis in which feminine nouns are morphologically derived from a masculine base. If feminine suffixation were still a productive process in Coptic, one would expect, contrary to fact, a more even distribution of gendered nouns. In reality, there is an asymmetric distribution between masculine and feminine nouns (Table 7). Comparing the morphological classes in which feminine nouns can appear, we observe another asymmetry that exists between the extensive noun class I, which could in principle be analyzed in terms of feminine suffixation, and noun class II and class III, which couldn't (Table 8).

2.2. Theoretical Assumptions about Templatic Morphology

In order to further understand the observed frequency distributions, we shall first introduce some background assumptions on non-concatenative templatic morphology. Our analysis is broadly situated within the framework of autosegmental phonology, in which the quantitative and qualitative properties of segments are represented on distinct phonological tiers, viz. the skeletal and the segmental tier (Goldsmith 1990). McCarthy (1981) applied the non-linear representations of autosegmental phonology to the study of Semitic root-and-pattern systems, in which morphological operations are not concatenative, but rather involve the association of consonants and vowels to fixed shaped structures known as templates (see Lowenstamm 2003 for a review). We furthermore adopt the CV theory of syllable structure, according to which onset and nucleus are the only two syllabic constituents, which strictly alternate. Viewed from this perspective, a template is a sequence of consonant–vowel positions. General principles of grammar will determine whether consonantal and vocalic positions are associated with segmental material or left unrealized (Lowenstamm 1996; Guerssel and Lowenstamm 1996). When these theoretical assumptions are applied to the case at hand, paradigmatically related forms, such as **CON** /sɔn/ ‘brother’, **CΩNE** /so:ne/ ‘sister’, and **CNHY** /snɛw/ ‘brethren’ (Crum 1939: 342b–343a) are represented in Figure 2.

FIGURE 2. The templates of gender/number inflected nouns

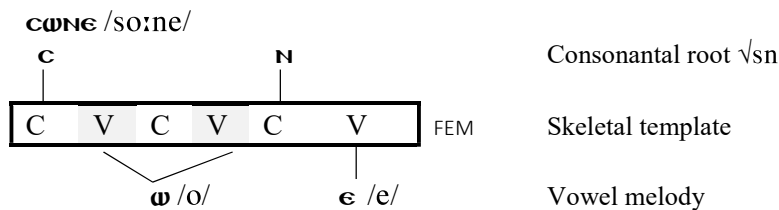


These nouns share a common consonantal root, \sqrt{sn} , which is represented on its own level. The two root consonants are associated to the consonantal positions of the skeletal template in a one-to-one fashion, proceeding in canonical association procedure from the left to the right. Paradigmatically related forms are distinguished in terms of their vowel melody. As with root consonants, the one-to-one association of the vowels to the vocalic positions of the template proceeds from the left to the right. The masculine noun **CON** /sɔn/ has the mid-low back vowel **o** /ɔ/ in the stressed vowel position between the first and the second root consonant. The corresponding feminine noun **CΩNE** /so:ne/ has the mid-high

back vowel ω /o/ in the stressed vowel position, while the mid-high front vowel ϵ /e/ occupies the unstressed final syllable position. In the plural form **CNHY**, the stem vowel must be specified as being located after the second root-consonant. Finally, the plural suffix $-\gamma$ /-w/ is associated to the final consonantal slot of the template. It is represented at a specific level, making its affixal status explicit.

The non-linear phonological representations of the above kind capture important generalizations about the internal structure of nouns. First, the masculine and feminine term of the inflectional gender pair, **CON** /sɔn/ and **CONE** /so:ne/, share the same root as well as the same CVCV template, but differ from one another in terms of their vowel melody. Second, the template of the plural noun **CNHY** /snɛw/ contains an additional CV unit to host the plural suffix $-\gamma$ /-w/, which forms a diphthong **HY** /ɛw/ with the stressed lexical vowel **H** /ɛ/. Note that the representations abstract away from vocalic length. The long vowel /o:/ in **CONE** /so:ne/ would be represented by associating a single vowel with two vowel positions, as illustrated in Figure 3.

FIGURE 3. The template of feminine nouns with word-internal stressed stem vowel



We call attention for the non-phonemic status of long vowels. The Coptic stress system is one of Tonic Lengthening, in which stressed vowels in open syllables are automatically lengthened. The short–long quantity distinction of vowels is conditioned by stress, and, as such, it is not part of the underlying vowel system.¹⁷ For this reason we will abstract away from (stress-induced) length in the representations to follow.

2.3. An Unexpected Asymmetry between Masculine and Feminine Nouns

The arguments against a morphological derivation of feminine nouns from masculine nouns presented in section 2.1 can be made even bolder. If feminine nouns were morphologically derived from masculine nouns by means of simple affixation, one would predict that masculine (suffix-less) nouns and (suffixed) feminine nouns share the same vocalism.

This prediction is not borne out by the evidence. As shown in Table 9 for biliteral nouns, the vocalization of CVCe feminine nouns strikingly differs from that of CVC masculine nouns. More than 50% of feminine CVCe nouns have a front vocalization /ɛ/ or /i/, while a front vocalization is attested in less than 25% of CVC masculine nouns. 75% of masculine nouns have a back vowel /a/, /ɔ/, /o/ or /u/.

¹⁷ Peust (1999: 213–215) also draws a connection between stress assignment and vowel length. However, he claims that vowel length is phonologically contrastive and expressed by the double writing of the stressed vowel. We adopt an alternative analysis according to which Coptic Egyptian is a language with Tonic Lengthening, with syllabic conditioning: all stressed vowels undergo lengthening in open syllable. This analysis makes it possible to account, among others, for Peust’s (1998: 215–216) observation that short final stressed vowels in Akhmîmic closely resemble long stressed vowels in open syllables. Vowels in stressed final open syllables must simply undergo lengthening. Our analysis also diverges from Hintze’s (1980: 49) and Loprieno’s (1995: 49–50) view that stressed final open syllables are underlyingly closed by a glottal stop [Vʔ], whose loss triggers compensatory lengthening. However, the presence of such a syllable-closing glottal stop remains a stipulation. The alternative analysis we endorse here is not only more general and comprehensive, but it is also well-supported by the typological facts (see, for instance, Lahiri and Dresher 1999 for open syllable lengthening in Germanic).

