

# Observations on Proto-Semitic Vocalism<sup>1</sup>

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## 0. Introduction

The Proto-Semitic vocalic inventory consisting of six members ( $a : \bar{a}$ ,  $i : \bar{i}$ ,  $u : \bar{u}$ ) is universally recognized in Semitological literature (v., e. g., Kienast 2001:31, Lipiński 1997:152). It is usually thought to have "an exact reflection in that of Arabic whose full network of graphic symbols mirrors the phonemic position" (Moscati 1964:47), to reappear in a more or less unchanged form in such vocally conservative languages as Akkadian or Ugaritic and to undergo regular changes in Hebrew, Aramaic or Geez (ibid. 47-54). The correctness of this reconstruction is intuitively realized by most Semitists so that few of them attempt to analyse the exact comparative evidence behind it. Nevertheless, even a cursory examination of this evidence immediately reveals how problematic the traditional presentation is.

Few would deny that a proto-language reconstruction should be based on regular correspondences between the segments under comparison as they are inherited by the daughter languages. From this point of view, Semitic evidence suggests a clear-cut distinction between two types of vocalism: that of derivational and inflectional affixes on the one hand vs. that of root morphemes (nominal and verbal) on the other.

## 1. *Vocalic elements of derivational and inflectional morphemes*

Vocalic elements belonging to this group usually exhibit fairly regular reflexes in all Semitic languages and there is no doubt that it is this systematic picture that makes Semitists so unanimously adhere to the standard reconstruction mentioned above (and warns them, incidentally, against postulating for PS additional vocalic entities, non-trivial accentual phenomena etc.). However, even within this segment of the PS vocalic reconstruction the picture is somewhat uneven as far as concrete vowels are concerned.

The evidence for each of the short vowels is quite unambiguous and can be easily illustrated by the following selection of examples:

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\*a: -a- in the base of the prefix conjugation D (Akk. *u-parris*, Arb. *yu-ḳattil*, Hbr. *yə-ḳattēl*, Gez. *yə-naggər*); -a- in the first syllable of adjectival patterns \*CaCVC- (Akk. *par(V̄)s-*, Hbr. *ḳāṭīl* < \*ḳatīl-, Arb. *ḳatīl-*); -at- as the fem. marker in nouns (passim)

\*i: -i- as the thematic vowel of the prefix conjugation of derived stems (Akk. *u-parris*, Arb. *yu-ḳattil*, Hbr. *yəḳattēl* < \**yu-ḳattil*, Gez. *yə-naggər* < \**yu-naggir*); -i as the case marker of gen. sg. (Arb. -i, Akk. -i)

\*u: -u- as the vowel of the prefixes of the prefix conjugation G and Š (Arb. *yu-ḳattil-*, Akk. *u-parris*); -u- in the infinitive patterns of G and derived stems (Hbr. *ḳəṭōl* < \**ḳuṭul-*, Akk. /OA/ *parrus-*, Arb. *taḳattul-*); -u as the case marker of nom. sg. (Arb. -u, Akk. -u).

Evidence for the long \*ā is also quite reliable:

-ā- in the infinitive patterns of G and derived stems (Akk. *parās-*, Hbr. *ḳāṭōl* < \**ḳatāl-*, Arb. *ḳātāl-*; according to Fox 2003:182-3, the same base underlies the Gez. *nomen agentis* pattern *ḳatāl-i*); -ā- in the active participle pattern (Akk. *pāris-*, Arb. *ḳātil-*, Hbr. *ḳōṭēl* < \**ḳātil-*); -ā- in the nominal suffix \*-ān- (passim).

The situation with \*-ū and \*-ī is more problematic as derivational and inflectional affixes containing these phonemes are uncommon on the deepest levels of PS reconstruction. Both are reliably reconstructed as plural markers of nouns (-ū for the nominative, -ī for the oblique) and well attested in verbal inflection (-ū and -ī for 3 pl. masc. and 2 sg. fem. of the prefix conjugation respectively). Since the attestation of these markers is practically universal, they should obviously be traced to the oldest reconstructible stage of PS. However, their rarity has often suggested various models of internal reconstruction presupposing their secondary nature in respect to the "primary" short vowels, either through an iconic "plurality lengthening" (Gelb 1969:48ff., especially 54-5, with references to earlier studies) or as a result of contraction of earlier \*-VwV- and \*-VyV- (Kuryłowicz 1972:39, Zaborski 1976). Derivational nominal patterns containing ī and ū can also be rarely traced back to PS. It is only for the former that at least one reliable example can be adduced, namely the *taḳtīl*-pattern closely associated with D stem in Akkadian and Arabic. The adjectival patterns *ḳatīl-* and *ḳatūl-*, widespread throughout West Semitic, are practically unattested in Akkadian and, as widely recognized, probably represent a WS innovation (Fox 2003:123). As for *ḳatīl-* and *ḳatūl-* substantives, they are so rare in Akkadian that it is hard to say whether such Akk. nouns of action as *šagīmu* 'bellowing' or *salīmu* 'friendship' (ibid. 188) have a common historical background with Arb. *ḳatīl*-masdars like *šahīḳ-* 'braying' or *barīḳ-* 'gleaming'.

To sum up, vocalic elements of derivational and inflectional morphemes do provide reliable evidence for the traditional reconstruction of the six PS vowels but it is not unlikely that the spread and relevance of \*ī and especially \*ū was rather limited on the earliest stage of PS.

It must be conceded that the formal stability of PS vocalic affixes does not always correlate with the stability of their functions. As far as most inflectional morphemes are concerned, both the form and the meaning have been preserved for millennia. The same holds true for a few highly productive derived nominal bases closely associated with the verbal paradigm (such as the active participle \**ḳātil-* or the infinitives in -ā-). The situation with other derivational morphemes is different, however, since in most languages a marked trend to generalize one vocalic morpheme for a given function is observable. The synonymous morphemes, if not ousted completely, are heavily marginalized. That is why, as correctly stressed in Fox 2003:52, "it is rare that we find a derived noun with a common reconstructed root, pattern and meaning in several sufficiently distant Semitic languages". This tendency is especially prominent among adjectival patterns: almost every Semitic language has one pattern (rarely two or three) which is used for the great majority of adjectives. Thus, most of the adjectives in Aramaic, Arabic and Geez exhibit

the \**ḳat(t)īl-* pattern which makes impossible their morphological comparison with cognate forms in Akkadian where this pattern is practically missing. But even between Akkadian and Hebrew a meaningful comparison is rarely possible in spite of the fact that both languages share \**ḳatal-*, \**ḳatil-* and \**ḳatul-* as the commonest adjectival patterns: while Hebrew exhibits a relatively even distribution of \**ḳatīl-* adjectives, the Akk. system is largely dominated by \**ḳatil-*. In view of these considerations, PS "primary adjectives" like \**laban-* 'white', \**ḳaḥir-* 'other' (Fronzaroli 1963:124) or \**kabid-* 'heavy' ("which exists in a number of Semitic languages and so is reconstructed for PS", Fox 2003:61) can hardly be reconstructed at all.<sup>2</sup> The situation with derived substantives is largely similar. Thus, \**ḳatl-* is among the commonest patterns for nouns of action in Arabic but, as well known, is almost completely absent from Akkadian. Terms for fractions derived from the consonantal roots of the respective cardinal numbers are very instructive in this respect: while this type of denominal derivation is attested virtually throughout Semitic, concrete patterns preferred by particular languages are so divergent that it is practically impossible to detect what was the original PS model (cf. extensively Fox 2003:152). It seems, nevertheless, that the unification process did not affect substantives so drastically as adjectives so that a few remarkable cases of concrete deverbal nouns clearly going back to PS can still be discovered. Thus, the structural identity between such well attested nouns as Akk. *zīkru*, Hbr. *zēkār*, Arb. *ḍikr-* and Gez. *zəkr* 'mention; memory' is, in my opinion, rather unlikely to be an accidental coincidence of forms produced independently in each particular language. Rather, a PS lexeme \**ḍikr-* derived from the verbal root \**ḍkr* (or \**-ḍkur-*) should be postulated. The same holds true for \**ṣuḥāl-* 'cough' (Akk. *suḥālu*, Syr. *ṣəḥālā*, *ṣəḥōlā*, Arb. *suḥāl-*, Tna. *səḥal*) and a few other examples discussed in SED I XLVII-IX.

## 2. Vocalic elements of root morphemes

Vocalized reconstructions of PS nominal and verbal roots are *personae non gratae* in the present-day Semitic studies. Neither concrete vocalized protoforms, nor the theoretical background behind them can boast of serious attention from modern Semitists. The tradition to operate with vocalized protoforms—quite prominent in earlier studies like Hommel 1879 or Nöldeke 1910:109-178—was practically abandoned by the middle of the twentieth century and it was not before mid-sixties that fresh contributions to this fascinating problem started to reappear. This new period was opened by Pelio Fronzaroli's groundbreaking study "*Sull'elemento vocalico del lessema in semitico*" (1963) where the author argued convincingly in favour of the presence of an original non-motivated vocalism in primary nominal and verbal roots of Proto-Semitic. The essence of Fronzaroli's approach has been brilliantly formulated in one of his later studies: "In semitico comune ... sussisteva ancora un vocalismo immotivato nei nomi mono- e bisillabici e, probabilmente, negli aggettivi che sono alla base dei verbi di stato. Per i verbi d'azione, invece, la vocalizzazione originaria dell'imperativo e delle forme a prefissi trovava concorrenza in formazioni apofonetiche ... È evidente la legittimità di ristabilire per il semitico comune non soltanto schemi consonantici, ma temi nominali e verbali vocalizzati. La possibilità di farlo dipenderà dalla quantità e qualità del materiale ... Le difficoltà che possiamo incontrare in singoli casi, non devono spingerci a conservare un'immagine storica ed evanescente del semitico. La coincidenza delle vocali

2. I am aware that a comprehensive comparative study of WS (mostly Arabic and Hebrew) perfects and Akkadian statives of verbs of quality (as envisaged in Fronzaroli 1963:126ff.) could reveal a different picture since the respective forms are at least potentially comparable from the structural point of view. But even within this approach additional difficulties are not lacking. Thus, it should not be forgotten that the base of the suffix conjugation of Hebrew verbs of quality does not always coincide with that of the commonly used adjective from the same root (cf. *zāḳēn* 'he was old; old' as opposed to *ṭāḥēr* 'he was clean' / *ṭāḥōr* 'clean' and similar cases discussed in Kuryłowicz 1972:100).

tematiche in un gran numero di casi, é un fatto di più che mostra il convergere, risalendo nel tempo, verso una lingua comune. Il non registrarlo significherebbe rinunciare senza motivo ad un elemento comune evidente" (Fronzaroli 1964:11). The possibility of compiling a list of PS vocalized reconstructions is an obvious consequence of this theoretical claim. This task was carried out by Fronzaroli in a series of stimulating articles (1964, 1965a, 1965b, 1968, 1969, 1971) whose paramount importance has not been, unfortunately, fully realized by Semitists. It was only in 2003 that a new special study dealing extensively (though not exclusively) with PS vocalic reconstruction appeared (Fox 2003).

In the meantime, a few studies connected with the reconstruction of PS vocalism appeared in the former Soviet Union and Russia. The necessity of investigating the vocalism of PS nominal roots was obvious for I.M. Diakonoff, his major contribution to this question being the well-known article of 1970. Diakonoff's later studies mostly dealt with broader Afroasiatic picture but here again vocalic reconstructions often played a prominent role. Other Russian studies in PS root vocalism are Belova 1993 (verbal roots), SED I and SED II by A. Militarev and L. Kogan (nominal roots), Frolova 2003 (verbal roots). A.M. Gazov-Ginzberg's monovocalic theory (1965a, 1965b, 1974) is largely built on the evidence of PS primary nouns. Finally, A.B. Dolgopolsky's articles on the PS accentual system (1978, 1986) are closely connected with the vocalic reconstruction of PS nominal roots.

### 2.1. Primary nominal roots

My understanding of the specific nature of the vocalic shapes of Semitic primary nouns as opposed to the vocalic patterns of derived nouns mostly derives from Diakonoff's observations on this subject (1970:453-5).<sup>3</sup> In Diakonoff's opinion, the most pertinent feature of primary nominal vocalism is its non-functional (non-motivated, arbitrary) character: "While the difference between the vocalism in the noun patterns *fa ʕl-*, *fī ʕl-*, *fā ʕil-*, *fa ʕil-*, *fa ʕūl-* derived from verbal roots corresponds to a difference in their semantic and/or grammatical function, the difference in the vocalism of various primary nouns has no connection with their semantic." (ibid. 454).<sup>4</sup> Another characteristic feature of the vocalic shapes discussed by Diakonoff, namely their stability, is (as recognized by Diakonoff himself) of less importance. While it is true that inflectional and derivational forms produced from primary nouns are mostly built with suffixes (which have no influence on the original vocalism) rather than with apophonic changes or discontinuous morphemes (which normally lead to a full or partial replacement of the primitive vocalic shape), the latter procedure is attested throughout Semitic (in a limited degree, even in Akkadian) and should no doubt be projected to the PS level.

3. Although the terminological distinction between "pattern" and "shape" is borrowed from Buccellati 1996:72 (cf. Fox 2003:37).

4. Obviously enough, the "semantic and/or grammatical function" of some derivational patterns may be rather vague (thus, Diakonoff's "product or result of the action" ascribed to segolate patterns subsume almost every abstract notion, cf. Fox 2003:107). It is clear, nevertheless, that for the majority of patterns a certain functional load can indeed be established (thus, for example, a derived noun with the *ḵatil*-pattern in Akkadian is almost inevitably an adjective rather than a substantive etc.). Even for such widely used and semantically vague patterns as *ḵitl-* and *ḵutl-* a careful synchronic investigation could probably provide a functional description more refined than that currently adopted ("Nomina actionis von eigentl. Verben, bisweilen mit Bedeutungsübergang ins Konkrete" and "Abstrakta von Adjektiven ... Bisweilen auch von Verbalwurzeln statt *pirs*" respectively in GAG 71-2). And conversely, even a theoretical possibility of motivation is hardly conceivable for primary nominal shapes: we will never be able to discover why the speakers of PS opted for *\*ḵatl-*, *\*ḵitl-* and *\*ḵatil-* to denote dog (*\*kalb-*), wolf (*\*di ʕb-*) and ewe (*\*raḥil-*) respectively.

The arbitrary nature of the vocalic elements of Semitic primary nouns constitutes the principal methodological premise for reconstructing them as consonantal-vocalic morphemes (roots or bases). In the following sections of this article an attempt will be made to present the main achievements of this reconstruction as well as its principal limitations.

### 2.1.1. Reconstructible vocalic shapes

What follows is a list of vocalic shapes of primary nouns which can be reliably reconstructed for PS. Since no complete etymological dictionary of Semitic is currently available, examples illustrating this or that shape cannot in principle be exhaustive. The list is based on the main collections of vocalized nominal reconstructions known to me: names of body parts and animal names as reconstructed by A. Militarev and myself in SED I and SED II; Fronzaroli's and Fox's studies for other lexical fields (usually one of the latter two is quoted as a reference for a particular reconstruction). For each shape, all examples exhibiting unambiguous reflexes throughout Semitic have been adduced.<sup>5</sup>

#### A. Shapes with short vowels

\**ḳat-*: \**ʔab-* 'father' (Fox 2003:72), \**ʔaḥ-* 'brother' (ibid.), \**ʔam-at-* 'female slave' (ibid.), \**dam-* 'blood' (SED I No. 50), \**ḥam-* 'husband's father' (Fox 2003:73), \**ḳaš-t-* 'bow' (ibid.), \**šan-at-* 'year' (Fronzaroli 1965a:148), \**šap-at-* 'lip' (SED I No. 265).

\**ḳit-*: \**ʔil-* 'god' (Fox 2003:73), \**ʔš(-āt)-* 'fire' (ibid.), \**ʔš-* 'tree' (ibid.), \**miʔ-at-* 'hundred' (ibid.), \**tin-* 'two' (ibid. 74).

