

A LEXICON OF EGYPTIAN LEXICAL ROOTS (PROJECT)

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A lexicon of the Egyptian roots is a desideratum both for Egyptology and for comparative studies. The alphabetic order of lexemes may be different from that of the roots because of prefixes. Partial sound change has produced phonetic doublets.

Keywords: 1 Egyptian root lexicon; 2 sound changes; 3 root prefixes; 4 palatalisation; 5 debuccalisation

Although the lexicography of the Egyptian language has been under way since nearly two hundred years, this activity has never yielded an inventory of the roots of the language. The roots, abstract elements from which the lexemes are derived, differ often from the latter, thus appearing in different places in the alphabetic order of the lexicon: Some stems of Egyptian verbs are derived from their roots by the addition of a prefix, like *s-*, *n-*, or *m-*, and/or by reduplication of the root, as *snsn* ‘to join,’ ‘to associate with,’ as compared with *sn*, with a similar meaning, or by both.

The identification of the roots is not always an easy task; in many cases it takes both philological and linguistic methods to determine or discern them. Whereas it is important to describe and systematize the mechanics of derivation, the study of the semantics, the development of meaning, is equally important.

1. ARABIC DICTIONARIES ARE ROOT DICTIONARIES

Traditional Arabic Dictionaries are root dictionaries: Lexemes are arranged by the sequence of consonants of the roots. Under the consonants *f-t-h* will be noted all lexemes of this root, meaning ‘open’; first the verbs: *fataḥa* ‘he opened’ (trans.) and its derivatives, the stirpes or stems, including:

fattaḥa ‘he opened’ (trans.)
fātaḥa ‘he opened the conversation’
tafattaḥa ‘he opened up’ (intrans.)
infattaḥa ‘he opened’ (intrans.), ‘was opened’
iftattaḥa ‘he opened’ (intrans.)
istaftaḥa ‘he began’ (trans.)

Then all kinds of nouns, including:

fath^{um} ‘opening’; *fath^{um}*, pl. *futūḥ^{um}*, ‘conquest’
fatha^{um} ‘sign of vowel *a*’
futha^{um}, pl. *futaḥ^{um}*, ‘opening, hole’
fattāḥ^{um} ‘opener, conquerer’
fattāḥa^{um}, pl. *fattāḥāt^{um}*, ‘tin or bottle opener’
miftāḥ^{um}, pl. *mafātīḥ^{um}*, ‘key’
miftāḥjiyy^{um}, pl. *miftāḥjiyya^{um}* (from Turkish), ‘pointsmen,’ ‘switchman’
mufātaha^{um} ‘opening (of discussion)’
iftitāḥ^{um} ‘introduction’

There are several templates and patterns that cause a deviation from the sequence of the root consonants (radicals).

1.1 *The stirpes or stems of the verb*

Verbs may be formed just of the root of the verb after one of three templates; for the perfect: *la2a3a*, like *fa'ala* 'he did,' *la2i3a*, like *'amila* 'he made,' or *la2u3a*, like *ḥasuna* 'he has become beautiful.' Further stems may be derived from the same three-consonantal roots, like the following (with just one vocalic template for each).

	Perfect	Imperfect	Maṣdar (infinitive)
I.	<i>fa'ala</i> ,	<i>yaf'alu</i> ,	(various)
II.	<i>fa^{cc}ala</i> ,	<i>yufa^{cc}ilu</i> ,	<i>taf^{cc}il^{um}</i>
III.	<i>fā'ala</i> ,	<i>yufā'ilu</i> ,	<i>mufā'ala^{um}</i>
IV.	<i>ʔaf'ala</i> ,	<i>yuf'ilu</i> ,	<i>'if'āl^{um}</i>
V.	<i>tafa^{cc}ala</i> ,	<i>yatafa^{cc}alu</i> ,	<i>tafa^{cc}ul^{um}</i>
VI.	<i>tafā'ala</i> ,	<i>yatafā'alu</i> ,	<i>tafā'ul^{um}</i>
VII.	<i>infa'ala</i> ,	<i>yanfa'ilu</i> ,	<i>infi'āl^{um}</i>
VIII.	<i>ifta'ala</i> ,	<i>yafta'ilu</i> ,	<i>ifti'āl^{um}</i>
IX.	<i>if'alla</i> ,	<i>yaf'allu</i> ,	<i>if'ilāl^{um}</i>
X.	<i>istaf'ala</i> ,	<i>yastaf'ilu</i> ,	<i>istif'āl^{um}</i>
	Etc. ...		