TABLE 9. Vocalization in CVCe feminine nouns and CVC masculine nouns

STEM VOWEL		FEMININE NOUNS (N = 72)					MASCULINE NOUNS (N = 138)				
FRONT	η /ɛ/	25	34.7%	CHQE	se:fe	sword	15	10.9%	BH6	βeki	falcon
	ει /i/	15	20.8%	ΠITE	pi:te	bow	18	13%	BIP	βir	basket
	ε /e/	1	1.4%	EME ¹⁸	ʔe:me	hoe	1	0.7%	NE2	neh	oil
BACK	α /a/	9	12.5%	2AME	ha:me	pole	45	32.6%	PAN	ran	name
	ο /ɔ/	9	12.5%	2OTE	hɔ:te	fear	30	21.7%	CON	sɔn	brother
	ω /o/	8	11.1%	CONE	so:ne	sister	21	15.2%	EIOT	jot	father
	ογ /u/	5	6.9%	NOYNE	nu:ne	root	8	5.8%	KOYP	kur	pivot

The different vowel distribution in CVC masculine and CVCe feminine nouns cannot be explained by a regular sound change triggered by the e-suffix. This suggests that feminine nouns are not derived from a masculine base via suffixation. Consequently, nouns appearing in gender pairs such as **CON** /sɔn/ ‘brother’ ~ **CONE** /so:ne/ ‘sister’ are formed independently from each other. They are both directly derived from the consonantal root, in our case √sn ‘second, sibling’. The root itself is left unspecified for gender. Instead, the domain of gender assignment is to be sought in the nominal template.


2.4. Class I Feminine Nouns

Against this background, we can now explore in further detail the template of feminine nouns starting with the extensive class I, cf. Table 10.¹⁹

TABLE 10. Vowel distributions in biliteral class I nouns [CVCe]

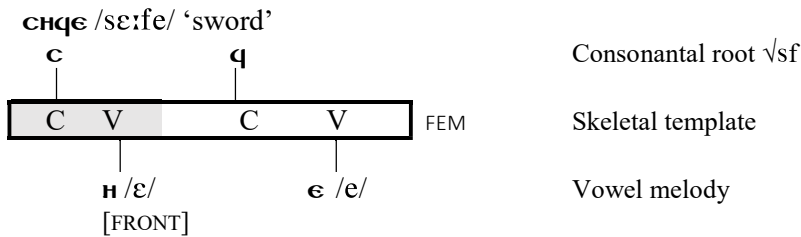
STEM VOWEL		FEMININE NOUNS (N = 72)					MASCULINE NOUNS (N = 53)				
FRONT	η /ɛ/	25	34.7%	CHQE	se:fe	sword	13	24.5%	MHZE	mɛ:he	plume
	ει /i/	15	20.8%	ΠITE	pi:te	bow	5	9.4%	CIQE	si:fe	tar
	ε /e/	1	1.4%	EME	ʔeme	hoe	3	5.7%	BEKE	beke	wage
BACK	α /a/	9	12.5%	2AME	ha:me	pole	13	24.5%	XAXE	t ^h at ^h e	foe
	ο /ɔ/	9	12.5%	2OTE	hɔ:te	fear	7	13.2%	NOBE	nɔ:βe	sin
	ω /o/	8	11.1%	CONE	so:ne	sister	8	15.1%	POME	ro:me	man
	ογ /u/	5	6.9%	NOYNE	nu:ne	root	4	7.6%	NOYTE	nu:te	god

More than 55% of feminine CVCe nouns demonstrate a stressed front vowel η /ɛ/ or (ε)ι /i/. This is coherent with the observations in section 2.3. The representation of **CHQE** /se:fe/ ‘sword’ (Crum 1939: 379a) is given in Figure 4:

¹⁸ Spiegelberg (1921: 4, 25) regards the variant **AME** as the citation form, which he believed to be cognate with Middle Egyptian *mr*  [Sethe]. Crum (1939: 55b) compares **EME** to Greek ἄμη ‘shovel’, although **AME** would be a better fit.

¹⁹ Our database includes vowel-initial nouns such as **APTE** /ʔa:pe/ ‘head’ (Crum 1939: 13b) and **AME** /ʔame/ ‘hoe’ (Crum 1939: 55b), whereby the α /a/-vocalization is contextually determined by the presence of a word-initial glottal stop /ʔ/. The phonemic status of the glottal stop /ʔ/, which is not expressed by a letter, is generally well supported by the etymological evidence. In the case of **APTE** /ʔa:pe/ ‘head’, the Demotic cognate *p.t* has an initial voiced pharyngeal fricative /ʕ/, whereby the merger of /ʕ/ and /ʔ/ took place in transitional period from Late Demotic to Coptic (e.g., Hintze 1980: 39, 48–50; Loprieno 1995: 41). Peust (1999: 96–97 and footnotes 87–89) rejects the idea of a word-initial glottal stop /ʔ/ on the grounds that “there is no clear evidence for positing a phoneme /ʔ/ in Coptic”. However, the inter- and intradialectal evidence clearly shows that in word-initial position, the glottal stop /ʔ/ may vary with voiceless fricative /h/—a variation that can be accounted for in terms of an optional lenition rule (h → ʔ/_V). Some representative examples are the following: **2AKO**^S /hakɔ:/ ~ **AXO**^B /ʔak^hɔ:/ [MASC.] ‘magician’ (Crum 1939: 662b); **2ATPE**^S /hatre/ ~ **ATPE**^B /ʔatre/, **APPE**^B /ʔat^hre/ [MASC.] ‘twin’ (Crum 1939: 726b); **2ABOYEI**^{S,B} /haβuj/ ~ **ABOYI**^B /ʔaju/ [PLUR.] (?) ‘wasp’ (Crum 1939: 660b); **2OYZE**^S /hu:he/ ~ **OYZE**^S /ʔu:he/ [MASC.] ‘untimely birth’ (Crum 1939: 739b–740a); **AC**^S /ʔas/ ~ **EC**^L /ʔes/ ~ **ZE**^F /hes/ [ADJ.] (Crum 1939: 17a; Kasser 1964: 3b–4a [AC 17a]).

FIGURE 4. The template of biliteral feminine nouns [CVCe]



The picture changes dramatically in class I trilateral nouns, which have several templates at their disposal. We shall begin with CVCCe nouns. In contrast to the front vocalization characteristic of CVCe feminine nouns, 76.4% of CVCCe feminine nouns have a back vowel α /a/ or \omicron /ɔ/; cf. Table 11.

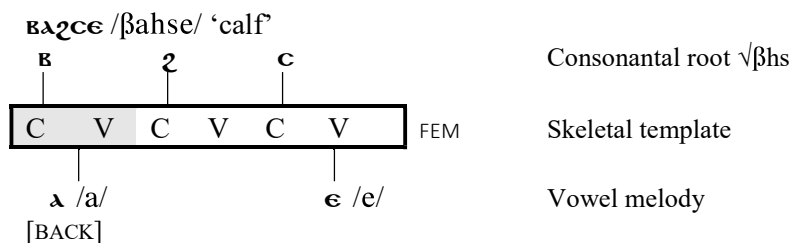
TABLE 11. Vowel distributions in class I trilateral nouns [CVCCe]