\**ḳut-*: \**mut-* 'man, husband' (ibid.).

\**ḳatt-*: \**ʔamm-at-* 'elbow, forearm' (SED I No. 6), \**baḳḳ-* 'gnat' (ibid. II No. 58), \**kapp-* 'palm' (ibid. I No. 148), \**raḳḳ-* 'turtle' (ibid. II No. 190), \**šabb-* 'kind of lizard' (ibid. No. 221), \**ʔall-* 'dew' (Fox 2003:77).

\**ḳitt-*: \**rimm-at-* 'kind of insect, worm' (SED II No. 191), \**šinn-* 'tooth' (ibid. I No. 249).

\**ḳutt-*: \**muḥḥ-* 'brain' (ibid. No. 187), \**šurr-* 'navel' (ibid. No. 254), \**ʔull-* 'yoke, ring' (v., e.g., KB 827-8).

\**ḳatl-*: \**ʔalp-* 'cattle' (SED II No. 4), \**ʔanp-* 'nose' (ibid. I No. 8), \**ʔarḥ-* 'cow, heifer' (ibid. II No. 12), \**ʔarš-* 'earth' (Fox 2003:74), \**ʔarš-* 'bed' (ibid.), \**ʔaṭm-* 'bone' (SED I No. 25), \**ʔayn-* 'eye' (ibid. No. 28), \**ʔayr-* '(young) donkey' (ibid. II No. 50), \**baʔl-* 'lord' (Fox 2003:75), \**bayt-* 'house' (ibid.), \**ḥabl-* 'rope' (ibid.), \**ḥaḳl-* 'field' (Fronzaroli 1969:26), \**kabš-* 'young ram' (SED II No. 114), \**kalb-* 'dog' (ibid. No. 115), \**ḳamḥ-* 'flour' (Fox 2003:77), \**ḳarn-* 'horn' (SED I No. 168), \**mašk-* 'skin' (ibid. No. 190), \**paʔm-* 'foot, leg' (ibid. No. 207), \**part-* 'non-digested food in the stomach' (ibid. No. 221), \**šabʕ-* 'seven'

5. I am aware that for many (if not all) reconstructions proposed below a certain degree of ambiguity is almost inevitable at the present stage of research in comparative Semitics. Thus, I follow Fox 2003:52, 71 in assuming that the historical vocalism of MSA is so seriously understudied that no reliable conclusions can be based on the MSA evidence as far as the vocalism is concerned. Accordingly, MSA forms will be only rarely taken into consideration below. In some aspects, this restriction also applies to Syriac and other Aramaic dialects which are well known to exhibit a very unstable vocalism in closed unstressed syllables (here again cf. Fox 2003:71). Thus, for example, the shift \**a* > *e* observable in examples like *ḳeštā* 'bow' (< \**ḳašt-*) or *septā* 'lip' (< \**šapat-*) is so common that it is tempting to treat it as a nearly regular phonological development in spite of the fact that in a few other primary nouns \**a* is preserved in the same position.

(Fox 2003:77), \*šamn- 'fat' (SED I No. 248), \*šamš- 'sun',<sup>6</sup> \*šaḡm- 'small cattle' (SED II No. 219), \*šamr- 'wool' (Fox 2003:77), \*tayš- 'he-goat' (SED II No. 231), \*talg- 'snow' (Fox 2003:78), \*tawr- 'bull, ox' (SED II No. 241), \*ṭaby(-at)- 'gazelle' (ibid. No. 242), \*yawm- 'day' (Fox 2003:78).

\*kītl-: \*ḡbr-at- 'bone of the arm, leg' (SED I No. 3), \*diḡb- 'wolf, jackal' (ibid. II No. 72), \*kilʔ- 'both' (Fox 2003:80), \*riḡm- 'aurochs' (SED II No. 186), \*šidt- 'six' (Fox 2003:80), \*tibn- 'straw' (ibid. 80), \*tišʔ- 'nine' (ibid.).

\*kūtl-: \*ḡdn- 'ear' (SED I No. 4), \*buṭm- 'pistachio' (Fronzaroli 1968:290), \*duḡn- 'millet' (id. 1969:28), \*gurn- 'threshing flour' (ibid. 26), \*yurl(-at)- 'prepuce' (SED I No. 108), \*ḡupn- 'hollow of the hand' (ibid. No. 125), \*mušy(-at)- 'evening' (Fronzaroli 1965a:147; v. ibid. 150 for a convincing justification of this reconstruction).

\*katal-: \*šapar- 'soil' (Fronzaroli 1968:287), \*baḡar- 'large cattle' (SED II No. 59), \*barad- 'hail' (Fox 2003:82), \*bašar- 'meat' (SED I No. 41), \*ḡakar- 'male' (Fronzaroli 1964:37), \*ḡaḡan- 'beard' (SED I No. 63), \*ḡanab- 'tail' (ibid. No. 64), \*garab- 'a skin disease' (ibid. No. 91), \*ḡalab- 'milk' (Fox 2003:83), \*ḡatan- 'son-in-law' (ibid.), \*ḡanay- 'reed' (ibid.), \*maṡar- 'rain' (ibid.), \*nahar- 'river' (ibid.), \*paraš- 'horse' (SED II No. 182), \*ṡalay- 'lamb' (SED II No. 232).

\*kaṡil-: \*kabid- 'liver' (SED I No. 141), \*kariš- 'belly, stomach' (ibid. No. 151), \*raḡil- 'ewe' (ibid. II No. 188), \*waḡil- 'ibex' (ibid. No. 244), \*wariḡ- 'moon' (Fronzaroli 1965a:144), \*warik- 'hip' (SED I No. 288).<sup>7</sup>

\*kītal-: \*ḡnab- 'fruit, grapes' (Fox 2003:85), \*šilaʔ- 'rib' (SED I No. 272).<sup>8</sup>

\*kaṡlad- (including \*kaṡkaṡat-): \*ṡapṡaw- 'viper' (SED II No. 10), \*ṡarbaʔ- 'four' (Fox 2003:86), \*ṡarnab(-at)- 'hare' (SED II No. 14), \*ṡakbar- 'mouse' (ibid. No. 30), \*kabkab- 'star' (Fox 2003:87), \*kaṡkaṡar- 'soil, ground' (Fronzaroli 1968:287), \*laḡlaḡ- 'stork' (SED II No. 146), \*ṡaḡlab- 'fox' (ibid. No. 237).

\*kaṡlid-: \*ṡawliʔ(-at)- 'worm' (SED II No. 230).<sup>9</sup>

\*kaṡlud-: \*ḡunpuḡ- 'hedgehog' (SED II No. 133),<sup>10</sup> \*šū(n)bul(-at)- 'ear of grain'.<sup>11</sup>

6. \*šamš- in Fronzaroli 1965a:144 (which does not account for the different sibilants in Arb. šams-). Reconstructed as \*šamš-/\*šimš- in Fox 2003:79 in spite of the fact that it is only in Aramaic that reflexes of PS \*i are present (cf. the preceding fn.).

7. Since reliable examples of \*kaṡil- among PS animal names are at least as numerous as \*kaṡil-terms for body parts, I do not see sufficient reasons to agree with Fox (2003:66) who postulates a kind of special semantic association between \*kaṡil- and anatomic terms (for a similar claim cf. already GVG I 336-7; for a somewhat contradictory evaluation of it v. Fronzaroli 1964:50: "in realtà non vi è motivo di supporre che tale tema fosse preferito per i nomi delle parti del corpo. La sua frequenza fra questi nomi è dovuta al fatto che molti di essi sono originari aggettivi").

8. So also Fox 2003:85; the reasons behind \*šalʔ- in Fronzaroli 1964:42 are not clear to me.

9. Reconstructed as \*ṡawlaʔ(-at)- in Fronzaroli 1968:297 and Fox 2003:87 which does not account for -ē- < \*-i- in Hbr. tōlēʔā (with a striking parallel in Akk. tu-li-a-tum from the OB incantation YOS XI 5:10; for later Akk. forms supporting the reconstruction with \*-i- v. Watanabe 1987:201). Mnd. tulita 'worm' (DM 483) points in the same direction.

10. Not fully reliable as Ebl. ḡi-pá-šúm = Sum. PÉŠ in VE 872 suggests that Hbr. ḡippōd is not from \*ḡunpuḡ- but rather from \*ḡinpuḡ-.

11. Based on Arb. sunbul-, Akk. šubultu, Hbr. šibbōlāt (probably < \*šunbult- but cf. Huehnergard 1992:222). Cf. \*šubbul(-at)- in Fronzaroli 1969:27.

B. *Patterns with long vowels*

\**kāt*-: \**māy*- 'water' (Fronzaroli 1965a:146; preferable to \**maʔ*- in Fox 2003:73).

\**kīt*-: \**gīd*- 'sinew' (SED I No. 72).<sup>12</sup>

\**kūt*-: \**nūb(-at)*- 'bee' (SED II No. 156), \**tūm*- 'garlic' (Fronzaroli 1969:24).

The evidence provided by these examples could be dismissed as non-decisive since contraction of sequences \*-Vw/y(V)- can be supposed in each case. This possibility, however, clearly belongs to internal reconstruction (cf. Fox 2003:38, 54-55) and is not relevant for that stage of PS which is the object of the present discussion. Moreover, unambiguous evidence for long vowels in PS primary nouns comes from the following terms with three strong radicals:

\**katāl*-: \**ʔatān*- 'donkey mare' (SED II No. 19), \**šamāy*- (Fronzaroli 1965a:144, preferable to \**šamaʔ*- in Fox 2003:83), \**talāt*- 'three' (Fox 2003:85; \**šalāt*- is perhaps more convincing in view of the evidence from ESA, MSA and Sargonic Akkadian).

\**kitāl*-: \**dirāʔ*- 'arm' (SED I No. 65), \**himār*- 'donkey' (ibid. II No. 98), \**kišād*- 'neck' (ibid. I No. 147), \**tihām(-at)*- 'sea' (Fox 2003:85).

\**katūl*-: \**ḥasīs*- '(part of) ear' (SED I No. 126), \**naḥīr*- 'nostril' (ibid. No. 198).<sup>13</sup>

\**katūl*-: \**ʔatūd*- 'male of small cattle' (SED II No. 44), \**batūl(-at)*- 'virgin, young woman' (Fox 2003:85).

\**katālid*-: \**tamāniy*- 'eight' (Fox 2003:87).

Additional evidence for long vowels in PS primary nouns comes from examples whose short vowel is unstable but the long one is well preserved and must be original:

\**ā* - \**lVšān*- 'tongue; language' (SED I No. 181).

\**ī* - \**ʕVrīṭ*- 'male kid' (ibid. II No. 39), \**ḥV(n)zīr*- 'pig' (ibid. II No. 111), \**ʕVrnīḳ*- 'crane' (ibid. No. 91).

\**ū* - \**sVnūn(Vw/y)-at*- 'swallow' (ibid. No. 197).

2.1.2. *Regularity of vocalic correspondences*

Examples adduced in the preceding section (some 120 cases) exhibit the same vocalic reflexes as those inflectional and derivational morphemes which have been discussed in the first part of this contribution. Is this evidence sufficient to conclude that the vocalism of nominal roots follows the same rules of correspondences?

The answer to this question is ambiguous. On the one hand, several dozens of regular examples can by no means result from chance coincidence. On the other hand, the number of reconstructible PS primary nouns goes far beyond one hundred. Fox's collection (2000:72-87) alone includes more than 250 examples and even this is certainly not exhaustive. What, then, happens with the remaining dozens of cases? Scores

12. So in spite of Syr. *gəyādā*, most probably a secondary formation in view of the forms in *-ī*- so well represented throughout Semitic.

13. Cf. Fronzaroli 1964:30-1 where the traditional derivation from \**nḥr* 'to snore' is rejected (instead, the verb is thought to be denominative which is most probably correct). Fronzaroli's own derivation ("un verbo per 'forare' che troviamo in accadico e in arabo") is hardly an attractive alternative, however. In my opinion, no convincing verbal etymology for this noun is available but even if there is one, such a derivation surely belongs to very deep layers of PS.

of primary nominal bases, while perfectly regular from the point of view of their consonantism, do not yield regular vocalic reflexes in the daughter languages, which makes impossible a coherent reconstruction of their original vocalic shapes. The seriousness of this challenge, I believe, has not been properly acknowledged by previous researches<sup>14</sup> and it seems useful to discuss this problem at some length in the present context.

Most of the pertinent examples can be roughly subdivided in two groups: those affected by sporadic vocalic shifts on the one hand and those undergoing morphological rebuilding on the other.

#### A. Sporadic vocalic shifts

A sporadic vocalic shift is an unpredictable mutation of the original root-vowel. Since completely unconditioned shifts are not easy to imagine, various attempts have been made to explain such examples by the influence of neighbouring consonants. A most typical example of such a diachronically conditioned<sup>15</sup> shift is the mutation of *\*i* and *\*a* into *u* in the vicinity of *p*, *b* and *m*. The importance of this phenomenon is duly recognized in Fox 2003:108-9. It may be responsible not only for such universally recognized cases as:

Akk. *burku*, Syr. *burkā* vs. Akk. *birku*, Hbr. *bārāk*, du. *birkayim* < *\*birk-* 'knee' (SED I No. 39, *\*birk-* in Fox 2003:80)

Arb. *ḥumat-* vs. Akk. *imtu*, Hbr. *ḥēmā* < *\*ḥimat-* 'venom' (SED I No. 120, *\*ḥim-at-* in Fronzaroli 1964:39)

Arb. *lubb-* vs. Akk. *libbu*, Hbr. *lēb* < *\*libb-* 'heart' (SED I No. 174)

Hbr. *mōtān* < *\*mutn-* vs. Akk. *matnu*, Arb. *matn-*, Gez. *matn* < *\*matn-* 'hip, sinew' (ibid. Nos. 191, 192)

Akk. *šumu* vs. Hbr. *šēm* < *\*šim-* 'name' (Fox 2003:73)

Syr. *šumnā* vs. Akk. *šamnu*, Arb. *samn-*, Hbr. *šämān* < *\*šamn-* 'fat, oil' (SED I No. 248)

but also for such otherwise enigmatic examples as:

Gez. *ʔabn* < *\*ʔbn-/\*ʔubn-* vs. Akk. *abnu*, Hbr. *ʔābān* < *\*ʔabn-* 'stone' (Fox 2003:74, Fronzaroli 1968:287)

Gez. *ʔālf* < *\*ʔlp-/\*ʔulp-* vs. Arb. *ʔalf-*, Hbr. *ʔālāp* < *\*ʔalp-* 'thousand' (Fox 2003:74)

Gez. *ʔammāt* < *\*ʔmmāt-/\*ʔummat-* vs. Akk. *ammātu*, Hbr. *ʔammā* 'cubit' < *\*ʔamm-at-* (SED I No. 6)

Gez. *kānf* < *\*kinp-/\*kunp-* vs. Arb. *kanaf-*, Hbr. *kānāp* < *\*kanap-* 'wing' (ibid. I No. 145)

14. Thus, for example, only some 50 reconstructions are marked with minus (= "non-reconstructible") and zero ("more than one alternative protoforms") in Fox 2003:72-87 (as recognized by Fox on p. 69, the latter definition is often substantially identical to the former). In my opinion, this is over-optimistic. I do not see any unambiguous evidence behind such vocalic reconstructions as *\*baʔr-* 'beasts' (Fox 2003:84; Arb. *baʔr-* vs. Hbr. *bəʔr* < *\*bu/iʔr-* vs. Gez. *bəʔr* < *\*bu/iʔr-*), *\*dimʔ-at-* 'tear' (ibid.:80; Arb. *damʔ-* vs. Hbr. *dimʔā*), *\*ḥinʔ-at-* 'wheat' (ibid.; Akk. *uḫḫetu* vs. Hbr. *ḫiḫā*, Arb. *ḫinʔat-*), *\*ḫiʔn-* 'bosom' (ibid.; Hbr. *ḫōʔān* < *\*ḫuʔn-* vs. Arb. *ḫiʔn-*), *\*ḫaʔir-* 'court' (ibid.:84; Arb. *ḫaʔirat-* vs. Hbr. *ḫāʔēr* < *\*ḫaʔir-*), *\*sanay-* 'thornbush' (ibid.:83; Hbr. *sənā* < *\*si/unay-*, Akk. *sinū* vs. Arb. *sanaʔ*), *\*šikar-* 'intoxicating drink' (ibid.:85; Akk. *šikaru* vs. Arb. *sakar-*), *\*till-* 'mound' (ibid.:81; Arb. *tall-* vs. Hbr. *tēl* < *\*till-*, Akk. *tillu*), all marked with "+" in Fox's study. Many further examples see below in the discussion of various types of irregularities.