Except for stirps II, these forms will be found on places different from the basic stem if the dictionary is arranged according to lexemes, rather than roots. Complications may particularly arise for an inexperienced user with verbs with "weak" radicals, like *bakā* 'he cried' (root *b-k-y*), or *māta* 'he died' (root *m-w-t*), etc. From a root with initial *w*, as that of *waṣala* 'he united,' the *maṣdar* is *ṣila^{um}*, and assimilation will yield a regular stirps VIII *ittaṣala* 'he became united,' in non-vocalized writing <ʔTṢL>; beginners usually have a hard time when trying to identify this root (*w-ṣ-l*).

1.2. *Nominal forms: the Broken Plurals*

Whereas nouns of certain patterns form "sound plurals," that is by means of an ending, the majority have irregular plural forms, after a number of vocalic patterns. If *'āmil^{um}* is just a participle, 'doing,' it has the "sound plural" *'āmilūn^a*. If used as a noun, 'workman,' the plural follows pattern *fū^{cc}āl-*, hence *'ummāl^{um}*. Some further examples:

<i>k-t-b</i>	<i>kitāb^{um}</i> 'book,' plural <i>kutub^{um}</i>
<i>s-ʕ-d</i>	<i>sa'ūd^{um}</i> 'happy,' plural <i>su'adā^{um}</i> (sic)
<i>d-r-s</i>	<i>madrasa^{um}</i> 'school,' plural <i>madāris^{um}</i> (sic)

There are some patterns that significantly change the first letter and hence the alphabetic position.

<i>y-w-m</i>	<i>yawm^{um}</i> 'day,' plural <i>ʔayyām^{um}</i> (< *ʔaywām ^{um})
<i>f-l-m</i>	<i>film^{um}</i> 'film,' plural <i>ʔaflām^{um}</i>
<i>ʕ-m-d</i>	<i>'amūd^{um}</i> 'pole,' plural <i>ʔa'mida^{um}</i>
<i>j-w-b</i>	<i>jawāb^{um}</i> 'answer,' <i>ʔajwiba^{um}</i>
<i>n-b-y</i>	<i>nabiyy^{um}</i> 'prophet,' plural <i>ʔanbiyā^{um}</i> (sic)

1.3. *Prefixes of Nouns*

A frequent reason for separating words from their roots in a purely alphabetic arrangement are prefixes, including *m-*, *t-*, *ʔ-*:

<i>f-t-ḥ</i>	<i>miftāḥ^{um}</i> 'key,' <i>maftūḥ^{um}</i> , from <i>fataḥa</i> 'he opened'
<i>m-r-n</i>	<i>tamrīn^{um}</i> 'exercise,' from <i>marrana</i> 'he practiced'

3.1 Palatalisation of Velars

In many, though not all cases, the velar stops *k*, *k̄*, and *g* became palatal affricates, namely *ṯ* (= *č*), *ḏ* (= *č̣*), and again *ḏ* (note that Rössler³ saw the palatalisation of *g* in *j*; but see Satzinger⁴).