STEM VOWEL	FEMININE NOUNS (N = 73)			MASCULINE NOUNS (N = 17)							
FRONT	H /ε/	2	2.7%	ⲙⲏⲩⲧⲈ	mɛʃte	ford	0				
	Ⲉ /i/	1	1.4%	ⲃⲓⲗⲧⲓ	βilti	thighs	1	5.9%	ⲧⲓⲙⲈ	tihme	vessel
	Ⲉ /e/	7	9.6%	ⲕⲈⲗⲧⲈ	kehte	hip	0				
BACK	α /a/	24	32.9%	ⲃⲀⲗⲒⲈ	βahse	calf	6	35.3%	ⲩⲁⲗⲧⲈ	fafte	impious
	\omicron /ɔ/	19	26%	ⲃⲐⲎⲧⲈ	βonte	gourd	5	29.4%	ⲒⲐⲎⲧⲈ	sonte	resin
	ⲩ /o/	0					0				
	ⲟⲩ /u/	1	1.4%	ⲗⲟⲩⲈⲓⲧⲈ	hujte	first	0				
CENTRAL	/ə/	13	17.8%	ⲗⲣⲧⲈ ²⁰	hərte	fear	2	11.8%	ⲗⲎⲕⲈ	hænke	beer
		6	8.2%	ⲕⲗⲗⲈ	kølle	bolt	3	17.7%	ⲗⲃⲃⲈ	təββe	plough

Almost ten percent of these nouns [9.6%] has the mid-high front vowel ϵ /e/. At first sight, this looks as if CVCCe feminine nouns would select front vowels. However, it must be kept in mind that ϵ /e/ regularly alternates with schwa /ə/. As a result, we are left with only three cases of a bona fide front vocalization: **ⲙⲏⲩⲧⲈ** /mɛʃte/, its variant **ⲙⲏⲩⲧⲈ** /mɪʃte/ ‘ford’ (Crum 1939: 207) and the residual feminine dual noun **ⲃⲓⲗⲧⲓ** /βilti/ (Crum 1939: 38b; see also Fecht 1960: 230 §429 for the preservation of the original dual ending).

We furthermore call attention to the different token frequency of CVCCe masculine [N=17] and feminine nouns [N=73] in the corpus. In other words, feminine nouns outnumber masculine ones by a ratio of 4/1. Elaborating on this point, we may assume that the vast majority of class I nouns with CVCCe template have feminine gender and the α /a/ ~ \omicron /ɔ/ vocalization manifests a templatic restriction.

FIGURE 5. The template of trilateral feminine nouns [CVCCe]



²⁰ Earlier work on Coptic phonology argued that the sonorant consonants, viz. the nasals **Ⲏ** /n/ and **ⲙ** /m/ and the liquids **ⲣ** /r/ and **ⲗ** /l/ as well as the voiced bilabial fricative **ⲃ** /β/ could directly be inserted in the nucleus position of the syllable—whence the term “syllabic consonant” (inter alia: Polotsky 1933: 128–129; Worrell 1933: 131; Nagel 1965: 76–77; Peust 1999: 263–268). This theory does not account for the alternation observable in examples such as **ⲧⲃⲧ** /təβt/ ~ **ⲧⲃⲧ** /teβt/ [MASC.] ‘fish’ (Crum 1939: 401b; Kasser 1964: 63a [ⲧⲃⲧ 401b]) and **ⲒⲎⲧ** /fənt/ ~ **ⲒⲎⲧ** /fent/ ~ **ⲟⲩⲎⲧ** /went/ [MASC.] ‘worm’ (Crum 1939: 623b). These variants favor an analysis according to which Coptic sonorants are preceded by a vocalic nucleus, which may be realized as a vowel schwa /ə/ or by the mid-high front vowel ϵ /e/. We extend this analysis to nouns with sonorant doubling, such as **ⲕⲗⲗⲈ** /kølle/ [FEM.] ‘bolt’ (Crum 1939: 103b–104a).

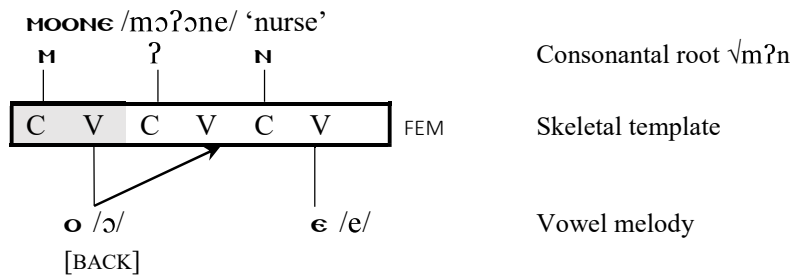
A small-sized class of feminine nouns superficially looks like biliteral nouns with CVCe template, except for the double written vowel. However, as shown by Table 12, members of this class display a strong preference for the back vowels α /a/, \omicron /ɔ/ and ω /o/, as we have just observed for CVCCe nouns.

TABLE 12. Vowel distributions in hollow trilateral nouns showing a medium glottal stop [CV?VCe]

STEM VOWEL		FEMININE NOUNS (N = 26)					MASCULINE NOUNS (N = 14)				
FRONT	η /ɛ/	1	3.9%	ΤΗΗΚΕ	teʔεβε	finger	2	14.3%	ΜΗΗΦΕ	μεʔεσε	crowd
	ει /i/	0					1	7.1%	ΧΙΕΙΡΕ ²¹	tʰiʔire	rod
	ε /e/	5	19.2%	ΦΕΕΡΕ	ʃeʔere	daughter	0				
BACK	α /a/	6	23.1%	ΡΑΑΡΕ	raʔare	sow	3	21.4%	ΜΑΑΧΕ	maʔatʰe	ear
	ο /ɔ/	10	38.5%	ΜΟΟΝΕ	mɔʔone	nurse	4	28.6%	ΚΟΟΝΕ	sɔʔone	robber
	ω /o/	4	15.4%	ΤΩΩΜΕ	toʔome	purse	4	28.6%	ΧΩΩΜΕ	tʰoʔome	sheet
	ογ /u/	0					0				

This parallelism cannot be an accident. We propose that CVVCe nouns are underlyingly CV?Ce. As shown by Figure 6 the vowel propagates across the glottal stop (Reintges 1998).²² This is an instance of the widely attested process of guttural transparency: /mɔʔne/ → /mɔʔone/.

FIGURE 6. The template of hollow trilateral feminine nouns showing a medium glottal stop [CV?VCe]



The second group of class I trilateral nouns is characterized by a CCVCe shape. Only feminine nouns are attested in this group.²³

²¹ Peust (1999: 214 note 241) analyses **ΧΙΕΙΡΕ** ‘rod’ as a trisyllabic noun /ciʰirə/, since there is a double vowel in the Bohairic cognate **ΧΙΡΙ** (Crum 1939: 782a). Normally, Bohairic simplifies sequence of intervocalic glottal stop VʔV → V̄.