15. For no Semitic language can we postulate a rule like "PS *\*i* and *\*a* shift to *u* before/after *m*, *p* and *b*": such sequences are synchronically tolerated everywhere.

Gez. *kərm* < \**kirm-/kurm-* vs. Akk. *karmu*, Arb. *karm-*, Hbr. *kārām* < \**karm-* 'hill, vineyard' (cf. Fox 2003:76, Fronzaroli 1969:25 who do not consider Akk. *karmu* as reflecting this root)

Gez. *təlm* < \**tilm-/tulm-* vs. Hbr. *tälām* < \**talm-* (Fox 2003:79).

In Fox's opinion (2003:108-9, 134), the labial influence in Geez can be distant: the hypothetical \**u* in the first syllable of words like *kərm* (instead of *karm*) is thought to be conditioned by the labial in the third position.

In a number of cases *u*-forms are attested in more than one language or even predominate throughout Semitic:

Akk. *ummu*, Arb. *ʔumm-*, Ugr. *ʔum* vs. Hbr. *ʔēm* < \**ʔimm-* 'mother' (Fox 2003:79)

Hbr. *ḥōmāš* < \**ḥumt-* and Gez. *ḥəməš* < \**ḥumt-/ḥimt-* vs. Akk. *emšu* < \**ḥamt-*, Mhr. *ḥamt* 'lower belly' (SED I No. 122)

Arb. *rumḥ-*, Hbr. *rōmah* < \**rumḥ-*, Syr. *rumḥā* vs. Gez. *ramḥ* (also *rəməḥ*) 'lance' (Fox 2003:79)

Akk. *šupru*, Jud. *ṭuprā*, Arb. *ḍufr-* vs. Arb. *ḍifr-*, Soq. *ṭifer* 'nail' (SED I No. 285).

As far as such examples are concerned, it is not always easy to say whether the *u*-colouring appeared independently in various languages or emerged already in PS (contrast \**ṭupr-* in Fronzaroli 1964:49 and \**ṭipr-* in Fox 2003:81).

However, for dozens of examples with irregular vocalic correspondences no conditioning factors have been proposed so far:

\**ʔrān-* 'chest' (Akk. *arānu*, Ugr. *ʔarn* vs. Arb. *ʔrān-*, Hbr. *ʔārōn* < \**ʔrān-*; \**ʔarān-* in Fox 2003:84)

\**ʔšk-* 'testicle' (Akk. *išku*, Arb. *ʔskat-* vs. Ugr. *ʔušḱ*, Hbr. pB. *ʔōšāk* < \**ʔušḱ-* vs. Hbr. *ʔāšāk* < \**ʔašk-*; SED I No. 11, \**ʔšk(-at)-* in Fronzaroli 1964:47, \**ʔašk-/ʔšk-* in Fox 2003:78)

\**ʔtl-* 'tamarisk' (Akk. *ašlu*, Arb. *ʔaṭl-* vs. Hbr. *ʔēšāl* < \**ʔtl-*; Fox 2003:78)

\**ʔnz-* 'goat' (Arb. *ʔanz-* vs. Hbr. *ʔēz* < \**ʔinz-*; \**ʔanz-* in Fronzaroli 1969:29)

\**dVm ʔ-at-* 'tear' (Arb. *dam ʔ-* vs. Hbr. *dim ʔā*, possibly Akk. *dīmtu*; SED I No. 51, \**dim ʔ-at-* in Fox 2003:80)

\**ḥVtṭ-* 'arrow' (Akk. *uššu* vs. Hbr. *ḥēš* < \**ḥitt-* vs. Gez. *ḥašš*; Fox 2003:78)

\**ḥVnt-at-* 'wheat' (Arb. *ḥint-at-*, Hbr. *ḥittā* vs. Akk. *uṭetu*; \**ḥint-at-* in Fox 2003:80, Fronzaroli 1969:27; cf. *ibid.* 35: "La vocalizzazione in *u* dell'accadico, non spiegabile su base fonetica, andrà attribuita a diversità dialettale")

\**ḥVšn-* 'bosom' (Hbr. *ḥōšān*, st. pron. *ḥošn-* < \**ḥušn-* vs. Arb. *ḥiḍn-*, Hbr. \**ḥēšān*, st. pron. *ḥišn-*; SED I No. 129, \**ḥišn-* in Fox 2003:80)

\**ḥV(n)zīr-* 'pig' (Akk. *ḥuzīru*, Ugr. *ḥuzīru*, Hbr. (Qumran) *ḥwzyr* vs. Arb. *ḥinzīr-*; SED II No. 111)<sup>16</sup>

\**kVl(l)-* 'all' (Akk. *kala*, Mhr. *kāl* vs. Akk. *kullat-*, Arb. *kull-*, Hbr. *kōl* < \**kull-*, Gez. *k<sup>w</sup>əll-u*; \**kull-* in Fox 2003:81)

\**kVly-at-* 'kidney' (Akk. *kalītu* vs. Hbr. *kilyā* vs. Arb. *kulyat-*, Gez. *k<sup>w</sup>əlit*; SED I No. 156, \**kuly-at-* in Fronzaroli 1964:47)

16. The reasons behind *-a-* in \**ḥaz(z)īr-* in Fronzaroli 1969:31 are not clear to me. In Fox 2003:87 this noun is adduced as non-reconstructible which may be somewhat hypercritical in view of the stable *-ī-* in all the languages; an Akkadism in WS supposed in Fox 2003:47 is very unlikely, v. extensively SED II No. 111.

\**katVp*- 'shoulder' (Arb. *katif*-, Hbr. *kātēp* vs. Akk. *katappatu*, Arb. *kataf*-; SED I No. 154, \**katip*- in Fronzaroli 1964:46, Fox 2003:84)

\**kVdḳVd*- 'skull' (Akk. *kaḳḳadu* vs. Hbr. *koḳḳōd* < \**ḳudḳud*-; SED I No. 159)

\**IVšān*- 'tongue' (Akk. *lišānu*, Arb. *lisān*-, Gez. *ləssān* vs. Hbr. *lāšōn*; SED I No. 181, \**lišān*- in Fronzaroli 1964:45)

\**nVšr*- 'eagle' (Syr. *nešrā*, Arb. *nisr*- vs. Arb. *nasr*-, Hbr. *nāšār* < \**našr*- vs. Arb. *nusr*-; SED II No. 166, \**našr*- in Fronzaroli 1968:295)

\**rVgl*- 'foot' (Arb. *riḡl*-, Ugr. *riḡlu* vs. Hbr. *rägāl*, du. *raglayim*; SED I No. 228, \**riḡl*- in Fox 2003:80)

\**sVnay*- 'thornbush' (Arb. *sana*<sup>n</sup>, Syr. *sanyā* vs. Akk. *sinû*, Hbr. *sənā* < \**sinay*-; \**sanay*- in Fox 2003:83)

\**sVnūn(Vw/y)-at*- 'swallow' (Akk. *sinuntu* vs. Arb. *sunūnuw*-; SED II No. 197)

\**sVpl*- 'bowl' (Akk. *saplu*, Ugr. *saplu* vs. Hbr. *sēpāl* < \**sipl*-, Arb. *sifl*-; \**sapl*-/\**sipl*- in Fox 2003:79)

\**šVkar*- 'intoxicating drink' (Akk. *šikaru*, Hbr. *šēkār* vs. Arb. *sakar*-, Syr. *šakrā*; \**šikar*- in Fronzaroli 1971:632, Fox 2003:85)

\**šVrš*- 'root' (Akk. *šuršu*, Hbr. *šōrāš* < \**šurš*- vs. Syr. *šeršā*, Arb. *širs*- 'thorn-bush'; \**šurš*- in Fronzaroli 1968:290, Fox 2003:82)

\**tVll*- 'hill' (Akk. *tīlu*, *tillu*, Hbr. *tēl* < \**till*- vs. Arb. *tall*-; \**till*- in Fox 2003:81, Fronzaroli 1968:287)

\**ṭVll*- 'shadow' (Arb. *ḡill*-, Akk. *ṣillu*, Hbr. *ṣēl* < \**ṭill*- vs. Jud. *ṭullā*; \**ṭill*- in Fronzaroli 1965a:145)

\**ṭVrr*- 'flint' (Akk. *šurru*, Hbr. *šōr* < \**ṭurr*- vs. Arb. *ḡirr*-; \**ṭurr*- in Fronzaroli 1968:287).

Biconsonantal bases with long vowel can also exhibit vocalic variation:

\**nVb*- 'canine tooth' (Jud. *nībā*, Tgr. *nib* vs. Arb. *nāb*-; \**nayab*- in Fronzaroli 1964:45)

\**sVś*- 'moth' (Akk. *sāsu*, Hbr. *sās*, Syr. *sāsā* vs. Syr. *sūsātā*, Arb. *sūs*-, Har. *sūs*; SED II No. 198)

\**šVḳ*- 'thigh' (Arb. *sāḳ*-, Hbr. *šōḳ*, Akk. *sāḳu* vs. Akk. *sīḳu*; SED I No 241, \**šawaḳ*- in Fox 2003:83).

In the above examples sporadic vocalic changes take place within the limits of one syllabic structure (most often \*CVCC-). Yet there is another important source of shape variation, namely changes of the syllabic structure of the shape.

The alternation \**ḳatal*- ~ \**ḳatl*- is illustrated by the following examples:

\**bar(a)ḳ*- 'lightning' (Hbr. *bārāḳ* vs. Arb. *barḳ*-; \**baraḳ*- in Fox 2003:82 and Fronzaroli 1965a:146, with the following remark on p. 149: "in arabo *barq* si presenta come il nome d'azione di *baraqa* 'lampeggiò'")

\**nam(a)l*- 'ant' (Hbr. *nāmālā* vs. Arb. *naml*-; SED II No. 163, \**namal*- in Fox 2003:83, \**naml(-at)*- in Fronzaroli 1968:297)

\**šaḥ(a)r*- 'down' (Hbr. *šaḥar* < \**šaḥr*- vs. Arb. *saḥar*-; \**šaḥar*- in Fronzaroli 1965a:147 with the following remark ibid. 149: "la vocalizzazione ricostruita è fondata sull'arabo; l'ebraico suggerirebbe *šaḥr*-")

\**tam(a)r*- 'palm-tree' (Hbr. *tāmār* vs. Arb. *tamr*-; \**tamr*- in Fronzaroli 1968:291).

For \**ḳatil*- ~ \**ḳatl*- the following cases can be considered:

\**ḥam(i)š*- 'five' (Akk. *ḥamiš*, Hbr. *ḥāmēš* vs. Arb. *ḥams*-; \**ḥamiš*- in Fox 2003:84)

\**mal(i)k-* 'king' (Arb. *malik-*, Akk. *maliku* vs. Hbr. *mäläk* < \**malk-*; \**malk-* in Fox 2003:76)

\**nap(i)š-* 'soul' (Akk. (OB) *napištu* vs. Arb. *nafs-*, Hbr. *näpäš* < \**napš-*, Akk. (OA) *napaštu*; \**napš-* in Fox 2003:77, \**napiš-* in Fronzaroli 1964:38, cf. discussion ibid. 51)

\**raḥ(i)m-* 'womb' (Arb. *raḥim-* vs. Hbr. *raḥam* < \**raḥm-*; SED I No. 231, \**raḥm-* in Fronzaroli 1964:47).

Conditions triggering the change of syllabic structure remain obscure (as far as \**ḵatal-* ~ \**ḵatl-* is concerned, the prominence of examples with a sonorant as R2 and/or R3 is perhaps not accidental). The same holds true for the geographic distribution of this phenomenon (a certain predilection towards syncopated forms in Arabic may be observed).

Examples involving change in both vocalic quality and syllabic structure are not very numerous:

Arb. *ṣaḵīb-*, Hbr. *ṣāḵēb* < \**ṣaḵīb-* 'heel' vs. Tgr. *ṣəḵəb* 'foot' < \**ṣiḵb-* or \**ṣuḵb-* (SED I No. 14, \**ṣaḵīb-* in Fronzaroli 1964:49, Fox 2003:84)

Akk. *bukru*, Hbr. *bəḵōr* < \**bukur-*, Arb. *bikr-*, Gez. *bak<sup>w</sup>r* < \**bakur-* 'first-born' (\**bukur-*/\**bikr-*/\**bakur-* in Fox 2003:86, cf. ibid. 203)

Arb. *ḥanak-* vs. Hbr. *ḥēk* < \**ḥink-*, Syr. *ḥenkā* 'palate' (SED I No. 124)

Arb. *madar-* vs. Gez. *mədr* < \**mudr-* or \**midr-*, Hbr. *mädär* < \**madr-* 'clod of earth' (\**midr-* in Fronzaroli 1969:24)

Arb. *namir-*, Hbr. *nāmēr* vs. Akk. *nimru*, Arb. *nimr-* 'leopard'; SED II No. 164, \**nimr-* in Fronzaroli 1968:293 (cf. ibid. 281: "in ebraico, NAMIR- definisce il leopardo, con il tema aggettivale 1a2i3- come l'animale dalla pelliccia maculata e rappresenta quindi una rideterminazione espressiva del significato", \**namir-*/\**nimr-* in Fox 2003:84)

Hbr. *šāḵēd* < \**ṭaḵid-*, Akk. *šiḵdu*, *šuḵdu*, Gez. *səgd* 'almond' (\**iḵd-* in Fronzaroli 1968:291, cf. ibid. 300: "L'ebr. *šāqēd* è rideterminato sul tema aggettivale 1a2i3-, probabilmente per etimologia popolare"; treated as non-reconstructible in Fox 2003:84).

## B. Morphological rebuilding

Quite often the vocalic shapes attested in various languages are so divergent that establishing the original one is not only difficult but practically impossible. "*Rideterminazione morfologica*" is discussed in a special section of the introductory chapter of Fronzaroli's work (1964:12). Fox 2003 is also attentive to this problem: for some 25 PS nominal roots he believes that the original vocalism is non-reconstructible because of heavy alternations in all or most languages ("some of the words may have undergone a complete pattern replacement, rather than just a phonological development, and no reconstruction is possible", Fox 2003:70).