	<i>k</i> :	<i>ṯ</i> (= <i>č</i>)	
Pronoun <i>≠k</i> (2sm)			<i>≠ṯ</i> (2sf), <i>≠tn</i> (2p)
<i>sk</i> , Old Kingdom form of <i>st</i>			<i>sṯ</i> , <i>iṯ</i>
<i>kw</i> , Old Kingdom variant of <i>tw</i>			<i>ṯw</i>
<i>kb.wj</i> ‘soles (of foot)’ (Pyr ⁵)			<i>ṯb.w</i> , <i>ṯb.wt</i> , id.
<i>nk.t</i> ‘fetter’ (NK)			<i>nṯ</i> ‘to tie up,’ ⁶ <i>inṯ</i> ‘to fetter’ (Faulkner), <i>inṯ.t</i> ‘fetter’ (since Pyr)
	<i>k̄</i> :	<i>ḏ</i> (= <i>č̣</i>)	
<i>dkw</i> ‘flour’			<i>dḏw</i> ‘to mill’
<i>qnb</i> ‘to bind; to bend; to subjugate’			<i>qnb</i> ‘to be crooked; to deflect’
<i>sqr</i> ‘to strike’			<i>sqr</i> written with the determinative of <i>sdr</i> ‘to lie down’: 
	<i>g</i> :	<i>ḏ</i>	
N.B. This is a correspondance that has not been seen by Rössler; but see Satzinger. ⁸			
<i>gnḥ</i> ‘wing’ (Greek period variant)			<i>ḏnḥ</i> ‘wing’ (cf. Arab. <i>ḡanāḥ</i> , id.)
<i>gʒf</i> ‘to bake’			<i>ḏʒf</i> ‘to burn,’ <i>ḏʒfḏʒf</i> , id. (Greek period variant)
<i>wg</i> ‘plank’ (spelling <i>wgʒ</i> only NK)			<i>wḏ</i> , <i>wḏy.t</i> , a wooden part of the ship
<i>wgʒ</i> ‘inundation’ (NK; read <i>wg</i> ?)			<i>wḏnw</i> ‘flood’ (perhaps with variation <i>ʒ</i> : <i>n</i>)
<i>gn</i> ‘twig’ (MK) ⁹			Late Egn. <i>ḏ-l</i> (spelt <i>ḏ-nr</i>), Coptic <i>čal</i> , id.
<i>gʒb.t</i> , Coptic <i>k̄ōʿbe</i> , ‘leaf’ (since Dyn. 18)			<i>ḏbʒ.w</i> ‘leaves’ (since Dyn. 18; read <i>ḏ(ʒ)b.w</i>)
	<i>ḥ</i> :	<i>š</i>	
<i>ḥʿk</i> ‘to shave’			<i>šʿk</i> , Pyr. Text spelling of <i>ḥʿk</i>
<i>mḥn.t</i> ‘ferry-boat’			<i>mšn.t</i> , Pyr. Text spelling variant of <i>mḥn.t</i>

³ Rössler 1971.

⁴ Satzinger 2010, 243–244.

⁵ Abbreviations of the datings of attestations of lexemes: BD = Book of the Dead (D 18 and later); CT = Coffin Texts (early MK); D 18 (D 19) = 18th (19th) Dynasty; Gr = Greek Period texts; LE = Late Egyptian (D19 to 21); med = medical texts (MK to early D 18); MK = Middle Kingdom; NK = New Kingdom; Pyr = Pyramid Texts (OK); a long dash — after the abbreviation = “and later.”

⁶ Meeks 1980, no. 2257.

⁷ Sinuhe B3 10 (Koch 1990, 8, Z.7 with note. a).

⁸ Satzinger 2010, 243.

⁹ Admonitions 4, 14. *Thesaurus Linguae Aegyptiae* suggests that it is misread for *mnw* (Wb 2, 71:13), which is not very probable on palaeographical grounds.