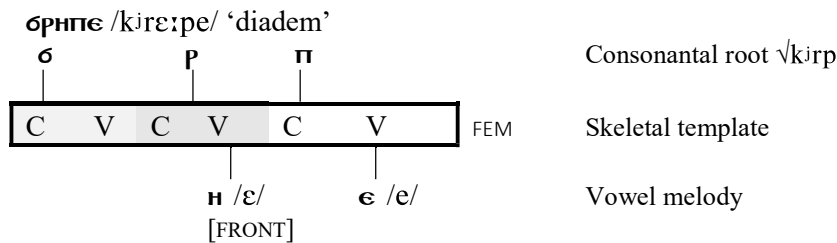
²² Peust (1999: 214) maintains that the double writing of vowel letters indicates phonologically distinctive vowel length, e.g. **ΒΟΟΒΕ** (variant of **ΒΟΟΝΕ**) ‘bad’ [FEM.] (Crum 1939: 39b) is analyzed as /βɔ:βə/. This analysis is misguided in two respects. First, it does not address the question of why the lengthening of the stressed open penultimate syllable in examples like **ΚΩΝΕ** /so:ne/ (Crum 1939: 343b) is hardly ever rendered as **ΚΩΩΝΕ** (Kasser 1954: 55b [CON 342b] **ΚΩΩΝΕ** S_{VI})—a non-literary Sahidic and perhaps misspelled variant of the standard form **ΚΩΝΕ**. Secondly, Schenkel (2003: 40 footnote 116) points out that in good Sahidic manuscripts, the digraph **ογ** /u/ and **ει** /i/ are never separated at a line break as **ο-γ** and **ε-ι**. But this is exactly what happens with double written **οο**, which can be separated by a line break. This strongly suggests that the doubled vowel letters are not digraphs for long vowels, but express a sequence of two distinct phonemes, viz. a broken glottal vowel.

²³ The sole exception might be **ΖΤΟΟΥΕ** /htɔ:we/ ‘dawn’ (Crum 1939: 727b; Kasser 1960: 103a [ΖΤΟΟΥΕ 727b]), whose etymology and word-internal structure is poorly understood. Fecht (1960: 112 footnote 346) contemplates a relation with an unattested phrasal idiom *ḥd-tʰ.wj (‘becoming bright of the two countries’) as a variant of **ḥd-tʰ** ‘morning’ (lit. ‘becoming bright of the country’), reconstructed as *ḥēd-taʰ. However, as the author himself points out, the idiom **ḥd-tʰ** is not attested in the extant Demotic and Coptic language documentation. For now, we must leave this an open question.

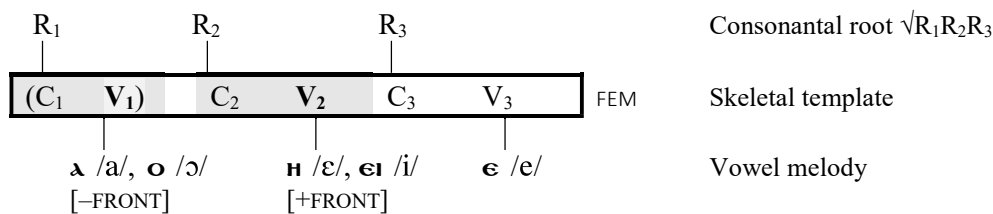
TABLE 13. Vowel distributions in trilateral class I nouns with initial consonant cluster [CCVCe]

STEM VOWEL		FEMININE NOUNS (N = 12)				
FRONT	η /ɛ/	6	50%	ΚΡΗΠΕ	kɪrɛ:pe	crown
	ει /i/	1	8.3%	ΣΙΜΕ	ʃi:me	woman
	ε /e/	0				
BACK	α /a/	0				
	ο /ɔ/	0				
	ω /o/	4	33.3%	ΝΤΩΡΕ	ɛnto:re	goddess
	ογ /u/	1	8.3%	ΣΜΟΥΝΕ	smu:ne	Nile goose

In having slightly more than 50% of front vowels, CCVCe feminine nouns are reminiscent of biliteral CVCe feminine nouns. In this respect CCVCe nouns can be seen as augmented variants of CVCe feminine nouns, with an added CV unit at the left edge of the template. Marginal as it may be, the CCVCe template is of special interest for our concerns here. On the one hand, it provides a clear example for a gender-marked template, which excludes the unmarked masculine gender. On the other hand, CCVCe represents an expanded version of the common CVCe template.

FIGURE 7. The template of trilateral feminine nouns with initial consonant cluster [CCVCe]

To summarize, class I comprises a bewildering diversity of surface forms. However, when these are subjected to closer scrutiny, a more systematic patterning emerges. The template of biliteral CVCe and trilateral CCVCe feminine nouns is characterized by the presence of a front vowel η /ɛ/ or (ε)ι /i/ in the penultimate CV position. By contrast, sound trilateral CVCCe and hollow trilateral CV?Ce feminine nouns show a predilection for the back vowels ο /ɔ/ and α /a/. These observations argue in favor of a unified template for class I feminine nouns. This template is morphologically marked for gender, and must therefore be feminine.

FIGURE 8. The unified gender-marked template of class I feminine nouns

The unified gender-marked template of class I feminine nouns captures the following generalizations. Firstly, their template contains maximally three CV positions, where the antepenultimate CV is optional. This position is only available for trilateral roots, which require a larger template to accommodate all of their segmental material. Secondly, the unified gender-marked template can be divided into two domains, each with a different vocalization. The penultimate CV position hosts the front vowels η /ɛ/ and ει /i/, and the optional antepenultimate CV position the back vowels α /a/, ο /ɔ/ and ω /o/. Front vowels are not licensed in this domain. The final CV position hosts word-final ε /e/. Finally, 138 [75.4%] class I nouns directly fit in the unified gender-marked template. This is, we think, enough to consider the above generalizations to be empirically valid.

TABLE 14. The empirical coverage of the unified gender-marked template

STEM VOWEL		CLASS I FEMININE NOUNS (N = 183)			
		CVCe (N = 72)	CVCCe (N = 73)	CVʔVCe (N = 26)	CCVCe (N = 12)
FRONT	ⲏ /ɛ/	25	2	1	6
	ⲉⲓ /i/	15	1	0	1
	ⲉ /e/	1	7	5	0
BACK	ⲁ /a/	9	24	6	0
	ⲟ /ɔ/	9	19	10	0
	ⲡ /o/	8	0	4	4
	ⲟϥ /u/	5	1	0	1
CENTRAL	/ə/		19		

2.5. Class II Feminine Nouns

Taken by face value, noun class I and II look very much alike in having a final vowel. On closer inspection, however, the two could not be more different in terms of their templatic structure. In class I nouns, the final vowel is unstressed, while it is stressed in class II nouns. This accentual difference gives rise to near-minimal pairs, such as *ⲥⲁⲧⲉ* /sá:tɛ/ ‘fire’ [FEM] (Crum 1939: 360a) and *ⲥⲁⲃⲉ* /saβé:/ ‘wise person’ [MASC] (Crum 1939: 319a). The accentual paradigm of class II nouns has received ample scholarly attention. Yet, it has rarely been discussed from the perspective of synchronic morphophonology. Consider first the CVCV class II nouns, which are given in Table 15.

In word-initial syllable, the inventory of Coptic unstressed vowels is restricted to *ⲁ* /a/, *ⲉ* /e/ and *ⲟϥ* /u/ (Peust 1999: 251). In CVCV class II nouns, these vowels are ordered on the following frequency scale: *ⲁ* /a/ > *ⲉ* /e/ > *ⲟϥ* /u/. No particular restriction on vowel distribution can be observed: out of 39 feminine nouns, 17 have a front vowel. This distribution is comparable to masculine nouns, with 8 out of 19 items having a front vowel.