The following selection of examples may be sufficient to illustrate the phenomenon under discussion:

Arb. *ṣnāʔ-*, Hbr. *ṣnī* < \**ṣny-*, Akk. *unūtu* 'vessel' (\**ṣnw(-at)-* in Fronzaroli 1971:637, "con qualche esitazione dovuta alle molte rideterminazioni formali nelle lingue storiche")

Akk. *ilḵu*, Hbr. *ṣālūḵā*, Syr. *ṣelaḵtā*, *ṣalūḵā*, Arb. *ṣalaḵ(-at)-*, Gez. *ṣalaḵt* 'leech' (SED II No. 32); \**ṣalaḵ(-at)-* in Fronzaroli 1968:297 (cf. ibid. 303: "il tema attestato in accadico differisce da quello delle lingue occidentali; in ebraico questo è rideterminato sul tema aggettivale 1a2ū3-")

Akk. *unīḵu*, Arb. *ṣanāḵ-* 'female kid' (SED II No. 34)

- Akk. *ašāšu*, Hbr. *šāš* (< \**šat*-), Arb. *šuttat*- 'moth' (SED II No. 45)  
 Hbr. *šūl*, Jud. *šūl*, Gez. *šəwāl*, Tgr. *šəlu* 'child, foal' (ibid. No. 47)  
 Arb. *ba šir*-, Hbr. pB. *bə šir* < \**bi/ū šir*-, Gez. *bə šər* < \**bu/i šir*- or even < \**ba šir*- 'household animal' (ibid. No. 53); \**ba šir*- in Fox 2003:84, Fronzaroli 1969:29  
 Hbr. *dəbōrā* (< \**dVbār*-), Jud. *dabbartā*, Syr. *debbōrā*, Arb. *dabbūr*-, Amh. *dib<sup>w</sup>ara* 'kind of insect' (SED II No. 66)  
 Akk. *dumāmu*, Arb. *dimm-at*-, Gez. *dəmmat* 'a feline' (ibid. No. 70)  
 Akk. *zubbu*, Hbr. *zəbūb*, Jud. *dībābā*, Syr. *dabbābā*, *debbābā*, Arb. *ḍubāb*-, Amh. *zəmb*, Mhr. *ḍabbēt* 'fly' (ibid. No. 73); \**ḍubb*- in Fronzaroli 1968:296 (reflected unambiguously in Akk. only, rightly considered non-reconstructible in Fox 2003:82)  
 Akk. *āribu*, *ēribu*, Hbr. *šōrēb* (< \**yārib*-), Jud. *šurbā*, Arb. *yurāb*-, Mhr. *yəyərāyb* 'crow' (ibid. No. 89); \**yārib*- in Fronzaroli 1968:295, 302 and Fox 2003:85 (cf. ibid. 33, 232)<sup>17</sup>  
 Akk. *irgilu*, Hbr. *ḥargōl* (< \**ḥargāl*- or \**ḥargul*-), Syr. *ḥargālā*, Arb. *ḥarḡalat*- 'kind of locust' (ibid. No. 103)  
 Hbr. *ḥāšēr* (< \**ḥašir*-), Arb. *ḥaḍīrat*-, Arb. *ḥiḍār*-, Jud. *ḥuṭrā* 'yard, enclosure' (\**ḥašir*- in Fox 2003:84)  
 Hbr. *ḥōrāp* (< \**ḥurp*-), Arb. *ḥarīf*- 'autumn, winter' (rightly treated as non-reconstructible in Fox 2003:84)  
 Akk. *ḥuṭtimmu*, Hbr. *ḥōṭām* (< \**ḥuṭam*-), Jud. *ḥuṭmā*, Arb. *ḥaṭm*- 'nose' (SED I No. 139)  
 Akk. *lab ū*, Hbr. *lābī*(?) , Arb. *luba ḡat*-, *labu ḡat*- 'lion(ess)' (ibid. II No. 144); \**labi ḡ*- in Fronzaroli 1968:293 (Arb. -*u*- is explained as due to contamination with *ḍabu ḡ*- 'hyena' and/or the influence of the labial ibid. 301; -*ī*- in the Hbr. form, going back to \**ī* rather than \**i*, is not discussed)  
 Akk. *mūnu*, Syr. *mənīnā*, Arb. *minanat*-, *manūnat*- 'kind of insect' (SED II No. 152)  
 Akk. *perša ū* (*per ḡāšu*, *parša ū*, *paršu ū*, *puršu ū*), Ebl. *pur-ḥa-šūm*, Hbr. *par šōš* (< \**par yūt*- or \**par yāt*-), Syr. *purta ḡnā*, Arb. *bur yūt*- 'flea' (ibid. No. 185); \**par yūt*- in Fronzaroli 1968:297 which can (but need not) match the Hbr. form only (rightly considered non-reconstructible in Fox 2003:87)  
 Hbr. *šəpīpōn*, Syr. *šappāpā*, Arb. *siff*-, *suff*-, Tgr. *šəf* 'kind of snake, worm' (SED II No. 207)  
 Hbr. *šə šōrā* (< \**šV šār-at*-), Arb. *ša šir*- 'barley', Gez. *šā šr* 'herb, herbage, straw', Jib. *šá šər* 'dry grass, straw'; \**šū šār-at*- in Fronzaroli 1969:27 with the following comment ibid. 34: "in arabo il sostantivo appare rideterminato sul frequente tema aggettivale 1a2ī3-; l'ebraico e l'aramaico permettono la ricostruzione di un tema 1i2ā3-, oppure 1u2ā3-" (rightly considered non-reconstructible in Fox 2003:85)  
 Akk. *šumēlu*, Hbr. *šəmō*(?) , Arb. *šimāl*- 'left hand, side' (SED I No. 264); reconstructed as \**šim ḡal*- in Fox 2003:87 which, in my opinion, is rather hard to reconcile with the Hbr. (probably also Akk.) evidence  
 Hbr. pB. *šābūā ḡ*, Arb. *ḍabu ḡ*-, *ḍab ḡ*-, Gez. *šəb ḡ* 'hyena' (SED II No. 220); reconstructed as \**šabu ḡ*- in Fronzaroli 1968:293 and Fox 2003:85 (which regularly corresponds to one of the Arb. by-forms only)<sup>18</sup>

17. Both authors believe that the Arb. form exhibits an analogical adjustment to the *ḥutāl*- pattern supposed to be typical of Arabic bird names; Jud. *šurbā* and related forms throughout Arm. are not taken in consideration in spite of the fact that they obviously do not go back to \**yārib*- but are relatively close to Arb. *yurāb*- (a borrowing from Hebrew tentatively suggested by Fox remains to be sustained).

18. The Hbr. pB. form adduced as *šəbōa ḡ* by Fronzaroli appears as *šābūa ḡ* in both Ja. 1257 and Levy WTM IV 166. The Biblical evidence is, as well known, complicated. The only unambiguous attestation is Sir 13.18 (*šbw ḡ*) which does not help to establish whether the second vowel is *ū* or *ō*. The form *šəbō šim* adduced by Fox (which of course does correspond to the reconstructed \**šabu ḡ*-) is attested only as (part of) a toponym which seriously reduces its relevance for comparative purposes. At the same time, *šābūa ḡ* in Je 12.9 is not unlikely to mean 'hyena' but the context is extremely complicated (cf. Barr 1968:128).

Hbr. *šū šāl*, Syr. *ta šlā*, Arb. *tu šāl*-, Mhr. *yəṭáył* 'fox' (SED II No. 237); \**tu šāl*- in Fronzaroli 1968:293 (cf. *ibid.* 301) which regularly corresponds to the Arb. form (as rightly observed in Fox 2003:221, none of the two vowels of the Hbr. forms is a regular continuation of its hypothetical PS source in spite of the superficial similarity; cf. already Diakonoff 1970:475)

Arb. *ṭihāl*-, Hbr. *ṭəḥōl*, Syr. *ṭəḥālā* vs. Akk. *ṭulīmu*, Jib. *ṭelḥīm* 'spleen' (SED I No. 278)

Akk. *imnu* (< \**yamin*-), Hbr. *yāmīn*, Arb. *yamīn*, *yaman*-, Gez. *yamān*, *yamin* 'right hand, side' (*ibid.* No. 292).

It is probably not accidental that many of the above examples are animal names where the intensity of the rebuilding process may be conditioned by expressivity, tabooing and similar factors.

### 2.1.3. *In search of more regularity: some alternative models of reconstruction*

It is tempting to suppose that discrepancies in the root vocalism can at least sometimes be only apparent and explainable by hitherto undiscovered rules of correspondences. In this connection, the names of two Semitists deserve special mention: I.M. Diakonoff and A.B. Dolgopolsky.

As already stated above, Diakonoff's main contribution to our topic is his 1970 article "Problems of Root Structure in Proto-Semitic". Diakonoff's reconstruction of PS root vocalism reposes on three postulates briefly formulated on p. 456 of his study:

- long vowels are absent in the primary nominal root morphemes
- in the sub-system of PS primary nominal root morphemes, *u* is an allophone of the *i*-phoneme conditioned by the contact with the labials *b*, *p*, *m* (sometimes also with *g*, *ḳ*, *k* and in a few cases with the glottal stop)
- in segolate bases (\**C<sub>1</sub>VC<sub>2</sub>C<sub>3</sub>*-) either *C<sub>2</sub>* or *C<sub>3</sub>* must be *ʔ*, *y*, *w*, *l*, *r*, *m*, *n* and if it is *C<sub>2</sub>* that is a phoneme of this group, than *V* is *a*.

As a result, a bivocalic system emerges where \**a* is opposed to \**ə* and several syllabic sonants (*m*, *n*, *l* etc.) are introduced. The validity of Diakonoff's theory and its import to the progress of the PS vocalic reconstruction deserve to be studied at some length.

As far as Diakonoff's first claim is concerned, it is no doubt true that PS primary nouns with long vowels are uncommon. It may be pointed out, however, that most of the hypothetical examples discussed (and refuted) by Diakonoff on pp. 463-4 of his study are not sufficiently representative. Thus, \**bāb*- 'door' is an obvious *Kulturwort* borrowed from Akkadian into Aramaic and then to Arabic; \**šlāh*- 'god' and \**š/unāš*- 'mankind' are Central Semitic formations which hardly bear on the PS picture; a PS reconstruction \**dām*- 'blood' based on the hypothetical variant with a long *ā* in Akkadian has hardly been ever considered in Semitological literature. Diakonoff presents very few truly pertinent cases (like \**tūm*- 'garlic' or \**māy*- 'water') and explains them by a "rhythmical *Analogiebildung*" after the more usual triconsonantal patterns — an explanation which is rather hard to prove or disprove. The same approach is of course conceivable for a few other \**C<sub>1</sub>V<sub>2</sub>C<sub>3</sub>*- examples mentioned above (\**gād*- 'sinew' or \**nūb(-at)*- 'bee') and an alternative explanation (contraction of sequences \**-Vw/y(V)-*) also presents itself (Fox 2003:38, 54-55). However, none of the two explanations is possible for true triconsonantal examples like \**ʔatān*- 'donkey mare', \**talāt*- 'three', \**ḥimār*- 'donkey', \**kišād*- 'neck', \**tihām(-at)*- 'sea', \**naḥīr*- 'nostril', \**ʔvrūt*- 'male kid', \**ḥV(n)zīr*- 'pig' or \**tamāniy*- 'eight'. Such examples are certainly not very numerous but to leave them entirely out of consideration (as actually done by Diakonoff) means to oversimplify the PS picture.

The reasons behind Diakonoff's second claim are also rather transparent. That bases with *u*-vocalism are uncommon among PS primary nouns is a widely acknowledged fact and it is equally certain that in most of such cases one of the consonant is a labial (thus, among 12 examples with stable *u*-vocalism adduced above the only exceptions are \*šurr- 'navel', \*ʔudn- 'ear', \*duḥn- 'millet', \*yull- 'yoke, ring', and \*yurl(-at)- 'prepuce'). It is indeed tempting to suppose that at some earlier stage of the development of PS \**u* did not exist at all as an independent phonemic entity. The main problem with Diakonoff's approach is that examples like \*mulḥ- 'brain' or \*mut- 'man' —where *u*, even if eventually due to the labial influence, is stable throughout Semitic— are either left out of consideration, or mixed up with a highly heterogeneous group of examples exhibiting vacillation between *u* and *i* (sometimes also *a*) in various languages.<sup>19</sup> It is therefore not unexpected that Diakonoff's claim according to which "the labialized and non-labialized forms can be predicted, not with a hundred per cent certainty, but at any rate with a high degree of probability" (p. 464) does not look well-founded. Most of the correspondence rules adduced in this section of Diakonoff's article are either insufficiently proved or contradictory. Thus, for example, the correspondence PS \**bə*- ~ Arb. *bi*- ("certain" from Diakonoff's point of view) reposes on Arb. *biʔr*- 'well', *bikr*- 'firstborn' and *bin*- 'son' whereas *buʔrat*- 'pit' (not mentioned by Diakonoff) and *sunbulat*- 'ear of corn' (allegedly "a borrowing from some dialect of the ancient settled population") overtly contradict it. When the disagreement between the pertinent forms (mostly those of Hebrew and Aramaic) is too conspicuous, it is, according to Diakonoff, to be "obviously explained by the fact that the Hebrew language was formed by the superposition of an Amorite-Sutean nomadic dialect (or dialects) over a strong affined substratum of the local language of the settled Canaanites" (cf. "this phenomenon reflects the historically attested mixed ethnic origin of the Arameans" on p. 465). Needless to say, cultural-historical arguments of this kind are rather unwelcome in a study on historical phonology (independently of their actual validity). We may conclude that Diakonoff is certainly right that the rarity of PS primary nouns with *u*-vocalism may point to the absence of *u* from the earliest vocalic inventory of PS. He did not succeed, however, to reveal any systematic rules allowing to trace it back to the hypothetical PS \**ə*. The reconstruction of \**k<sup>w</sup>*, \**g<sup>w</sup>*, \**k<sup>w</sup>* and \**H<sup>w</sup>*, obviously introduced by Diakonoff in order to justify his claim, is also unfounded (for each of the hypothetical phonemes only one or two examples are adduced).

There are some reasons behind Diakonoff's third claim, too. Among 29 nouns reconstructed as \**katl*- above in 2.1.1 no less than 26 comply with Diakonoff's third rule, their second or third consonant being a sonorant (the exceptions are \**kabš*- 'young ram', \**mašk*- 'skin' and \**šabʔ*- 'seven'; only the latter is truly pan-Semitic). A certain connection between stable *a*-vocalism and the phonetic nature of the two last consonants in segolate nouns is thus almost inescapable (for a similar hypothesis advanced by W. von Soden v. GAG 71, 12). One has to concede that among 14 reliable \**kitl*- and \**kutl*- examples 11 also have a sonorant as one of the two last radicals, which, incidentally, does not prevent \**diʔb*- 'wolf, jackal', \**kilʔ*- 'both' and \**riʔm*- 'aurochs' from displaying a very stable *i*-vocalism (instead of *-a*- predicted by Diakonoff).<sup>20</sup>

19. Thus, Sem. terms for firstborn are very divergent and probably not reducible to a single "segolate" prototype (as partly recognized by Diakonoff himself); the reflexes of \**biʔr*- and \**buʔr*- 'well, pit' coexist in so many languages that doublet proto-forms should be postulated already for PS (as reasonably done in Fronzaroli 1971:632); Akk. *ḫutru* 'smoke' and similar forms in other languages are very likely deverbal derivatives rather than reflexes of a PS primary noun; the extreme rarity of both *binu* and *bunu* 'son' in Akk. seriously undermines the relevance of this example; *-i*- in Hbr. *šibbōlūt* may be a regular reflex of \**u* in this position (cf. *ḫippōd* 'hedgehog' and *šippōr* 'bird', both likely < \**kuttul*-).

20. As one can infer from Diakonoff 1970:467, both groups of examples which do not fit his theory should be automatically considered as originally deverbal. This reasoning is clearly circular.

To sum up, while it is hard to deny the highly innovative impact of Diakonoff's contribution (for a recent appraisal cf. del Olmo Lete 2003:34ff., 49ff.), his theory as a whole cannot be regarded as a fully coherent system (which is at least partly due to the rather restricted corpus of evidence under investigation).

A.B. Dolgopolsky's views on the vocalic reconstruction of PS primary nouns have been expounded in two special studies (1978, 1986) and summarized in a recent monograph (1999). According to Dolgopolsky, various types of vocalic irregularities in primary nominal bases can be plausibly explained if the traditional understanding of the PS accent as fully determined by the syllabic structure and therefore non-phonemic is abandoned in favour of an unbound and phonologically relevant stress. In my review of Dolgopolsky 1999 (Kogan 2004) I tried to outline briefly the most interesting aspects of Dolgopolsky's theory and to draw attention to some of its inconsistencies. My generally negative conclusion does not undermine the extremely stimulating and useful nature of some aspects of Dolgopolsky's theory. Thus, the vocalic discrepancy between Akk. *ziḫnu* 'beard' and its WS cognates (Arb. *daḫan-*, Hbr. *zāḫān*) was a riddle for several generations of scholars. It was treated as an example of "*rideterminazione morfologica*" in Fronzaroli 1964:12 whereas *ibid.*:16 the same example (together with *bišru* vs. PS *\*bašar-* 'meat' and *zibbatu* vs. PS *\*danab-* 'tail') was thought to be possibly due to both "diversità dialettali" and "certa preferenza per la vocale *i*" in Akkadian (the influence of the following sibilant suggested by Brockelmann in GVG I 202 was rightly rejected as unconvincing by Fronzaroli). It was an important merit of Dolgopolsky 1978 to demonstrate that the correspondence PS *\*katal-* vs. Akk. *ḫitl-* is practically regular among primary nouns (cf. now Fox 2003:110, 126, 158; I tend to agree with Fox that Dolgopolsky's accentual explanation of this phenomenon is not sufficiently founded<sup>21</sup>).