<i>ḥkr</i> ‘to decorate’	<i>škr</i> , Pyr. Text spelling of <i>ḥkr</i>
<i>ḥʒ.t</i> ‘corps’	<i>šʒ.t</i> , Pyr. Text spelling of <i>ḥʒ.t</i>
* <i>zḥʒ</i> , Coptic (<i>B</i> , <i>A</i> ¹⁰) <i>shai</i> , ‘to write’	<i>zš(ʒ)</i> , rare phonetic spelling of * <i>zḥʒ</i>
* <i>ḥmm</i> , Coptic (<i>B</i> , <i>A</i> ¹¹) <i>ḥmom</i> , ‘to become warm’ (cf. <i>shmm</i> ‘to warm’)	<i>šmm</i> ‘to become warm’
<i>nḥ</i> ‘to spit; spittle’	<i>ʒš</i> ‘to spit’ (with variation <i>ʒ : n</i>); <i>nš</i> ‘spittle’
	<i>ḥ : d (= ċ)</i>
<i>nḥ</i> ‘to protect’	<i>nd</i> ‘to protect’
‘ <i>ḥ</i> ‘to burn’; ‘brazier’	‘ <i>d</i> ‘to burn’; ‘brazier’
<i>wʒhi</i> ‘to become green’	<i>wʒd</i> ‘to become green’
<i>wʒhy</i> ‘colonnade’	<i>wʒd</i> ‘column’; <i>wʒdy.t</i> ‘colonnade’
<i>mḥʒ</i> ‘to make fast; to bind; rope’	<i>mḍʒ</i> ‘to fetter’ (?)
<i>ḥʒm</i> ‘troops’ ¹²	<i>dʒm</i> ‘troops, youth’
	<i>ḥ : š</i>
<i>zḥz</i> ‘to tear out’	<i>zšš</i> ‘to tear out’
<i>ḥfʳ</i> ‘to grasp’	<i>šfd</i> ‘to grasp’
<i>sʒh</i> ‘to repuls’	<i>sʒš</i> ‘to repuls’
<i>ḥpt</i> ‘to be discontented; discontent’	<i>špt</i> ‘to be angry’ (Greek period)
<i>ḥpw</i> , spelling variant of <i>špw</i> ‘blindness’	<i>špw</i> ‘blindness’
<i>iḥ.t</i> ‘thing’	<i>iš.tʃ</i> , Old Kingdom spelling of ‘his thing’

3.2. Debuccalisation

Debuccalisation¹³ is a sound change in which an oral consonant loses its original place of articulation, moving it to the glottis (typically [h], [ɦ], or [ʔ]; here, in Egyptian, [ʕ] and [ʔ]).¹⁴

3.2.1 Debuccalisation of Dentals / Alveolars to ʕ

	<i>d (=t) : ʕ</i>
<i>db</i> ‘horn’	‘ <i>b</i> , id.
<i>dbdb</i> ‘to pound (of the heart)’	‘ <i>bb</i> ‘to knock (on door)’ (root √db)
<i>šfd</i> ‘to grasp’	<i>ḥfʳ</i> , id. (with variation <i>ḥ : š</i>)
	<i>s/ts : ʕ</i>
<i>pnz</i> ‘to distort’ (BD NK)	<i>pnʕ</i> ‘to turn around’; <i>pnʕnʕ</i> ‘to rotate’ (Pyr—)
<i>iz</i> ‘tomb’ (Pyr—)	<i>iʕ</i> , id. (Pyr—)
<i>zbš</i> ‘to drown’ (Pyr)	‘ <i>bš</i> , id. (Pyr)
	<i>r : ʕ</i>
<i>drb.t</i> ‘charcoal’ (Satzinger 2008)	<i>dʕb.t</i> , id. (since MK)

¹⁰ *B* = Bohairic; *A* = Akhmimic.

¹¹ *B* = Bohairic; *A* = Akhmimic.

¹² Faulkner 1953, 36; Andreu – Cauville 1977, 10.

¹³ O'Brien 2012.

¹⁴ Satzinger 1994; 1999; 2010.