TABLE 15. Vowel distributions in biliteral CVCV class II nouns

STRESSED VOWEL		FEMININE NOUNS (N = 39)					MASCULINE NOUNS (N = 19)				
FRONT	h /ɛ/	17	43.6%	خامه ²⁴	tʰameː	calm	0				
				سابه	saβeː	wise woman					
	eɪ /i/	0					0				
	ε /e/	0					8	42.1%	سابه ²⁵	saβeː	wise man
								زايه ²⁶	hajeː	last	
								تعيه ²⁷	tefeː	neighbor	
BACK	ɑ /a/	1	2.6%	اراه ²⁸	ʔaraː	chain?	1	5.3%	اراه ²⁹	ʔaraː	guardian
	o /ɔ/	2	5.1%	كالو	salɔː	basket	5	26.3%	راكو ³⁰	hakɔː	magician
				ارو ³¹	ʔarɔː	vessel					
	ɔ /o/	14	35.9%	ساتو ³²	satoː	fan	0				
	ou /u/	5	12.8%	ماتو ³³	matuː	poison	5	26.3%	پاهو ³⁴	pahuː	buttocks
			ونو	unuː	hour			فوفو ³⁵	ʃɔʃuː	jar	

Since the accentual patterns of noun classes I and II are not on an equal footing, we might as well acknowledge the possibility of explaining the exceptional stress behavior of class II nouns as the outcome of a historical stress-shifting process. As noted in the historical-comparative literature (e.g., Steindorff 1951: 64–65 §120; Fecht 1960: 219–220 §§446–447; Osing 1976: 97–106, 235–242), the shift from penultimate to ultimate stress affected a variety of adjectives, passive participles, and nomina agentis. Word-final stress conditioned vowel reduction in the unstressed penult. This stress pattern persisted in Coptic. As a result, class II nouns behave synchronically as if they were still bimorphemic, consisting of a lexical noun stem and a stress-attracting inflectional suffix, whose meaning is no longer transparent. As a consequence, the quality of the stress-attracting vowel is unpredictable and must be specified on an item-by-item basis.

²⁴ Osing (1976: 99) derives خامه ‘calm’ (Crum 1939: 770b) from a reconstructed *šadūm.ut adjective formation: *damē(y).t (< Dem. *dm* ‘to be calm’). Another case in point is واهه /ʃameː/ [FEM] ‘summer’ (Kasser 1964: 85b [564b ووم]): *šamē(y).t (< *šm* ‘to be hot’).

²⁵ Osing (1976: 238, 411 note 89) analyses the gender pair سابه /saβéː/ ~ سابه /saβéː/ ‘wise male/female person’ (Crum 1939: 319a) as being historically derived from a reconstructed *šadmiw passive participle formation: *šabīw [originally meaning ‘educated’; cf. Fecht 1960: 219 §446 note 631] → *šabīē’ → سابه [*šabīē’ > سابه].

²⁶ The masculine and feminine terms of the pair زايه /haʔeː/, زايه /hajeː/ ~ زاه /haʔeː/, زاه /hajeː/ ‘last’ (Crum 1939: 635a; Kasser 1964: 93b–94a [زايه 635a]) have variants with a word-internal glottal stop /ʔ/ or a glide /j/. Osing (1976: 238, 411 note 89) derives زاه(i)ه historically from a reconstructed *šadmiw passive participle: *hāʕīw [originally meaning ‘abandoned, left behind’; cf. Fecht 1960: 219–220 §446 note 633] → *hāʕīy → *hāʕīē’ → زاه(i)ه.

²⁷ Fecht (1960: 219 §446) and Osing (1976: 311, 410 note 89) derive تعيه /tefeː/ ‘neighbor’ (Crum 1939: 452b) from a nisbe-adjective *tβ(a)šē(j) (< *tβ* [*tβāš] ‘border, limit’; cf. توو^S ~ تاو^A ‘border, limit’ (Crum 1939: 451b).

²⁸ The feminine noun اراه /ʔaraː/ ‘chain’ (meaning doubtful) is not listed in Westendorf’s (1965/1977) dictionary. Crum (1939: 14b) (l.c.) suspects a connection with Bohairic اراه ‘door-ring’, which is, however, grammatically masculine.

²⁹ The administrative term اراه /ʔaraː/ ‘guardian’ is mainly found in Theban legal documents (Crum 1939: 14b). Osing (1976: 396–397 note 82) proposes the ancient title *jrj-cʕ* ‘door-keeper’ as a cognate. After the merger between the pharyngeal voiced fricative /ʕ/ and the glottal stop /ʔ/, the deletion of the word-final glottal stop triggered compensatory vowel lengthening: *ʔar-ʕāʔ → *ʔar-ʔāʔ → *ʔarāʔ → *ʔarāː. Fecht (1960: 104–105 §197) also contemplates the possibility of a word-final *ayin* /ʕ/: *arāʕ.

³⁰ Osing (1976: 168, 483 note 152, 705 note 810) derives the stressed final vowel o /ɔ/ in راکو /hakɔː/ ‘magician’ (Crum 1939: 662b) from a deverbal nominal ending. The appearance of the vowel ɑ /a/ may be contextually determined by the word-initial glottal fricative ʔ /h/ (see Polotsky 1933: 126; Osing 1976: 27; Peust 1999: 252).

³¹ The hapax legomenon ارو ‘vessel’ (Crum 1939: 15a) has a variant اروو, presumably misspelled from a non-attested form *اروو. Osing (1976: 768–769 note 934) suggests the Late Egyptian household term *jr* ‘jr-vessel’ as a cognate.

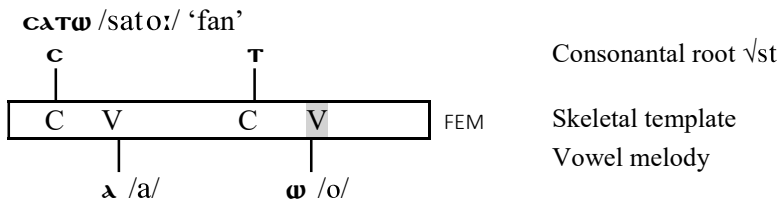
³² Osing (1976: 171, 681 note 764) derives ساتو /satoː/ (Crum 1939: 360a) from a reconstructed nomen agentis šadmiw, which itself is based on an active participle: *šadā(y).t. Although phonologically possible, the suggested etymology (< caus. 2lit *šdβ* ‘to tremble’) is not entirely satisfactory.

³³ The stressed final vowel in ماتو^S /matuː/ surfaces as a glide /w/ in the ماتو^S /mátwe/ and ماتو^B /mátwi/, which are thus transformed into class I feminine-gendered nouns (Peust 1999: 256).