## 2.2. Primary verbal roots

The semantically and grammatically non-motivated nature of the vocalic element of the monosyllabic base of the prefix conjugation (-CCVC-) and, consequently, its diachronic priority is widely recognized in Semitological literature. According to J. Kuryłowicz, "it would be erroneous to consider the root of the Sem. verb as a merely consonantal skeleton. Within the primary conjugation ... there is only one paradigm whose vocalism (of R2) is basic or unpredictable ... The vowel of R2 of the "imperf." being *u*, the verbal root is *k(u)tub* and not simply *k-t-b*" (1972:34; cf. already *ibid.* 1961:15, 17). Furthermore, "... to look for a morphological function of the root vowel (the vowel of R2) in the primary verb must be considered a misunderstanding. To look for a constant association between the vocalism of R2 and the fundamental meaning of non-motivated (primary) verbs is a methodological derailment tantamount to the old theory of Lautsymbolik" (1972:43).

Kuryłowicz's approach was not accepted unanimously but, to my knowledge, no coherent objection against it has been advanced so far. An exclusively consonantal nature of verbal roots was repeatedly defended by such a prominent advocate of consonantal-vocalic roots of primary nouns as I.M. Diakonoff (e.g., 1988:47, 1991:23-4) but, in my view, without any substantial argument.<sup>22</sup> According to Fox 2003:45,

21. In its nuclear form this explanation is present already in Diakonoff 1970:470, where Akkadian (and Aramaic) are characterized as typical *i*-dialects which is thought to be due to the fact that "the most ancient stress lay on the second syllable" and "*\*a* had a tendency towards reduction, which resulted, in the different dialects, either in *i* or in *a*".

22. Diakonoff rightly emphasized the fact that both short and long forms of the prefix conjugation should be traced back to the earliest stage of PS, but, contrary to his opinion, such a reconstruction should not prevent one from treating the latter form as derived from the former. One can reasonably argue that in such oppositions as Akk *iprus* : *iparras*, *ipḫid* : *ipaḫḫid*, *illik* : *illak*, *ipparis* : *ipparras*, *uparris* : *uparris*, *ušapris* : *ušapras* gemination and/or *a*-vocalism are present-tense markers. Conversely, it

the fact that the thematic vowel of \*-CCVC- is not shared by other forms of prefix conjugation (including those of derived stems) speaks against treating it as the root-vowel. Fox's observation is certainly correct and, in general, it is hard to deny that the degree of stability of the vocalic element of verbal roots is inferior to that of primary nominal roots (accordingly, from a practical point of view it may indeed be more convenient to describe the PS root for stealing as \**šrḱ* rather than \**-šriḱ-*, cf. Fronzaroli 1973:5). However, as we have seen above in connection with primary nouns, it is not the stability of the root vocalism but rather its non-motivated nature that is decisive for treating it as part of the root. Now, since the arbitrary character of the vowel of \*-CCVC- is not in doubt, there is hardly any difference in this respect between primary nominal and verbal roots in Semitic.

The possibility of reconstructing the vocalism of concrete verbal roots of Proto-Semitic is a natural consequence of the recognition of its original and non-motivated nature. Several scholars adhering to this concept compiled extensive lists of PS verbal roots with the thematic vowel as their integral part. A critical analysis of these collections has been recently proposed in T. Frolova's unpublished MA thesis (2001) where an independent lexical research on the topic has also been undertaken (summarized in Frolova 2003). The description below greatly benefited from Frolova's studies as well as from oral discussions with her (even if our opinions on particular questions are sometimes divergent). I am deeply grateful to Ms. Frolova for this opportunity.

The first contribution to be mentioned in this connection is P. Fronzaroli's article of 1963 (whose crucial importance for the vocalic reconstruction of primary nouns has been already mentioned above). Assuming that the coincidence of the thematic vowel of the short form of prefix conjugation in Akkadian and Arabic reflects the PS picture, Fronzaroli was able to adduce about 18 reliable examples of such coincidences (1963:125 and passim in *Studi*). In the great majority of cases the reconstructed vowel is *u*: \*-*ʔrur-* 'maledire' (Fronzaroli 1965b:264<sup>23</sup>), \*-*blul-* 'mescolare con acqua' (1971:635), \*-*ḏkur-* 'invocare' (1965b:264), \*-*gnun-* 'coprire' (1969:24), \*-*gzuz-* 'tosare' (ibid.:30), \*-*ḥluṣ-* 'raffinare schiumando' (1971:635), \*-*kbub-* 'bruciare' (ibid.:637), \*-*kpup-* 'incurvare' (1964:48), \*-*ksus-* 'masticare' (1971:631), \*-*ḳṣuṣ-* 'tagliare' (1963:125), \*-*lḳuṭ-* 'raccogliere' (1969:26), \*-*nḥul-* 'vagliare' (ibid.:27), \*-*rbuk-* 'intridere' (1971:633), \*-*rgum-* 'lapidare' (1965b:264), \*-*šluḳ-* 'cuocere in acqua' (1972:636). For other vowels, \*-*ṣṣid-* 'mietere' (1969:26<sup>24</sup>), \*-*ḥrim-* 'coprire; interdire' (1965b:262), \*-*šriḱ-* 'rubare' (1963:125) and \*-*rkab-* 'andare (sul carro)' (ibid.:125) can be considered reliable.

Although Fronzaroli is aware that only an agreement between the Akkadian and Arabic data is truly relevant for establishing the thematic vowel in the proto-language ("non sarà possibile ristabilire la vocale di un tema verbale se non dal confronto di arabo ed accadico, le sole due lingue in cui la vocale si è conservata", 1964:11), some of his reconstructions appear to be based on rather unreliable evidence in at least one of the languages.

In some cases the thematic vowels in Akkadian and Arabic do not agree which makes the PS reconstruction more or less arbitrary (as often recognized by the author himself): \*-*ḥpiš-* 'raccogliere insieme' (1971:629; Akk. *ṭpuš*, cf. ibid. 638), \*-*kpur-* 'strofinare' (1965b:265; Arb. *kfr i*, cf. ibid. 268), \*-*ḳṭip-* 'cogliere' (1969:25; Akk. *ḳatāpu a/u*, cf. ibid. 1969:33), \*-*ḳṭur-* 'fumare' (1971:636; Arb. *ḳṭr i*, Lane 2486), \*-*prur-* 'fuggire (come in volo)' (1968:294; Arb. *frr i*, cf. ibid. 302). Similarly, if one of the

would be hard to demonstrate that **lack** of gemination and **either** *i* or *u* mark the preterite. It is worth noting that in 1970:477 Diakonoff admits that in its earliest form the PS verbal root might include a vocalic element.

23. No Arb. cognate adduced but in fact Arb. *ʔr* 'crier avec insolence et effronterie' (BK 1 22) is well comparable semantically.

24. If the comparison between Akk. *eṣēdu* and Arb. *ṣḏd* is preferred to the semantically more straightforward equation between *eṣēdu* and Arb. *ḥṣd* (cf. below).

languages yields vocalic doublets, ascribing the priority to one of the variants for the only reason that it coincides with the vocalism observed in the other language is hardly warranted. This is the case of *\*-ḥruṭ-* 'arare' (1969:26; Akk. *īriš, īruš*, CAD E 285; Arb. *i, u*, BK 1 403, cf. 1969:33), *\*-ḥbir-* 'seppellire' (1965b:263; Arb. *i, u*, BK 2 658) and *\*-ndur-* 'promettere in voto' (1965b:262; Arb. *i, u*, BK 2 1231).<sup>25</sup>

Some of Fronzaroli's examples are doubtful for phonological and/or semantic reasons and sometimes these deficiencies are combined with those outlined above: *\*-ḥbiṭ-* 'bacchiare' (1969:26; the semantic difference between Arb. *ḥbiṭ* 'to bit' and Akk. *ḥabātu* 'to rob' is considerable whereas the consonantal correspondence is irregular; besides, as recognized *ibid.* 33, the thematic vowel of the Akk. verb is *u*), *\*-kšip-* 'tagliare' (*ibid.*:265; Akk. *kašāpu* 'fare un sortilegio' is hard to reconcile semantically with Arb. *ksf* 'to break, cut'; v. below for an alternative Akk. congate with *-u-*); *\*-ntuk-* 'mordere' (1971:631; metathesis and semantic shift in Arb.), *\*-pliṭ-* 'scampare' (1965b:263; based on the equation of Arb. *flt* with Akk. *balātu*, with two phonological irregularities; besides, as recognized on p. 267, the Akk. verb is not attested with the thematic vowel *-i-*); *\*-rmuš-* 'muoversi strisciando' (1968:295; Arb. *rmš* 'to throw' vs. Akk. *namāšu* 'to move' is not regular either semantically or phonologically; the Arb. verb is attested with both *u* and *i*, BK 1 924); *\*-špir-* 'cinguettare' (1968:295; Arb. *šfr* vs. Akk. *šabāru* is phonologically irregular whereas the thematic vowel of the Akk. verb is *u*, cf. *ibid.* 302).

Finally, in some cases no cognate is altogether present in one of the two languages: *\*-bruk-* 'ingnocchiarsi' (1965b:264; only Arb.), *\*-dkuk-* 'pestare' (*ibid.*:632; no form of prefix conjugation of Akk. *dakāku* is attested), *\*-dḫuk-* id. (1971:633; Akk. not attested in G), *\*-drir-* 'scorrere liberamente' (1965a:147; as recognized by the author on p. 150, only Arb., where, moreover, not only *i* but also *u* is attested), *\*-ḥlul-* 'sciogliere' (1965b:262; only Arb.), *\*-ḫtur-* 'legare' (1969:26; only Akk.), *\*-mšuk-* 'scuoiare' (1964:41; only Arb.), *\*-pruš-* 'stendere' (1968:295; only Arb.); *\*-šrub-* 'sorseggiare' (1971:630; only Arb. where the thematic vowel is, moreover, *a*; cf. *ibid.* 638), *\*-šrup-* 'accendere, come applicare il fuoco' (1971:635; only Akk.).

The rather high number of fully or partly unreliable examples does not contribute to justify Fronzaroli's principal claim ("la coincidenza delle vocali tematiche in un gran numero di casi", 1964:11), especially since most cases of disagreement are left without explanation. At the same time, one can hardly overestimate the paramount relevance of Fronzaroli's study which still remains the only substantial collection of explicitly formulated PS reconstructions of consonantal-vocalic verbal roots.

The next contribution to our topic appeared only one year after Fronzaroli's 1963 article. J. Aro's monograph (Aro 1964) deals primarily with vocalic classes of verbs in individual Semitic languages but on pp. 152ff. much attention is spent to the common Semitic picture. The main position under comparison of Aro's study (the thematic vowel of the short form of prefix conjugation) does not differ from that of Fronzaroli's but an important innovation of treating separately active-transitive and stative verbs is introduced (as convincingly demonstrated by Aro, the two segments of the verbal system in Semitic are quite different as far as the preservation of the original root-vowel is concerned).

Reliable examples of PS transitive *u*-verbs are sometimes identical to those adduced by Fronzaroli (*\*-dkur-*,<sup>26</sup> *\*-lḫut-*), but many additional examples have been proposed: *\*-ʔgur-* 'to hire', *\*-ḥud-* 'to take',

25. Unless Akk. *nazāru* 'to curse' is to be compared to Arb. *nzr* 'presser, talonner qn., regarder et traiter qn. avec dédain' (BK 2 1235), with *u* as the thematic vowel according to LA 5 203.

26. Unlike Fronzaroli, Aro does not explicitly propose vocalic reconstructions like *\*-dkur-* or *\*-šriḫ-* but restricts himself to a mere comparison between the pertinent Akk. and Arb. forms. The same applies to the studies by Kuryłowicz, Belova and Frolova discussed below. In the present contribution, Fronzaroli's way of presenting the evidence will be extrapolated on the examples proposed by these scholars (so, Aro's "Akk. *izkur* — Arb. *yaḏkuru*" will be conventionally described as "PS *\*-dkur-*" etc.). This procedure is adopted for the sake of brevity and in view of the essentially reconstructive nature of my presentation. It

\*-*ʔkul-* 'to eat', \*-*ḥnuḳ-* 'to strangle', \*-*ktum-* 'to cover', \*-*nḳur-* 'to hew out', \*-*npuš-* 'to shake, kick', \*-*nṭur-* 'to watch', \*-*štur-* 'to write', \*-*ṭrud-* 'to drive'. A few geminated verbs mostly coinciding with those proposed by Fronzaroli (\*-*blul-* 'to mix', \*-*gzuz-* 'to shear', \*-*gnun-* 'to cover', \*-*ḥmum-* 'to gather', \*-*kpup-* 'to bend', \*-*mdud-* 'to measure', \*-*rdud-* 'to drive away') are listed separately since, as Aro rightly points out, their relevance for the vocalic reconstruction is seriously restricted (transitive *i*-verbs of this type are not widely attested either in Arabic or in Akkadian). In sum, the number of reliably reconstructed PS transitive *u*-verbs adduced in Aro's study amounts to 19.

As partly recognized by the author, in a few examples from this section the vocalism is vacillating between *u* and *i* in Arb. and/or Akk.: Arb. *ḥrt* 'to plow' (BK 1 403) and Akk. *īriš*, *īruš* (CAD E 285), Arb. *fīr* 'to split, cut; to begin' (BK 2 610), Arb. *fīr* 'to disclose, reveal' (BK 2 593), Arb. *šrt* 'to incise' (BK 1 1215). As already stated above, the evidence provided by such examples is at best ambiguous, to say nothing of such overtly contradictory cases as Akk. *ispun* vs. Arb. *yasfinu* 'to level off'. A few other cases are more or less problematic for phonological and/or semantic reasons. Thus, the meaning of Akk. *dakāšu* is disputed;<sup>27</sup> the semantic relationship between Akk. *našābu* 'to suck' and Arb. *nḏb* 'descendre dans le sol, être absorbé et disparaître (se dit de l'eau)' (BK 1277) is not obvious and in any case the diathesis is different, which prevents one from direct comparison at least if the active : stative dichotomy is regarded as pertinent (v. above); Akk. *batāḳu* vs. Arb. *bik* 'to cut' and Akk. *našāku* 'to bite' vs. Arb. *nḳt* 'to cut' are phonologically irregular whereas both Arb. verbs are attested with both *-u-* and *-i-* (BK 1 83, *ibid.* 2 1338); the semantic relationship between Akk. *amāru* 'to see' vs. Arb. *ʔmr* 'to order' is far from evident; Akk. *šakānu* 'to place' and Arb. *skn* 'to dwell' are clearly related but the diathesis is different (v. above).

For transitive *i*-verbs 10 reliable examples have been adduced: \*-*ʔsir-* 'to shut in', \*-*ḥpir-* 'to dig', \*-*ḳriš-* 'to cut',<sup>28</sup> \*-*ḳšit-* 'to cut', \*-*ntip-* 'to tear', \*-*pḳid-* 'to look for', \*-*pšid-* 'to cut', \*-*ptil-* 'to plait', \*-*šriḳ-* 'to steal', \*-*šrim-* 'to break' (if Akk. *sarāmu* rather than *šarāmu* is compared, the latter being an *a/u* verb, CAD Š 2 49). A few other examples adduced in this section by Aro are unreliable as Arb. exhibits both *i* and *u* (as often recognized by Aro himself): \*-*ḥmš* 'to cut, incise', \*-*ḳbr* 'to bury', \*-*rps* 'to tear', \*-*snp* 'to tie', \*-*šmd* id. The same is true about \*-*drs* (Arb. *drs* is an *u* verb according to both BK 1 688 and Lane 870) and a few other examples more or less doubtful for various reasons (thus, Arb. *ntn* does not mean 'to give' but 'sentir mauvais, puer', BK 2 1194; Akk. *malāku* 'to advice' vs. Arb. *mlk* 'to reign, to possess' is semantically problematic; Arb. *ṭmr* vs. Akk. *temēru* is phonologically irregular).