<i>dhr</i> ‘leather’ (MK)		<i>dh^ʕ</i> , id. (since MK)
<u>3.2.2 Debuccalisation of Velars / Laryngeals to <i>i</i></u>		
	<i>k : i</i>	
<i>kbh</i> 1) ‘to become cool’;		<i>ibh</i> ‘to sprinkle water’ (med);
2) ‘to pour a libation’		<i>ibh.w</i> ‘libationer (D 18)
<i>knd</i> ‘to rage; to be come angry’		<i>ind</i> ‘to be vexed; to be sad’ (MK)
	<i>h : i</i>	
<i>snwh</i> ‘to cook’		<i>snw(i?)</i> ‘to cook’
<i>hnm</i> ‘to become friendly’		<i>izm</i> ‘to become pleasant’ (with variation <i>ʒ : n</i>)
	<i>g : i</i>	
<i>p^ʕg</i> ‘to spit’ (doublet of <i>psg</i> ¹⁵)		<i>p^ʕi</i> ‘to spit’ ¹⁶

“Debuccalisation” describes a type of process, or rather its result, but it is not an explanation for it. In Egyptian, the situation is rather complex, as it involves dialectal differences (cf. Satzinger, printing a; printing b). In some area of predynastic Egyptian, the Proto-Egyptian consonants remained as they were: *the conservative dialect*. In others — in the idiom that was to become the standard, which also means: for which the hieroglyphic writing was being developed — the voiced stops and fricatives underwent grave changes: *the progressive dialect*. An important change concerned the voiced stops. *b* obviously became [β], as it is probably still in Coptic. Consequently, *d* and *g* should have become [ð] and [ɣ], respectively. But the development did not stop at that: the articulation of [ð] moved backward to [ʕ], and that of [ɣ] probably to [ʔ] (spelled <i>>).

What is spelled <d>, <ḍ>, and <g> in hieroglyphic — hence looking in their transcriptions like voiced consonants — is not what it suggests: not voiced sounds, but probably glottalised “emphatics,” necessarily unvoiced (glottalisation is only possible with lax vocal cords, hence with unvoiced consonants¹⁷). Some scholars who are aware of this, like W. Schenkel, transcribe them as *t* and *ç* instead of *d* and *g*, respectively.

What is spelled <h>, on the other hand, is originally not an unvoiced fricative [x], but rather its voiced counterpart, [ɣ] (typically corresponding to Semitic *ʕ or *ġ): it was only about the time of the beginning of the Middle Kingdom that it was realised as voiceless [x].

It seems to have occurred that words of the conservative idiom were loaned into the standard language. They may have contained phonemes that do not exist anymore in the progressive idiom, so the next-similar phoneme had to be chosen.

From the lexemes *ʕb* ‘to offer’ (*ʕb.t* ‘offerings’ already in the Pyramid Texts), *dʒp* ‘to offer’ (Pyramid Texts), and *drp*, id. (from MK onward), we can reconstruct an original root **dlb* ‘to offer’ (on the Semitic side, one may compare Arabic *talaf^m*, ‘present’). This remained as such in the conservative idiom, but developed into *ʕb* [ʕ-ʔ-β] in the progressive idiom. For some reason or other, the conservative form **dlb* was loaned by the progressive idiom. However, this did not possess a phoneme /d/ (which had become /ʕ/), nor a phoneme

¹⁵ Westendorf 1962: 19, § 31.7.

¹⁶ Meeks 1980, no. 1381.

¹⁷ Satzinger, printin (a).

/l/ (which had become /ʎ/, cf. below), nor a phoneme /b/ (which had become /β/); the next-best choice was /t/ (transcribed *d* anyway) for /d/, and /p/ for /b/. As for /l/, the pyramid Texts write <ʒ> (obviously pronounced [l] or [r] in this corpus¹⁸), whereas later literacy spelled it with <ɾ>: *dʒp*, later *drp*.