³⁴ Cf. Steindorff (1951: 71 §135c) and Osing (1976: 220) for the originally DU.MASC form of پاهو /pahuː/ (< *pāh.wβj).

³⁵ The unstressed back mid-low vowel o /ɔ/ in فوفو /ʃɔʃuː/ and فووو /ʃɔʃɔː/ ‘jar’ (Crum 1939: 609a) is highly exceptional. Conversely, the variant واهو /ʃaʃuː/ conforms to the standard CaCV template in this class.

FIGURE 9. The template of in biliteral class II feminine nouns with semi-suffixal stressed final vowel [CVCV]



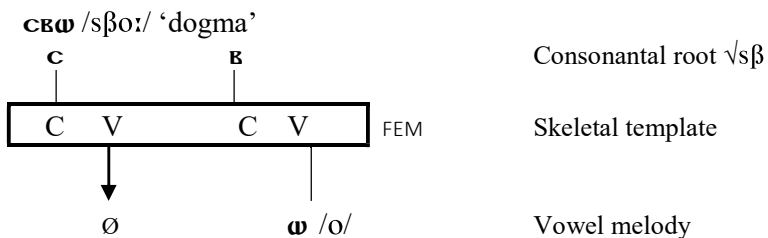
The deletion of the short vowel in the unstressed open initial syllable leads to the creation of another class of nouns, which are presented in Table 16. The main point of notice is that these nouns have an initial C_1C_2 cluster, where C_2 is a sonorant /n m r l/ or a fricative /β f/.

TABLE 16. Vowel distributions in biliteral class II nouns with initial CC cluster [CCV]

STEM VOWEL	FEMININE NOUNS (N = 33)						MASCULINE NOUNS (N = 34)					
FRONT	h/ε/	7	21.2%	σμη	smɛ:	voice	1	2.9%	ψλη	flɛ:	spirit	
	ei/i/	1	3%	χρι	tʰri:	ladle	1	2.9%	κρι	kri:	oil	
	ε/e/	3	9.1%	κμε	kme:	dusk	10	29.4%	ψχε ³⁶	ʃtʰɛ:	locust	
BACK	α/a/	3	9.1%	πρα	kʰra:	leg	10	29.4%	νηα	ɔnka:	thing	
	ο/ɔ/	2	6.1%	ολο	kʰlɔ:	gourd	10	29.4%	κρο	krɔ:	shore	
	ω/o/	16	48.5%	σβω	sβɔ:	dogma	1	2.9%	ογρω ³⁷	wro:	bean	
				ζρω	hfo:	snake						
	ογ/u/	1	3%	ωμογ	ʃmu:	peg	1	2.9%	ζμογ	hmu:	salt	

Unstressed vowel deletion and concomitant onset cluster formation in CCV nouns triggers the restructuring of the template. In this configuration, the stressed vowel acts as a bona fide stem vowel. Back vowels are slightly more numerous, irrespective of the gender contrast: 66.7% of feminine nouns and 64.6% of masculine nouns have a back vowel.

FIGURE 10. The template of in biliteral class II feminine nouns with semi-suffixal stressed final vowel [CaCV]



In the absence of quantity sensitivity in the grammar, historical stress shift is expected to have indistinctly affected penultimate CV in class II biliteral CVCV nouns and penultimate CVC in class II trilateral CVCCV nouns. This expectation is indeed borne out. As shown by Table 17 for class II trilateral nouns, the unstressed vowel appearing in the penult CVC may be reduced to schwa or /e/.

³⁶ The classification presented here is not entirely straightforward. Out of 10 items with final ε/e/ (<χε/ʃtʰɛ:/ 'locust'; <νε/ʃne:/ 'net'; <κε/sβɛ:/ 'door'; <με/kʰme:/ 'gardener'; <νε/tʰne:/ 'beet'; <γε/kʰie:/ 'he-goat'; <πε/tre:/ 'wheel (?)'; <ογε/ʃwe:/ 'persea tree' [variant of <η(η)β (Crum 1939: 603a)]; <τε/ʃte:/ 'mast'; <λαε/kle:/ 'vessel for liquids'), 8 items have variants with a word-final vowel h/ε/ (<νη/ʃne:/, <νη/tʰne:/, <μη/kʰme:/, <μη/kʰie:/, <πη/tre:/, <ογε/ʃwe:/, <θη/ʃte:/). Cf. also the Fayyûmic variant <βη/sβɛ:/ (Crum 1939: 321b) and the Bohairic variants <λη/kle:/ and <χη/kʰɛ:/.

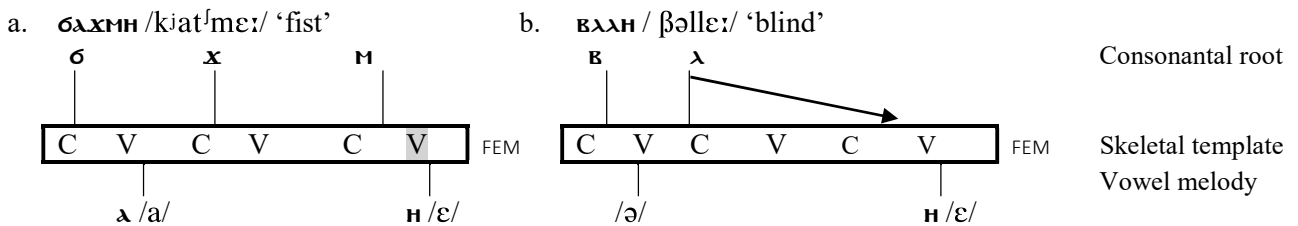
³⁷ See Hintze (1980: 39) for the alternation between <ογρω/wro:/ ~ <αρω/?aro:/ 'bean' in terms of a /ʔ/ ~ /w/ opposition.

TABLE 17. Vowel distributions in trilateral class II nouns with stressed final vowel [C(V)CCV]

STEM VOWEL		FEMININE NOUNS (N = 12)					MASCULINE NOUNS (N = 17)										
FRONT	h/ε/	5	41.7%	ϬΑΧΜΗ	kjɑtʃmɛ:	fist	2	11.8%	ΤΒΝΗ	təβnɛ:	beast						
				ΡΜΖΗ	rəmɦɛ:	free			ΡΕΡΜΗ	rɛrmɛ:	demi-arura						
				ΒΛΛΗ	βəllɛ:	blind											
	ɛi/i/	0					1	5.9%	ΖΙΒΟΥΙ ³⁸	hiβwi:	ibis						
	ɛ/e/	0					8	47.1%	ΡΜΖΕ ³⁹	rəmɦɛ:	free						
									ΒΛΛΕ	βəllɛ:	blind						
BACK	ɑ/a/	1	8.3%	ΦΑΒΡΑ	faβra:	heat	0										
									4	23.5%	ΦΜΜΟ ⁴⁰	fmmɔ:	stranger				
						6			50%	ΜΕΣΙΩ	mesyo:	midwife	1	5.9%	ΕΒΙΩ	eβyo:	honey
										ΖΕΣΩ	ɦəβso:	garment					
										ΦΜΜΩ	fmmɔ:	stranger					
	oγ/u/	0		ΑΣΟΥ	ʔasu:	price	1	5.9%	ΣΠΟΤΟΥ ⁴¹	spɔtu:	lip						

Despite considerable efforts in Egyptological research tradition, class II CVCCV nouns have resisted straightforward classification as they do not form a homogenous class. On the one hand, we find examples where the unstressed vowel is preserved, e.g. ϬΑΧΜΗ /kjɑtʃmɛ:/ ‘fist’ (Crum 1939: 842b). In this case, the stressed final vowel has a semi-suffixal character. On the other hand, if the unstressed vowel is reduced to schwa, the stressed final vowel behaves like a normal stem vowel, e.g. ΒΛΛΕ /βəllɛ:/ ~ ΒΛΛΗ /βəllɛ:/ ‘blind man/woman’ (Crum 1939: 38b). In these geminated forms, a biliteral root is spread out onto a trilateral template.