Aro is not unattentive to examples of disagreement between Akkadian and Arabic but truly reliable examples of this type are few in his study and no explanation for the vocalic difference is proposed. Thus, only 4 deviating examples with Arb. *i* vs. Akk. *u* adduced by Aro are convincing: \*-*ḥšd* 'to reap' (with both *i* and *u* in Arb.), \*-*kbs* 'to tread', \*-*ḳtp* 'to pluck', \*-*špk* (with both *i* and *u* in Arb. according to Lane 1374); the existence of Akk. *kabālu* 'to bind' (compared by Aro to Arb. *kbl*) is disputed (v. CAD K 4, 8). Several examples of the reverse picture (Arb. *u* vs. Akk. *i*) are also adduced but few of them are reliable (\*-*ʔbr* 'to cross', \*-*kmš* 'to collect', \*-*nks* 'to break', \*-*skr* 'to dam', \*-*tbr* 'to break'). The remaining cases are problematic: Arb. *lbn* 'to make bricks' does not seem to be attested in the basic stem; Akk. *patāḳu* 'bilden' vs. Arb. *ftḳ* 'brechen' is semantically problematic; Akk. *rašāpu* means 'to erect, pile up' (CAD R 184) rather than 'zusammenfügen' and may be a WS borrowing; for Akk. *raḥāšu* v. fn. 54.

should by no means be understood as an attempt to ascribe such reconstructions to the respective authors, the more so since at least Aro was apparently rather sceptical about concrete lexical reconstructions (1964:153).

27. 'Ausbeulen' proposed in AHW. 151 is well comparable to Arb. *dks* 'entasser' (BK 1 719) but if the Akk. verb means 'to pierce' as suggested in CAD D 34 (with discussion; cf. 'to press in' in CDA 53), they are hardly compatible.

28. But note that Arb. *ḳrṣ* 'pincer qn. (en serrant la chair avec le bout des doigts)' (BK 2 712) is semantically closer to Akk. *karāšu* 'to pinch off' (CAD K 209) than Arb. *ḳrṣ* 'couper' (BK 2 713). The former is an *u*-verb, however.

As far as intransitive verbs are concerned, reliable examples of coincidences adduced by Aro are sporadic (\*-*rbiš*- 'to lie down' or \*-*šul*- 'to cough'), in most cases no agreement between Akkadian and Arabic being observable.

In Aro's view, both \*-*ktul*- and \*-*ktil*- classes of fientive-transitive verbs should be reconstructed as PS even if the vocalism of concrete lexical pairs is sometimes divergent (1964:155-7). Conversely, no clear picture can be obtained for stative verbs, where the WS and Akk. systems are too different to be compared (ibid. 159, 161-2).

The existence of non-motivated verbal root vocalism is one of the key positions in J. Kuryłowicz's understanding of the PS verbal system (1972:34, 43, 54ff.). In support of his theory (briefly outlined above in the beginning of this section), Kuryłowicz adduced a few Arabic-Akkadian cognate pairs with identical vocalism.

For PS *u*-verbs, some 17 reliable examples are proposed (1972:54), most of them identical to those suggested by Fronzaroli and Aro (\*-*ʔgur*-, \*-*ʔhud*-, \*-*ʔkul*-, \*-*dkur*-, \*-*ksus*-, \*-*ktum*-, \*-*lkuṭ*-, \*-*mdud*-, \*-*nkur*-, \*-*nṭur*-, \*-*rgum*-, \*-*štur*-, \*-*trud*-). Additional cases include \*-*yrub*- 'to enter', \*-*rkus*- 'to tie', \*-*šlul*- 'to draw' and \*-*tkul*- 'to weigh'. Problematic examples in Kuryłowicz's presentation are not lacking. Thus, Akk. *barāmu* A (*a/u*) means 'to seal' (CAD B 101) and has no obvious connection with Arb. *brm* 'to twist' whereas the semantically regular cognate of the latter (*barāmu* B 'to be multicolored') is known only in the stative (CAD B 103); Akk. *halālu* 'to perforate' is unlikely to be attested (not in AHw. or CAD); the relationship between Akk. *magāru* 'to agree' (hardly 'to desire') vs. Arb. 'to be thirsty' is not self-evident semantically; Arb. *frš* and *nsr* are attested with both *i* and *u* as the thematic vowel (v. references in Frolova 2003:87); Akk. *alālu* means 'to hang' rather than 'to bind' (CAD A1 329) whereas Arb. *yll* 'charger qn. de chaînes' (BK 2 487) is almost certainly denominative from *yull*- < PS \**yull*- 'collar, yoke'; neither Akk. *napāšu* nor Arb. *nfs* seem to be attested with the meaning 'to burst open'.

An original *i*-vocalism is supposed for 14 verbs (1972:55), 6 of them quite convincing: \*-*ʔsir*- 'to bind', \*-*ʔlib*- 'to leave', \*-*klil*- 'to be small', \*-*pqid*- 'to look for', \*-*rbiš*- 'to lie down', \*-*šriḳ*- 'to steal'. Problematic examples include \**ʔmd* 'to stand',<sup>29</sup> \**ʔk* 'to move, proceed' (Arb. *ʔk* 'être ancien; devancer les autres chevaux à la course' is an *u* verb according to BK 2 164 and it is only for the meaning 'reprendre son ancien éclat et sa souplesse (se dit de la peau)' that both *i* and *u* are reported); \**hlk* 'to go' (Arb. *hlk* 'périr' attested with both *i* and *a* as the thematic vowel according to BK 2 1439); \**hll* (Akk. *alālu* with the meaning 'to shine' does not appear either in AHw. or in CAD); for \**mlk*, \**rḥš* (correct Kuryłowicz's *rḥš*) and \**spr* v. above.

An important merit of Kuryłowicz's presentation is a rather systematic treatment of examples with divergent vocalism. On p. 59 of his monograph 10 transitive Akk. *a/u* verbs with Arb. parallels in *-i-* are listed, most of them convincing (\**hbt* 'to destroy',<sup>30</sup> \**kbs* 'to tread', \**ksp* 'to trim', \**ktp* 'to pluck', \**prs* 'to cut', \**špk* 'to pour', \**špr* 'to send', \**šrm* 'to split'); only Akk. *lapātu* 'to touch' vs. Arb. *lft* 'to turn, fold' and Akk. *tabāku* (rather than *tabāku!*) 'to stack up' ('(hin)schütten, vergiessen' in AHw. 1295) vs. Arb. *tbk* 'to cover' are somewhat problematic semantically (the latter case, also phonologically). In Kuryłowicz's opinion, the discrepancy is to be explained by the fact that such roots originally belonged to the hypothetical

29. Both *imid* and *imud* are known as the preterite forms of Akk. *emēdu* (CAD E 138). Besides, Arb. *ʔmd* 's'attacher a qn.' (directly comparable to Akk. *emēdu* 'to lean against, to reach, to cling to' from the point of view of diathesis) has *a* as the thematic vowel. As for the meaning 'étayer, appuyer, soutenir à l'aide d'un pilier' of *ʔmd* (*i*) as described in BK 2 360, its diathesis is certainly different from that of Akk. *emēdu* in both of its typical meanings ('to lean against, to reach, to cling to' and 'to place, lean').

30. If Kuryłowicz's comparison between Akk. *abātu* and Arb. *hbt* 'frapper; jeter en bas, précipiter en poussant' (BK 2 1379) is preferred to its widely accepted equation with Hbr. *ʔbd* 'to perish' and its cognates going back to PS \**ʔbd* (KB 2).

*a/i Ablautklass* (for which v. also Kienast 1967:72) whose desintegration in Akkadian led them to assimilation with verbs belonging to the more common *a/u Ablautklass* (the *i* vowel in Arb. is thus supposed to be original). However, since the very existence of the *a/i Ablautklass* in the basic stem of sound roots in Proto-Akkadian (or Proto-Semitic) has never been convincingly demonstrated, Kuryłowicz's explanation does not appear to be well-sustained.

Four examples of the reverse relationship (Akk. *i/i* vs. Arb. *-u-*) are left without explanation by Kuryłowicz but only one of them (*\*tbr* 'to break') is reliable (*\*rṣp* 'to build' and *\*hkm* are problematic as the respective Akk. cognates are suspect of being WS borrowings whereas Akk. *naḳābu* has *u* as the thematic vowel of the preterite, CAD N1 328).

For a few examples of intransitive verbs with Akk. *i/i* vs. Arb. *u* the latter is thought to be primary by Kuryłowicz (*\*fbr* 'to cross', *\*btl* 'to stop', *\*brḳ* 'to flash', *\*hdt* 'to be new', *\*šḳt* 'to fall'; the last example is problematic in view of the unreliable Akk. attestation, cf. CAD Š2 14).

A rich collection of Akkadian-Arabic cognate pairs with identical root vocalism has been collected by A.G. Belova (1993:37-45).

Reliable examples of PS *\*u-*verbs in Belova's study mostly include those proposed by her predecessors (*\*-ḳul-*, *\*-ḳud-*, *\*-blul-*, *\*-ḳkur-*, *\*-gnun-*, *\*-ḳluṣ-*, *\*-ḳmum-*, *\*-ḳnuḳ-*, *\*-ḳpup-*, *\*-ksus-*, *\*-ktum-*, *\*-lḳuṭ-*, *\*-mdud-*, *\*-nḳul-*, *\*-nḳur-*, *\*-nḳub-*, *\*-nḳur-*, *\*-npuṣ-*, *\*-rbuk-*, *\*-rdud-*, *\*-rgum-*, *\*-rkus-*, *\*-štur-*, *\*-ṭrud-*, *\*-ṭḳul-*, *\*-ṭlul-*). Additional cases are *\*-ḳtuṭ-* 'to make an incision', *\*-mruṭ-* 'to rub, to make smooth', *\*-mṣuṣ-* 'to wipe', *\*-nsuḳ-* 'to put in order'.

Belova's study is characterised by a relatively high number of fully or partly unconvincing examples (due to space limitations, only a selective treatment of such cases is possible in the present context). Thus, in such cases as *\*ḳrṣ* 'to trim', *\*nbt* 'to shine', *\*nḳr* 'to snore', *\*prṣ* 'to break', *\*ptr* 'to cut, dissolve', *\*šrt* 'to tear', *\*zmr* 'to sing' the Arb. cognate is attested with both *i* and *u* as the thematic vowel (in *\*šḳn* both *u* and *a* are attested in Arb. whereas in *\*šbr* 'to tie, bend' only *i* seems to be attested according to BK 1 1305). As for *\*ḳrṣ* 'to pinch off', *\*šlt* 'to be powerful' and *\*šrt* 'to fart', vacillation between *i* and *u* is observable in Akkadian (CAD K 209, Š1 238 and Š 107 respectively). Akk. *ḳarātu* vs. Arb. *ḳrṣ* 'to cut, peel', Akk. *šalāpu* vs. Arb. *slb* 'to pull out', Akk. *šabābu* vs. Arb. *šff* 'to spread wings' are phonologically irregular whereas Akk. *makāku* 'to spread' vs. Arb. *mkk* 'to reduce', Akk. *parāku* 'to lie across' vs. Arb. *frk* 'écraiser qch. entre deux doigts; froter entre les doigts' (BK 2 586), Akk. *ramāku* 'to bathe' vs. Arb. *rmk* 's'arrêter dans un lieu' (BK 1 928), Akk. *šarāpu* 'to burn' vs. Arb. *srf* 'to devour (about insects)' are doubtful semantically (in the latter case, moreover, Hbr. *šrp* suggests that the expected sibilant in Arb. is *š* rather than *s*). In *\*rṣn* 'to be mighty' the thematic vowel of the preterite in Akk. is unknown; Akk. *malāsu* is not attested with the meaning 'to shout'. A few other unreliable cases (*\*ḳmr*, *\*btḳ* ~ *\*btḳ*, *\*yll*, *\*ḳṭr*, *\*nṭk* ~ *\*nḳt*, *\*nṣb*, *\*škn*) have been already discussed above in connection with earlier studies.

Convincing examples of PS *\*i* in Belova's study are not numerous and mostly coincide with those adduced previously (*\*-ntip-*, *\*-ptil-*, *\*-pṣid-*, *\*-pḳid-*, *\*-ḳlil-*, *\*-rbiṣ-*); an additional case is *\*-rḳiḳ-* 'to be thin'.

Not unlike her predecessors, Belova included into this section several examples with vacillating vocalism in Arabic (*\*ḳsr* 'to cut', *\*ḳmṣ* 'to tear, cut', *\*ḳbr* 'to bury', *\*nkl* 'to be clever', *\*nks* 'to cut', *\*nzḳ* 'to be worried', *\*rps* 'to tear', *\*skr* 'to dam up', *\*šmd* 'to bind', *\*ṭlm* 'to be dark') and Akkadian (*palāḳu* 'to cut', AHw. 814; *ḳabālu* 'to oppress, make harm', AHw. 302; *ḳarātu* 'to graze', CDA 107). Other problematic cases include *\*ḳlb* 'to milk' (Akk. *ḳalābu* is attested in NA only, AHw. 309, being with all probability an Aramaism); Akk. *ḳalāḳu* vs. Arb. *hlk* 'to disappear' and Akk. *kamāsu* vs. Arb. *ḳmṣ* 'to collect' (phonologically irregular); *\*ṭpr* (the meaning of Akk. *ṭapāru* and its very attestation in G is problematic, cf. AHw. 1380); Akk. *kapāṣu* 'to bend, curl, droop' (CAD K 181) vs. Arb. *ḳpṣ* 'lier aux pieds' (BK 2 789)

differ from the point of view of diathesis; note also a few cases described above in connection with earlier studies (\**mlk*, \**ršp*, \**škt*).

Two convincing examples of PS *a*-verbs are adduced by Belova (\*-*rkab*- 'to ride' and \*-*lbaš*- 'to wear'); for \**mrš* 'to be sick' and \**mḥš* 'to strike' the Arb. picture is highly controversial (cf. Frolova 2003:98).

Belova points out to several reliable cases of disagreement between the two languages: Arb. *i* vs. Akk. *a/u* (\**hlš* 'to scrape off', \**hmt* 'to burn', \**ksp* 'to split', \**npl* 'to pay, grant', \**klp* 'to peel', \**ktp* 'to pluck', \**šrp* 'to refine, keep pure', \**špk* 'to pour', \**špr* 'to send'); Arb. *u* vs. Akk. *i/i* (\**ḥšn* 'to embrace',<sup>31</sup> \**nkp* 'to push, to gore'); Arb. *a* vs. Akk. *a/u* and *u/u* (\**mšḥ* 'to measure', \**nbḥ* 'to bark', \**nph* 'to blow', \**nsh* 'to tear').

Several examples of Akk. intransitive *i*-verbs with various types of correspondences in Arb. are also adduced in this section (\**škr* 'to be inebriated', \**šyr* 'to be small', \**kbd* 'to be heavy', \**kbr* 'to be thick', \**nkr* 'to change', \**špl* 'to be low').

Quite a number of examples from this part of Belova's contribution are unreliable for various reasons. Thus, Akk. *labāku* vs. Arb. *lbk* 'to be soft' is phonologically irregular whereas Akk. *našāku* 'to kiss' vs. Arb. *nšk* 'to smell' and Akk. *šadādu* 'to pull' vs. Arb. *šdd* 'to tie' are semantically problematic; the meaning of Akk. *pašāmu* is uncertain (AHw. 839); Arb. *fth* 'to open' clearly corresponds to Akk. *petū* id. rather than *patāḥu* 'to pierce, make a hole' (whose preterite is, moreover, unattested, AHw. 846); Akk. *naḥālu* 'to hand over (property)' (CAD N1 126) is attested in OB Mari only and is obviously borrowed from WS (Streck 2000:106-7); for \**ḥkm* 'to be wise' v. above.