3.3. Debuccalisation or Lenition? The Problem of “Aleph”

N or *r* in Variation with *ʒ*: what is the value of *ʒ*? When *ʒ* is found in variation with *n* or *r* it is essential to know whether *ʒ* represents here *l* (*r*) or *ʔ*. For those who developed the Egyptian script the *ʒ* graphemes expressed a very light sound: probably [ʔ].¹⁹ Also in the Old Kingdom there is evidence for *ʒ* being pronounced [ʔ]: an *ʒ* contained in a word may be neglected in writing²⁰ as easily as the notoriously weak sounds *i* and *w*. On the other hand, there is evidence that the Pyramid Texts treat the *ʒ* signs as a representative of some kind of *r* or *l*. Strongest evidence comes from the Execration Texts, where *ʒ* signs are systematically used for rendering Semitic *l* (but also *r*) in Canaanite place and personal names.²¹ In Late Egyptian, some words that have traditionally *ʒ* are spelled phonetically (group writing) with the sign group for *l*, like Late Egyptian  *h-l* for  *hʒ* ‘would that ...!’, or Late Egyptian  *h-l-g* for Middle Egyptian  *hʒg* ‘to be glad’ (Coptic *hlōk*). On the other hand it must be born in mind that /ʒ/ in the main stream idiom of the New Kingdom had become mute — this may explain why groups with *ʒ* as the second of two consonants could be the expression of consonant plus vowel (usually *a*) in the group writing (<n+ʒ> for *na*; <hʒ+ʒ> for *ha*; etc). The words where *ʒ* was replaced by the group for *l* are probably loans from another (conservative) dialect which had preserved the L sound where the progressive idiom had changed it to what was written *ʒ*. There is a number of doublets of which one part has *n*, the other *ʒ*.

r : *ʒ*

In some cases the Old Kingdom texts have *ʒ* where later times have *r*. It is reasonable to assume that in the Old Kingdom the writing *ʒ* rendered [r] (or similar); since it was pronounced [ʔ] (or similar) in the Middle Kingdom, the pronunciation [r] had to be rendered by *r*.

drp ‘to offer’ (MK—)

Pyramid Texts spelling *dʒp*

Another doublet: *ʒb* ‘to offer’ (*ʒb.t* ‘offering’ Pyr—)

irt-t ‘milk’ [ʔərātʔ] > Coptic *erōte*, id.

Old Kingdom var. *izt-t*

qrs ‘to bury’

Old Kingdom var. *qʒs*

srp-t ‘lotus leaf’ (LE) > Coptic *sarpōt* ‘lotus’

MK and NK var. *sʒp-t* [səʔ’pat]

n : *ʒ*

npn ‘water’ (Gr.)

npʒ ‘to make wet’ (CT—)

snm ‘to be sad’; ‘sadness’ (NK)

sʒm-t ‘sadness’ (NK)

d : *ʒ*

¹⁸ Satzinger 1999, 202.

¹⁹ Satzinger, printing (a).

²⁰ Edel 1955, 58–59, § 132.

²¹ Satzinger 1994, 202.

dr ‘dispell’ (Pyr—)

ʒr, ‘to drive away’ (MR—) (also *m-ʒr*
‘to dispossess,’ late OK—)

dqw ‘flour’ (med—)

ʒqw, id. (D. 19)

3.4. Palatalisation, Debuccalisation, Lenition

*q-l-b “to bend, fold”

	<i>k</i>	<i>k > ħ</i> (lenition)	<i>k > ǧ</i> (palatalisation)
<i>n < *l</i>	<i>knb</i> “to bind; to bend” (OK—) Cf. <i>kfn</i> “to bend down” (metathesis) (Pyr only)		<i>ǧnb</i> “to be crooked, to deflect” (MK)
<i>ʒ < *l</i> (debuccalisation)	<i>kʒb</i> “to fold over” (med.)	<i>ħʒb</i> “to bend” (D. 19 bis Gr.)	
<i>r < *l</i>	<i>krf</i> “to contract; to draw together” (med., BD)	(- <i>rb</i> - is avoided.)	