FIGURE 11. Two distinct templates for feminine CVCCV nouns



To conclude, due to the interference of diachrony-in-synchrony effects, class II remains an elusive noun class.

2.6. Class III Feminine Nouns

We finally consider the class of consonant-final nouns (class III), whose feminine members are by far outnumbered by masculine ones. We interpret this distributional asymmetry to mean that the template of these nouns is not specified for feminine gender, unless some overriding factors come into play. One such factor has a phonological basis: a sizeable number of class III feminine nouns have a variant belonging to class I, e.g. ΖΟΚΒ /ɦɔsəβ/ ~ ΖΟΚΕΒ /ɦɔsɛβ/ ~ ΖΟΚΒΕ /ɦɔsβɛ/ (FEM) ‘market’

³⁸ Osing (1976: 614 note 615) derives the noun ΖΙΒΟΥΙ /hiβwi:/ [MASC] ‘ibis’ (Crum 1939: 655a) from a reconstructed morphological plural *hibāy-[~]w, akin to the morphological plural noun ΖΦΟΥΙ /ɦəfwi:/ ‘snakes’. The corresponding morphologically singular form is preserved in Bohairic ΖΗ /hip/.

³⁹ Osing (1976: 176-177, 412 note 90) analyses the gender pair ΡΜΖΕ /rəmɦɛ:/ ~ ΡΜΖΗ /rəmɦɛ:/ ‘free male/female person’ (Crum 1939: 297a) as being historically derived from a reconstructed *šaqūm.ut adjectival formation: *nūmhiw → *numhē/iy → *n(u)mhē’.

⁴⁰ Osing (1976: 168) derives the gender pair ΦΜΜΟ /fmmɔ:/ ~ ΦΜΜΩ /fmmɔ:/ ‘male/female stranger’ (Crum 1939: 565b) from a reconstructed nomen agentis *šādmaw: *š[~]māy.[~]t. Consonant gemination reflects the loss of the word-internal glottal stop; cf. the non-geminated variant ΦΜΟ /fmmɔ:/ (Crum l.c.).

⁴¹ The exceptional o /ɔ/... oγ /u/ vocalization of ΣΠΟΤΟΥ /spɔtu:/ ‘lip’ might reflect a reconstructed status pronominalis *sapātj-[~] with an enclitic 3RD PL pronoun =w (=oγ /u:/); cf. Osing (1976: 870-871 note 1406).

(Crum 1939: 713a; Kasser 1954: 102a [ⲗⲟⲩⲮⲉ 713a]).⁴² This variation is conditioned by the ban on final consonant clusters in Coptic [*CC#]. In order to avoid such a cluster, the neutral vowel /e/ may be inserted either between the two consonants of the offending cluster (class III), or after the CC cluster (class I). The other factor is the switch from masculine to feminine gender that a handful of class III have undergone. Gender-switching nouns are often difficult to spot, due to missing cognates in Pre-Coptic Egyptian.

Table 18 presents a representative set of class III biliteral nouns. CVC feminine nouns have for the most part a back vowel. As already discussed above in section 2.3, CVC masculine nouns show a clear pattern: 75.3% have a back vocalization. Front vowels are not excluded.

TABLE 18. Vowel distributions in biliteral class III nouns [CVC]

STEM VOWEL		FEMININE NOUNS (N = 12)					MASCULINE NOUNS (N = 138)				
FRONT	ⲏ /ɛ/	0					15	10.9%	ⲃⲏⲬ	βɛki	falcon
	(Ⲉ)ⲏ /i/	2	16.7%	Ⲅⲏⲭ ⁴³	kʲitʰ	hand	18	13%	ⲃⲏⲡ	βir	basket
				ⲏⲱ ⁴⁴	ʔij	urine					
	Ⲉ /e/	0					1	0.7%	ⲏⲈⲗ	neh	oil
BACK	ⲁ /a/	2	16.7%	ⲕⲁⲗ ⁴⁵	kah	district	45	32.6%	ⲡⲁⲎ	ran	name
				Ⲉⲏⲗⲗ ⁴⁶	jal	mirror					
	ⲟ /ɔ/	5	41.7%	ⲄⲟⲲ ⁴⁷	kʲɔt	form	30	21.7%	ⲲⲟⲎ	tɔm	mat
	ⲱ /o/	2	16.7%	ⲄⲱⲲ	kʲɔt	trough	21	15.2%	ⲈⲱⲲ	jot	father
				ⲄⲱⲲ ⁴⁸	sot	aroura					
	ⲟⲱ /u/	1	8.3%	ⲏⲟⲱⲲ ⁴⁹	nut	cistern	8	5.8%	ⲕⲟⲱⲡ	kur	pivot

The picture does not change significantly when we turn to class III trilateral nouns. As shown in Table 19 for CVCC nouns, the high token frequency of masculine nouns resurfaces: 80 out of a total of 91 tokens have masculine gender. Akin to biliteral CVC feminine nouns, almost all trilateral CVCC feminine nouns have a back vowel.

⁴² Osing (1976: 261, 836 note 1121) derives the locational noun ⲗⲟⲩⲮⲉ /hɔsəβ/ ‘market’ (< *hǎsb.□t) from the trilateral verb *hsb* ‘to count, reckon’, which is already attested in Old Egyptian. The variation between ⲗⲟⲩⲮⲉ /hɔsəβ/ ~ ⲗⲟⲩⲮⲈ /hɔsβe/ is reflected in the Demotic cognate form *hsb.t* ~ *hsb* (FEM) ‘market’ (Erichsen 1954: 332).

⁴³ The body-part term Ⲅⲏⲭ /kʲitʰ/ (Crum 1939: 839b) has a Late Egyptian cognate *kd.t* ~ *kd*, which is grammatically feminine. Accordingly, no gender switch has taken place (Černý 1957: 212 (10); Brunsch 1983: 123 (I.21)).