The latest special study dealing with our subject is Frolova 2003 (mostly based on Frolova 2001). Frolova's article makes full account of the results of its predecessors<sup>32</sup> and is characterised by several important advantages such as completeness of data under comparison, consistently separate treatment of transitive and intransitive verbs (similarly to Aro and, partly, Kuryłowicz but differently from Fronzaroli and Belova), special attention to examples with divergent vocalism, not to mention such technical but on some occasions rather important aspects of presentation as applying strict phonological and semantic criteria to the selection of cognate pairs and exact lexicographic references for each verb under comparison.

Departing from the evidence collected and analysed by Frolova, one can reconstruct the root-vowel \**u* in the following 41 transitive verbal roots:<sup>33</sup> \*-*ḡgur*- 'to hire', \*-*ḡhud*- 'to take', \*-*ḡkul*- 'to eat', \*-*ḡrur*- 'to curse', \*-*blul*- 'to mix, dissolve', \*-*dkur*- 'to mention, remember', \*-*gnun*- 'to cover, enclose', \*-*grun*- 'to grind', \*-*gzuz*- 'to shear', \*-*yrub*- 'to enter', \*-*ḥsus*- 'to feel, think', \*-*ḥluš*- 'to press, squeeze', \*-*ḥmum*- 'to gather', \*-*ḥnuḳ*- 'to strangle', \*-*ḥtuḫ*- 'to make an incision', \*-*kbub*- 'to burn', \*-*kmud*- 'to make smooth', \*-*kpup*- 'to bend, wrap', \*-*ktum*- 'to cover', \*-*ksuš*- 'to cut', \*-*lḳuḫ*- 'to collect', \*-*mdud*- 'to stretch, measure', \*-*mruḫ*- 'to rub', \*-*mtuḫ*- (or \*-*mšus*-) 'to wipe', \*-*nḥul*- 'to sift', \*-*nḳub*- 'to perforate', \*-*nḳur*- 'to pierce, destroy', \*-*npuš*- 'to comb wool', \*-*npuḫ*- 'to shake', \*-*nsuḳ*- 'to put in order', \*-*nṯur*- 'to watch', \*-*rbuk*- 'to

31. Also with *u* acc. to Lane 591; as a whole probably irrelevant as independent denominative derivation from \**ḥVšn*- 'lap' cannot be ruled out.

32. Note that in Kuryłowicz 1972 the studies by Aro and Fronzaroli are not even mentioned whereas Belova 1993 does not use any of the three major contributions dealing with exactly the same topic.

33. The corresponding section of Frolova's study has 27 examples, all of them reproduced presently. 5 examples with initial laryngeal (\*-*ḡgur*-, \*-*ḡhud*-, \*-*ḡkul*-, \*-*ḡrur*-, \*-*yrub*-) were not treated by Frolova as she explicitly excluded Akk. weak verbs from her analysis. Other cases missing in Frolova's list but acceptable from my point of view are: \*-*lḳuḫ*-, \*-*npuḫ*-, \*-*nsuḳ*-, \*-*nṯur*-, \*-*rgum*-.

mix', \*-*rdud-* 'to push, drive away', \*-*rgum-* 'to shout', \*-*rkus-* 'to tie', \*-*šluḫ-* 'to boil', \*-*šlul-* (or \*-*tlul-*) 'to drive away', \*-*štur-* 'to write', \*-*škuk-* 'to pierce', \*-*trud-* 'to push, drive away', \*-*tkul-* 'to hang'.

For 11 transitive verbs there is unambiguous evidence for an original *i*-vocalism:<sup>34</sup> \*-*šir-* 'to shut in', \*-*šdib-* 'to leave', \*-*hpir-* 'to dig', \*-*hrim-* 'to cover', \*-*ksit-* 'to cut', \*-*ntip-* 'to tear', \*-*pqid-* 'to care about smth.', \*-*pšid-* 'to split', \*-*ptil-* 'to plait', \*-*šriḫ-* 'to steal', \*-*šrim-* 'to split'.

In Frolova's view, the original root vocalism may be obscured by two types of phonetic influence from the neighbouring consonants.

The first one is represented by an unexpected *a* in Arabic in the vicinity of \**h* (also \**h* when it yields *h* in Akkadian). Since this guttural effect is well known otherwise, there is no serious obstacle for reconstructing the respective roots with \**u*: \*-*mluḫ-* 'to pull, to remove', \*-*mšuḫ-* 'to measure', \*-*nsuḫ-* 'to tear out', \*-*spuḫ-* 'to pour, to scatter', \*-*šhut-* 'to pull off'. This possibility becomes even more likely when Arabic preserves both *u* and *a* as variants: \*-*mtuḫ-* 'to lift, to take away', \*-*npuḫ-* 'to blow', \*-*ṣruḫ-* 'to sing, to shout', \*-*šluḫ-* 'to take away', \*-*tbuḫ-* 'to cut, slaughter'.

Another, less trivial kind of influence, is the shift of the original *i* into *u* in the neighbourhood of labials in Akkadian. This phenomenon is observable in the following 14 cases (which subsume practically all known cases of Akk. *a/u* vs. Arb. *i*):<sup>35</sup> \*-*hbit-* 'to destroy', \*-*hpiš-* 'to collect', \*-*hmit-* 'to burn', \*-*kbis-* 'to trample', \*-*kpir-* 'to smear on, to cover', \*-*ksip-* 'to chip, to split', \*-*npil-* 'to give, to pay', \*-*pris-* 'to break', \*-*klip-* 'to peel', \*-*ktip-* 'to pluck', \*-*spin-* 'to peel', \*-*šbir-* 'to tie, bend', \*-*šrip-* 'to refine', \*-*špir-* 'to drive away, to send'.<sup>36</sup> The labial influence suggested by Frolova for such cases seems to be a highly important innovation as it allows to enlarge considerably the otherwise poorly represented group of PS *i*-verbs without recurring to the purely theoretical construct of an original *a/i* Ablautklass.

As rightly pointed out by Frolova, no unambiguous phonological conditioning is observable in the 7 cases where both *u* and *i* are attested in Arb. verbs corresponding to *u*-verbs in Akk.:<sup>37</sup> \*-*nšVr-* 'to take off', \*-*pšVr-* 'to loosen', \*-*pšVr-* id., \*-*špVk-* 'to pour', \*-*prVš-* 'to cut', \*-*šrVt-* 'to incise', \*-*zmVr-* 'to produce musical sounds'. It is worth noting, however, that here too *p* or *m* is present as one of the radicals in the majority of cases (for the possibility of distant influence of labials in primary nouns v. above with reference to Fox 2003:108-9, 134).

Examples of apparently unexplainable Akk. *i* vs. Arb. *u* are<sup>38</sup> \*-*šbVr-* 'to cross', \*-*drVs-* 'to trample', \*-*gdVm-* 'to cut off', \*-*hrVp-* 'to pluck', \*-*kmVš-* 'to collect', \*-*nkVp-* 'to push, gore', \*-*srVd-* 'to bind', \*-*tbVr-* 'to break, to destroy'. To these examples we can add the following cases of Akk. *i* as opposed to vacillation between *i* and *u* in Arabic:<sup>39</sup> \*-*hsVr-* 'to chip, to trim', \*-*hmVš-* 'to cut', \*-*kbVr-* 'to bury', \*-*nkVs-* 'to cut', \*-*rpVs-* 'to beat', \*-*skVr-* 'to dam', \*-*snVp-* 'to tie', \*-*šmVd-* 'to bind', \*-*zbVl-* 'to carry'. No explanation for these examples is provided by Frolova who tends to believe that a tendency towards generalization of *u* as the only thematic vowel in WS may have played its role in the process (the Akk. vocalism is then to be considered as primary). In my opinion, here again a phonetic conditioning cannot be

34. Four roots (\*-*šir-*, \*-*šdib-*, \*-*hrim-* and \*-*šriḫ-*) do not appear in Frolova 2003:92-3, cf. previous fn.

35. Listed in Frolova 2003:85-6 with the exception of \*-*hbit-*, \*-*hpiš-*, \*-*hmit-*, \*-*kpir-* and \*-*šbir-*. The only possible example of Akk. *u* vs. Arb. *i* where no labial influence can be supposed is \*-*hlVš-* 'to scrape off' (Belova 1993:44).

36. Cf. also two roots adduced in Frolova 2003:90-1 where only the present in *-a-* is attested in Akkadian (\**kbs* 'to let pass (time)' and \**ksb* 'to cut, break'). Since an *u*-preterite is almost certainly to be reconstructed in both cases, they are likely to belong to the same group as those treated presently.

37. \*-*pšVr-*, \*-*pšVr-* and \*-*zmVr-* do not appear in Frolova 2003:87; for \*-*šrVt-* v. ibid. 92.

38. \*-*šbVr-* and \*-*nkVp-* not in Frolova 2003:93.

39. \*-*hmVš-* 'to cut' does not appear in Frolova 2003:94. Conversely, I exclude Frolova's \*-*hšVn-* 'to embrace' and \*-*hmVd-* 'to cover, sheath' as not fully reliable from my point of view.

excluded since in 12 out of 17 examples under scrutiny we are faced with a labial as the second or the third radical.<sup>40</sup>

The situation with intransitive verbs is substantially different. For each of the three vowels, reliable examples are extremely few:

\*-*ḵliṣ*- 'to shrivel', \*-*ḵlil*- 'to be small, thin', \*-*rbiṣ*- 'to lie down', \*-*rḵik*- 'to be small, thin' (Frolova 2003:95)

\*-*ḥsuṣ*- 'to be quick', \*-*ṣḥul*- 'to cough', \*-*ḥbub*- 'to murmur, to make noise' (ibid. 88)

\*-*lbaṣ*- 'to put on clothing', \*-*rkab*- 'to ride', \*-*ṭlal*- 'to stay' (ibid. 98).

This scarcity is no doubt to be explained by the heavy (and probably secondary) predominance of intransitive *a*-verbs in Arabic and throughout West Semitic vs. their extreme rarity in Akkadian.

### 3. Conclusion

The evidence presented in the preceding sections demonstrates that the fundamental difference between the vocalic elements of inflectional and derivational affixes vs. those of primary nominal and verbal roots, *a priori* postulated in the introductory section of this article, can indeed be traced back to PS.

The astonishing regularity of the "grammatical" vocalism in Semitic is to be explained by the high functional load of vowels in the PS morphological system. Quite often, qualitative and quantitative vocalic oppositions are the only way of distinguishing between functionally different derivational and inflectional forms with the same consonantal root. Every kind of spontaneous vocalic change would have damaged and eventually destroyed this network of morphological oppositions, thus greatly endangering the integrity of the original Semitic *Sprachtypus*.<sup>41</sup>

The main reason behind the unstable nature of the root vocalism is symmetrically the opposite: its functional load is minimal. As pointed out in a recent study, "in some nouns, the patterns cannot be said to have any meaning, even in the sense of distinguishing one noun from another. These are the isolated nouns, in which no other word of the root exists ... Here the pattern is a given structure of consonant-slots and vowels, without being a morpheme as such —merely a description of the phonological composition of the noun" (Fox 2003:44). In order to illustrate this peculiar phenomenon, let us briefly analyse some aspects of the linguistic structure of Proto-Semitic where oppositions depending on the root-vowel could potentially exist but are in fact either completely absent or attested to a very limited extent.

#### A. Lexical oppositions: primary nouns

Primary nouns differentiated exclusively by their vocalic shape ("vocalic minimal pairs") are rare throughout Semitic. If attested, they often emerge from specific phonological processes typical of particular languages and, therefore, have no bearing on the PS picture. Thus, the opposition of Hbr. *ʔāb* 'father' vs. *ʔēb* 'bud' vs. *ʔōb* 'bag' adduced in Lipiński 1997:152 in order to prove that "the vowels are not second to the consonants with regard to their phonemic importance" becomes less relevant already in Proto-Hebrew (*ʔēb* < \**ʔbb*-, *ʔāb* < \**ʔab*-) and meaningless in PS as no convincing Sem. etymology for

40. As Ms. Frolova informs me in personal communication, she is reluctant to accept this solution because it implies that the labial influence was operative with one group of original *i*-verbs in Akkadian and another one in Arabic without any distributional factor.

41. Thus, it is rather hard to imagine a Semitic language which would **sporadically** labialize \**i* in the *ḵātil*-participle or \**a* in the \**ḵatāl*-infinitive after or before a labial radical. Needless to say, vocalic elements of affixes are not immune to the influence of the neighbouring consonants but such an influence tends to be fully systematic and predictable.

*ʔōb* has been suggested so far. A systematic inquiry into the Hebrew lexicon can reveal other examples of this type:<sup>42</sup>

*ʔōlām* 'long time' (< \**ʔālam-*) vs. *ʔülām* (< \**ʔalm-*) 'young man' (KB 798, 835)  
*ʔāpār* (< \**ʔapar-*) 'dust, soil' vs. *ʔōpār* (< \**ʔupr-*) 'young fallow deer' (KB 862)  
*ḥālāb* (< \**ḥalab-*) 'milk' vs. *ḥēlāb* (< \**ḥilb-*) 'fat' (KB 315)  
*pārāš* (< \**parš-*) 'contents of the guts' vs. *pārāš* (< \**paraš-*) 'horseman' (KB 977).

In other pairs (or series) the historical background of the consonants is unambiguous but the etymology of at least one of the respective terms is obscure or at least not clear enough to postulate reliable PS prototypes:

*bāḳār* 'cattle' vs. *bōḳār* 'morning' (KB 151; for the former v. SED I No. 59; no reliable cognate for *bōḳār*)

*kōpār* 'pitch' vs. *kōpār* 'henna' vs. *kāpār* 'village' vs. *kəpōr* 'bowl' vs. *kəpōr* 'hoar frost' vs. *kəpīr* 'lion' (KB 492-5)<sup>43</sup>

*šō ʔal* 'hollow of the hand' vs. *šū ʔāl* 'fox' (KB 1445, 1611; for the latter term v. SED II No. 237; no cognate for the former term is known outside Arm.).

Vocalic minimal pairs to be seriously considered as inherited from PS are rather exceptional:

*ʔōrēb* 'crow' vs. *ʔārābā* 'willow' (KB 879-80)<sup>44</sup>

*bāṭān* 'belly' vs. *boṭnīm* 'pistachio' (KB 121)

*dābōrā* 'bee' vs. *dābīr* 'holy of holies' vs. *dābār* 'plague' vs. *dōbār* 'pasture' (KB 208, 212)

*zāra ʔ* 'seed' vs. *zərōā ʔ* 'arm, forearm' (KB 280, 282)

*ḥāmōr* 'ass' vs. *ḥēmār* 'bitumen' (KB 327, 331)

*nāḥāš* 'snake' vs. *nəḥōšāt* 'copper' (KB 690-1)

*šē ʔār*, *ša ʔārā* 'hair' vs. *šə ʔōrā* 'barley' vs. *ša ʔar*, *ša ʔārā* 'storm' (KB 1344-5).

42. For the sake of brevity, here and elsewhere below concrete etymological parallels supporting the reconstructions will be adduced sporadically rather than systematically. For more or less trivial cases references to the basic lexicographic tools (like KB or LGz.) have been considered sufficient.