*y-l-m “young, sexually mature”; “loving, amiable”.²²

Arabic *y-l-m* (1) “young person” (*yulām^{um}*); (2) “sexual heat” (*yulma^{tum}*); Heb., Aram. *ʿ-l-m*

	<i>ħ</i>	<i>ǧ</i> (palatalisation)	<i>i</i> (debuccalisation)
<i>n < *l</i>	<i>ħnm</i> *‘to treat lovingly’		
<i>ʒ < *l</i>	<i>ħʒm·w</i> ‘troops’	<i>ǧʒm</i> ‘offspring; youths; generation’ (MK—)	<i>iʒm</i> ‘to become amiable’

3.5. Another Source of Complication: Graphemes with more than one value

Š graphemes (like □): the corresponding phoneme was originally [x], in transcription: *ħ*; when this was palatalised (*ħ > š*) in many cases, the Š graphemes corresponded to *š*, and a new grapheme ↔ was introduced for *ħ* where it had preserved its original articulation [x].

Originally one phoneme, one grapheme: □ *ħ*.

After palatalisation, in the Old Kingdom: two phonemes: ↔ *ħ*, □ *š*.

G graphemes (like ⊕): Some see reasons to assume that they covered two phonemes, namely (1) *g*, (2) *g^v*. Transcription is always *g*.²³

As for the *i* (or *j*) graphemes (like †), evidence seems to point to a double (or triple) phonetic value, (1) [ʔ], (2) [j], and perhaps (3) [j]. Transcription is always *i* or *j*, according to the respective academic tradition.

4. PRACTICAL QUESTIONS

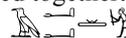
In the context of an etymological dictionary, the question arises what doublets should appear as an independent entrie (though, of course, with cross references to its respective counterpart), and which what is rather to be united under one and the same entry. Writing variations that are caused by sound changes of the historical period should certainly not

²² Satzinger – Stefanović 2012.

²³ Kammerzell 1998.

yield independent entries as these words are often written in historical spelling even after the sound change had occurred. We may think here of the merging of *s* and *z*, and the depalatalisation of \underline{t} ($> t$) and \underline{d} ($> d$), sound changes that may be roughly dated to the time of the sixth dynasty.

Those doublets that are due to sound changes that took place before the historical period, or at its beginning (that is in periods from which we have only very scarce and sporadic written evidence) may rather be kept apart as different. A case in question is the debuccalisations, like $d > \text{ʕ}$, and $k > i$. Although some of these sound changes were proven almost fifty years ago,²⁴ not every Egyptologist is aware of them, not to mention researchers in other fields. Thus, the *d* reflexes of root \sqrt{db} ‘push,’ like *db* ‘horn’ and *dbdb* ‘to pound,’ will appear under letter *d*, whereas the ʕ reflexes, like ʕb ‘horn’ and ʕbb ‘to knock,’ will feature under ʕ ; with all due cross-references. The question should be solved under practical aspects. Whereas one will want to have separate entries for doublets with palatal versus non-palatal consonant (e.g., *kb.wj* ‘soles (of foot)’ versus *ṭb.w*, *ṭb.wt*, id.; *gʒf* ‘to bake’ versus *dʒf* ‘to burn’), some doublets with variation $z : n / r / l$ may rather be treated together:

 ʒʒʒ ‘to spackle, to coat with plaster,’  nʒʒ ‘to be smooth, to smoothen’

 ʒwr,  nwr ‘to tremble’

 hʒ,  h-l, ‘would that!’

 hʒg,  h-l-g, ‘to be glad’; Coptic *S hloĕ*, *B hloĕ*, id.

In principle, such questions should be solved under practical aspect and not in consequence of any ideology or theorem.

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²⁴ Rössler 1971.

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