⁴⁴ The Old Egyptian cognate *wzš.t* ‘urine’ [*wězš.ʔt (Osing 1976: 80, 542–543 note 382)] survives into Coptic in a truncated form ⲏⲱ /ʔij/ (Crum 1930: 88a) with several phonological reduction processes acting in tandem: replacement of the *primae wāw* by *primae hamzatae* [w → ʔ], the reduction of the two adjacent sibilants to one [z + ʃ → ʃ], and the apocope of the feminine suffix * -Vt. Despite the missing Demotic cognate, we can safely assume that the lemma’s feminine gender specification was diachronically stable.

⁴⁵ The homophonous but distinct lemmata ⲕⲁⲗ /kah/ ‘earth, soil’ (MASC) (Crum 1939: 131a, Kasser 1960: 22a [ⲕⲁⲗ 131a]) and ⲕⲁⲗ /kah/ (FEM) ‘district’ (Crum 1939: 131b) have different etymologies, deriving respectively from Old Egyptian *kʲh* (MASC) ‘mud’ and *kʲh.t* (FEM) ‘district’ (Westendorf 1965/1977: 73, 512). In Demotic the two lexical items form a minimal pair *kh* (MASC) ‘earth’ ~ *kh* (FEM) ‘district’ (Erichsen 1954: 547).

⁴⁶ The lemma Ⲉⲏⲗⲗ, ⲏⲗⲗ /jal/ (FEM) ‘mirror’ has an alternant form with front vowel ⲏⲗⲗ /jel/ (Crum 1939: 76a; Kasser 1960: 13b [Ⲉⲏⲗⲗ 76b]). The ⲁ /a/ may be original, reflecting the lost neighboring guttural /ʕ/ in the Demotic cognate *jʕl* ~ *jl* (Erichsen 1954: 50; Westendorf 1965/1977: 49).

⁴⁷ The feminine noun ⲄⲟⲲ /kʲɔt/ ‘size, age, form’ (Crum 1939: 833a) can indeed be identified as a gender-switching noun. The Old Egyptian cognate *kd* ‘form’ [*kǎd (Osing 1976: 45)] has masculine gender, while the Demotic cognate *ktj* is grammatically feminine (Erichsen 1954: 544). Consequently, the switch from masculine to feminine gender must have been accomplished before the advent of Coptic.

⁴⁸ Although it would take us too far afield to try to address the philological issues involved in this lexical item, we agree with Crum (1939: 360a) that the two forms ⲄⲱⲲ and ⲄⲱⲲⲈ should be listed as a single lexical entry ‘aroura’, which is grammatically feminine. Of the two forms, ⲄⲱⲲⲈ /so:te/ represents the original class I noun and ⲄⲱⲲ /sot/ the apocopated variant.

⁴⁹ The feminine gender of the lemma ⲏⲟⲱⲲ /nut/ ‘trough, receptacle’ (Spiegelberg 1921: 79; Westendorf 1965/1977: 127; not listed as a separate entry in Crum 1939: 229b) has an unclear etymology. The possibility of a gender switch can therefore not be excluded. The stressed ⲱ /o/ was raised to ⲟⲱ /u/ by the neighboring nasal consonant [o → u/ C_[+nas] ___].

TABLE 19. Vowel distributions in trilateral class III nouns with internal stressed vowel [CVCC]

STEM VOWEL		FEMININE NOUNS (N = 11)					MASCULINE NOUNS (N = 80)				
FRONT	h /ɛ/	0					3	3.75%	ⲉⲃⲉⲥ	heβəs	lamp
	(ɛ)ɪ /i/	1	9.09%	ⲥⲓⲃⲧ	siβət	hill	3	3.75%	ⲟⲩⲏⲏⲃ	weʔeβ	priest
	ɛ /e/	0					15	18.75%	ⲉⲓⲉⲃⲧ	jeβət	east
	BACK	α /a/	5	45.45%	ⲛⲁⲗⲉ	nahəβ	shoulder	14	17.5%	ⲗⲁⲕⲗ	lakəh
	o /ɔ/	4	36.36%	ⲗⲟⲥⲃ	hɔsəβ	market	32	40%	ⲃⲟⲥⲙ	kɔsəm	tempest
	ɔ /o/	1	9.09%	ⲗⲟⲗⲥ	hohəf	hand	9	11.25%	ⲕⲟⲗⲧ	kohət	fire
	oɣ /u/	0					4	5%	ⲙⲟⲩⲗⲗ	muləh	wax

In CCVC nouns, we find the same pattern: 91 out of a total of 102 tokens have masculine gender. Table 20 shows that almost all feminine nouns in this class have a back vowel.

TABLE 20. Vowel distributions in biliteral class III nouns with stressed final vowel [CCVC]

STEM VOWEL		FEMININE NOUNS (N = 11)					MASCULINE NOUNS (N = 91)				
FRONT	h /ɛ/	0					18	19.8%	ⲛⲧⲏⲃ	əntekɪ	weed
	(ɛ)ɪ /i/	1	9.1%	ⲧⲣⲓⲡ	trɪr	oven	13	14.3%	ⲙⲗⲓⲧ	əmhit	north
	ɛ /e/	0					1	1.1%	ⲉⲛⲉⲗ	eneh	eternity
BACK	α /a/	4	36.4%	ⲙⲧⲁⲧ	mtat	bridle	15	16.5%	ⲙⲥⲁⲗ	əmsah	alligator
	o /ɔ/	2	18.2%	ⲃⲗⲟⲥ	kɪhɔs	gazelle	24	26.4%	ⲕⲣⲟⲥ	krɔf	ambush
	ɔ /o/	3	27.3%	ⲗⲣⲟⲧ	hrot	vat	14	15.4%	ⲕⲣⲟⲙ	krom	fire
	oɣ /u/	1	9.1%	ⲗⲃⲟⲩⲣ	hβur	left	6	6.6%	ⲕⲣⲟⲩⲣ	krur	frog

It appears that class III is not a natural class for feminine nouns. This means that the template of consonant-final nouns is underspecified for grammatical gender, which blocks the assignment of the marked [FEM] gender value. A logical consequence of our analysis is that inflectional gender pairs are systematically absent in class III nouns.

3. Concluding Remarks

Based on an extensive corpus analysis, we have examined the vowel distributions in the three major Coptic noun classes. We arrived at solid generalizations, which have broader implications for both typology and Coptic linguistics.

A widely-held assumption in typological research is that grammatical gender systems draw extensively on concatenative (affixal) inflectional morphology, whereas non-concatenative (non-affixal) systems of gender inflection are crosslinguistically rare (Corbett and Fedden 2015: 509). We have shown that Coptic has an inflectional gender system, which makes productive use of non-concatenative morphology.

As for the synchronic grammar of Coptic gender, we have identified the feminine as morphologically marked. We presented arguments and evidence that feminine nouns are not derived from a masculine base. Consequently nouns appearing in gender pairs such as **ⲥⲟⲛ** /sɔn/ ‘brother’ ~ **ⲥⲟⲛⲉ** /so:ne/ ‘sister’ are formed independently from each other. They are both directly derived from the consonantal root √sn ‘second, sibling’. The root itself is left unspecified for gender. Instead, the domain of gender assignment is to be sought in the nominal template.

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