43. No etymology for the latter two terms is known to me. For the first four terms some parallels are attested: Akk. *kapru* 'a type of sacrifice and the platter for it' MB, NB (CAD K 190), Syr. *kāpartā* 'vas e libro palmae textum et picatum' (Brock. 340), Arb. *kāfirat* 'jarre de vin' (BK 2 914), Gez. *kafar* 'basket, container for measuring' (LGz. 276), Tgr. *kāfir* 'big basket' (LH 426); Akk. *kapru* 'village' OA, OB on (CAD K 189, AHW. 444), Ugr. *kpr* 'village' (DUL 452), Syr. *kaprā* 'vicus, pagus' (Brock. 341), Arb. *kafir* 'village' (BK 2 914); Ugr. *kpr* 'henna' (DUL 452), Syr. *kuprā* 'lawsonia alba' (Brock. 340); Akk. *kupru* 'bitumen' OB on (CAD K 553, AHW. 509), Jud. *kuprā* 'pitch' (Ja. 624), Syr. *kuprā* 'pix' (Brock. 340), Arb. *kufir* 'goudron avec lequel on calfate les navires' (BK 2 914). In each case, however, the possibility of cultural diffusion of the respective terms is rather high.

44. For the former v. SED II No. 89, for the latter v. Jud. *ʔarbā* 'willow' (Jud. 1111), Syr. *ʔarbātā* 'populus salix' (Brock. 546), Mnd. *ʔurba* 'willow' (DM 346), Arb. *ʔarb-* 'sorte d'arbre énorme à épines que croît dans le Hedjaz', *ʔarab-* 'saule de Babylone' (BK 1 450), Tgr. *ʔarab* 'a plant with tendrils', *ʔarob* 'a tree' (LH 460), Soq. *ʔarhīb* 'nom d'un arbre' (LS 325), perhaps Akk. *urbatu* 'Schilf' (AHW. 1428). No reliable cognate is known for *ʔārābā* 'desert, steppe' (cf. perhaps Tgr. *ʔarib* 'uneven ground', LH 460). As for *ʔārōb* 'vermin', the available parallels do not allow to establish the original nature of the guttural (v. SED II No. 36).

But even such examples can rarely be considered as fully satisfactory, mostly because at least one of the members in each pair is less widely reflected in other Semitic languages which undermines the chances of the respective proto-form to be treated as a full-range unit of the PS lexicon. Thus, *\*baṭn-* is represented by Hbr., Arb. and some Arm. dialects only (SED I No. 42); *\*dVbr-* 'back' is reliably attested only in Mnd. and Arb. (SED I No. 46); cognates of Hbr. *dābār* 'plague' are sparse and almost all problematic in some respect (SED I No. 45); *nəḥōšāt* has no cognate outside Central Semitic.<sup>45</sup> A few other problems affecting the above examples are also in evidence. Thus, *\*buṭn-* 'pistachio' is well attested (Fronzaroli 1968:290) but an alternative reconstruction with *-m* is possible and inter-Semitic borrowings cannot be ruled out; *\*dVbVr-* 'bee' has a very complicated phonological history with doublet protoforms in *ḡ-* and *z-* (SED II No. 66).

It turns that only three cases deserve special attention. The opposition *šōrēb* 'crow' (*\*yārib-*) vs. *šārābā* 'willow' (*\*yārab-*) appears relatively unproblematic. In the pair *zāra* 'seed' (< *\*dar* 'to sow', Fronzaroli 1969:26) vs. *zərōā* 'forearm' (< *\*dir* 'to sow', SED I No. 65) both members are rather well attested and, unless *\*dar* is considered an old derivative from *\*dr* 'to sow',<sup>46</sup> the vocalic minimal pair is reliable. As for *šēšār*, *šašārā* 'hair' vs. *šōrā* 'barley', both of these nouns have reliable cognates more or less throughout Semitic but the latter term is often regarded as derived from the former ('barley' as a "hairy" cereal, v., e.g., Fronzaroli 1969:12).<sup>47</sup>

In sum, the rather extensive (and, mostly, genuinely Semitic) vocabulary of Biblical Hebrew yields only two vocalic minimal pairs to be more or less safely projected to PS. Since no exhaustive list of PS primary nouns is available, a comprehensive inquiry operating directly with PS reconstructions is not possible at present but a fairly representative collection obtained from Fronzaroli's *Studi*, Fox 2003, SED I and SED II supports the conclusions obtained from the Biblical Hebrew evidence. Beside the examples mentioned above, some six additional cases only could be taken into consideration:<sup>48</sup>

- \**ʔanp-* 'nose' (SED I No. 8) vs. *\*ʔanap-at-* 'kind of bird' (ibid. II No. 7)
- \**ʔarḥ-* 'cow, heifer' (SED II No. 12) vs. *\*ʔurḥ-* 'road' (Fox 2003:81)
- \**ʔupr-* 'young deer' (SED II No. 88) vs. *\*ʔapar-* 'hair' (ibid. I No. 105)
- \**muhr-* 'foal' (SED II No. 149) vs. *\*mahr-* 'bridal gift' (Fox 2003:76)<sup>49</sup>
- \**nūb(-at)-* 'bee' (SED II No. 156) vs. *\*nāb-*, *\*nib(b)-* 'louse, nit' (ibid. 157)
- \**ṣVr* '(-at)-' 'kind of insect' (SED II No. 223) vs. *\*ṣVr* 'teat, nipple, udder' (ibid. I 274).

45. Hbr. *nāḥāš* 'snake' (together with Ugr. *nḥš*) also looks isolated but can probably be connected with Akk. *nēšu* 'lion' as suggested by the present author in SED II No. 159.

46. So, e.g., Fronzaroli 1969:10. This is certainly not impossible but the reverse development (the verb *\*dr* is denominative) is not unlikely in view of the wider distribution of the nominal form.

47. Both nouns are opposed to *šašar* 'storm' (KB 1344), to be further compared to Akk. *šāru* 'wind' (CAD Š2 133) and, perhaps, Arb. *šišār* 'tonnerre' (BK 1 1238).

48. Most of them suffering from the same deficiencies (thus, *\*ʔanap-at-*, *\*ʔurḥ-*, *\*ʔupr-* and *\*ṣVr* '(-at)-' are not widely attested etc.). It is noteworthy that such well represented terms as *\*ʔamm-at-* 'elbow, cubit' and *\*ʔimm-* 'mother' are primarily differentiated by the constant presence of the feminine marker in the former vs. its absence in the latter rather than by the quality of the root-vowel. The same applies to *\*kull-* 'all' vs. *\*kall-at-* 'daughter-in-law, bride'.

49. For the latter v. Fox 2003:76 where the term is reconstructed with *-a-* in spite of Hbr. *mōhar* whose *-ō-* (alongside with that of *ʔōhāl* 'tent' and *šōhar* 'roof of the ark') is explained, with reference to a personal communication by J. Huehnergard, as going back to *\*ā* lengthened before *h*.

The general conclusion is thus unescapable: PS primary nouns were not differentiated by their vocalic shapes. With very few exceptions, one consonantal sequence was normally reserved for one single nominal concept.<sup>50</sup>

### B. Lexical oppositions: verbs

The same conclusion can be obtained for verbal roots but even with more certainty: thanks to the efforts of several generations of Semitists, an almost exhaustive collection of roots relevant for this problem is available so that a direct inquiry into the PS picture finds no obstacle. Now, among some 100 examples listed above in 2.2 not a single case of lexical opposition expressed by the thematic vowel can be detected. To realize this fact was an important merit of A.G. Belova according to whom "for most verbal roots no semantic opposition expressed exclusively by the thematic vowel can be observed" (1993:30; cf. further *ibid.* 50-1).<sup>51</sup> Its functional load is, therefore, clearly inferior to that of the root consonants (in Belova's view, the only role of the root-vowel is to break the triconsonantal clusters forbidden by the rules of syllabic structure).

Here again the Common Semitic picture correlates with the synchronic situation in particular Semitic languages. With its rich verbal morphology and an extensive textual corpus, Akkadian is a good candidate for comparison. As a systematic perusal of von Soden's lists of Akkadian verbal roots in AHW. reveals, two strong verbal roots well attested within one dialect/period and differentiated exclusively by the vocalic class to which they belong are very hard to detect. The following few cases deserve attention in this respect:

*ḥalālu* (u/u) 'to pipe, wheeze' (SB) vs. *ḥalālu* (a/u) 'to detain, keep waiting' (OA, OB) vs. *ḥalālu* (a/u) 'to creep, steal' (OB on); AHW. 309, CAD H 34

*ḥamāṣu* (u/u) 'to hasten, to be quick' (OB on) vs. *ḥamāṣu* (a/u) 'to be inflamed; to make glow, to heat' (OB on); AHW. 316, CAD H 62, 64

*ḥarāpu* (u/u) 'to be early' (OB on) vs. *ḥarāpu* (i/i) 'to cut' (SB); AHW. 323, CAD H 90

*kasāpu* (i/i) 'to present a funerary offering' (OB Mari on) vs. *kasāpu* (a/u) 'to chip, break off' (OB on); AHW. 453, CAD K 241

50. A special case is that of \*ʔalp- 'head or cattle' and \*ʔalp- 'thousand'. Both should probably be reconstructed as \*kaṭl- (so in spite of Gez. ʔəlf 'thousand?'), thus yielding two full homonyms rather than vocalic minimal pairs. This is unusual but I do not see any compelling reason to treat the two meanings as ultimately derived from one source (so Fox 2003:74, without comments).

51. Lack of "primary verbs with identical root but different root vowels, e.g. *yaqtulu* : *yaqtulu* within the same Sem. language, showing the alleged semantic difference" was obvious already for Kuryłowicz (1972:43). The context of his observation looks somewhat confused, however. On the one hand, Kuryłowicz explicitly states that his argument is directed against ascribing to the root-vowel a **morphological** function (fientive vs. stative). On the other hand, he emphasises that only "primary verbs" are meant by him rather than such secondarily produced apophonic pairs as Arb. *yanḫubu* : *yanḫabu* or Hbr. *yāšōr* : *yēšar* (for which v. *ibid.* 68). Then, however, the difference in morphological function can only be concomitant with a **lexical** difference. Interestingly enough, this indeed seems to be the case of some of the vocalic minimal pairs observable in Akkadian: *šaḥātu* (u/u) 'to fear' and *šaḥātu* (a/u) 'to smear' are opposed by **both** lexical semantics and diathesis. Incidentally, lack of vocalic minimal pairs among PS verbal roots deprives of any serious importance the putative correlation between the meaning of a verb and its thematic vowel (*i*-verbs are said to express "Vorstellungen wie 'schneiden', 'schlagen', 'brechen', 'zertreten' ..., also momentane, oft gewaltsame Handlungen" in Aro 1964:157, Kienast 1967:68 and elsewhere in Semitological literature): were this true, verbs with identical consonantal sets but different thematic vowels would be quite expected.

- marāru* (*i/i*) 'to be bitter' (OB on) vs. *marāru* (*a/u*) 'to break a field for cultivation' (OB on); AHw. 609, CAD M1 267-8
- mašāḥu* (*u/u*) 'to flare up' (SB) vs. *mašāḥu* (*a/u*) 'to measure' (MB on); AHw. 623, CAD M1 352-4
- napāšu* (*u/u*) 'to breathe freely' (OB on) vs. *napāšu* (*a/u*) 'to comb wool' (OB on); AHw. 736-7, CAD N1 288-91
- patānu* (*i/i*) 'stark werden' (OB on) vs. *patānu* (*a/u*) 'essen' (OB on); AHw. 847
- šaḥātu* (*u/u*) 'to fear' (OA, OB on) vs. *šaḥātu* (*a/u*) 'to smear' (OA, OB on); AHw. 1129-30, CAD Š1 84-6
- šaḥātu* (*i/i*) 'to jump' (Oakk. on) vs. *šaḥātu* (*a/u*) 'to take off' (OA, OB on); AHw. 1130-1, CAD Š1 88-92
- zanānu* (*u/u*) 'to rain' (OB on) vs. *zanānu* (*a/u*) 'to provide food'; AHw. 1511, CAD Z 41-43.

Moreover, few of these pairs are entirely satisfactory for our purpose. First of all, in six cases the difference between the two verbs consists in the presence vs. absence of *a*-apophony in the present rather than in the thematic vowel of the preterite. As far as the preterite is concerned (which alone is relevant for the present discussion), such roots are to be treated as fully homonymous. Secondly, some of the verbs in question are clearly denominative (*marāru* < *marru*, *kasāpu* < *kispu*) and, therefore, irrelevant for the PS reconstruction. Thirdly, in some cases the original consonantal difference has been obscured by phonological mergers in Akkadian (*napāšu* 'to breathe' < \**npš* vs. *napāšu* 'to comb wool' < \**npš*; *ḥarāpu* 'to be early' < \**hrp* vs. *ḥarāpu* 'to cut' < \**hrp*;<sup>52</sup> *zanānu* 'to rain' < \**dnn* vs. *zanānu* 'to provide food' < \**znn*<sup>53</sup>). Some of the pertinent examples exhibit special difficulties.<sup>54</sup> As for the relatively small residual, practically in no case can we trace both members of a pair to reliable PS prototypes. Thus, from the four *šḥT* verbs only *šaḥātu* 'to take off, to pull off the skin, to strip off, to detach' has relatively reliable cognates;<sup>55</sup> from the three *ḥll* verbs only 'to pipe, wheeze' has some etymological support in Hbr. *ḥll* pi. 'to

52. Cf. Hbr. pB. *hrp* 'to scrape, sharpen, grind' (Ja. 505), Jud. *ḥārap* id. (ibid.), Syr. *ḥrep* 'acutus fuit' (Brock. 258), Mnd. *hrp* 'to be sharp' (DM 153), Arb. *hrf* 'enlever une partie, rogner', II 'couper la pointe d'un roseau à écrire' (BK 1 410), Gez. *ḥaraḥa* 'to crush, grind, tear off a leaf from the top' (LGz. 241), Amh. *arrāfā* 'to cut or trim a piece of cloth with scissors' (K 1162), Soq. *ḥarf* 'le côté effilé d'un couteau' (LS 191); note also, on the one hand, Hbr. *hrp* 'to annoy, taunt' (KB 355) and, on the other hand, Mhr. *ḥarūf* 'to move, remove' (JM 185), Hrs. *ḥerōf* id. (JH 61), Jib. *ḥār-šf* id. (JJ 114). The verbal root \**hrp* 'to be early' is attested, outside Akkadian, only in Jud. (Ja. 505) and Mnd. (DM 153) but presumably related nouns with the meaning 'autumn, year' are widely known.

53. For the former v. LGz. 641 (under *zanma* 'to rain'), for the latter v. Ugr. *znt* 'sustenance' (DUL 1000; uncertain), Hbr. *māzōn* 'food, provisions' (KB 565), perhaps Arb. *zyn* 'orner, embellir' (BK 1 1034), Mhr. *azyīm* 'to dress a woman in her finery' (JM 471), Jib. *zēn* 'to become beautiful' (JJ 322), Soq. *zen* 'orner' (LS 152).

54. Thus, *raḥāšu* (*i/i*) 'to destroy, devastate' (Oakk. on) and *raḥāšu* (*a/u*) 'to wash, to bathe' (SB, NA) are opposed as two different lexemes in CAD R 69-72 but treated together (albeit in separate subheadings) in AHw. 942-3, no doubt because Adad is the normal subject of the *i/i* verb (the more general meaning 'niederwalzen' is thus derived from the basic 'überschwemmen'). If von Soden's approach is correct, we are faced with a peculiar split of PS \**rḥš* (Arb. *rḥd*) in Akkadian. It would be tempting to ascribe an active meaning to the former variant and a reflexive one to the latter but it should be kept in mind that *raḥāšu* (*a/u*) means not only 'baden' but also 'spülen', whereas the *a/u* vocalization would be atypical for an Akk. verb with non-active meaning. I leave *raḥāšu* NA, NB (*u/u*) 'to trust, to rely' and *raḥāšu* 'to gather'<sup>3</sup> OB Mari (*i/i*) out of consideration in view of their limited attestation.

55. Since the OB orthography suggests *ṭ* as the oldest reading (*aš-ḥu-ṭà-am-ma* in AbB 1 134:30), Sem. parallels pointing to PS \**šḥt* 'to kill, slaughter' should be treated as the most pertinent ones even if the semantic difference is not insignificant (cf. LGz. 494): Hbr. *šḥt* 'to slaughter' (KB 1458), Jud. *šḥt* 'to cut the throat' (Ja. 1546), Syr. *šḥt* (pa.) 'consumpsit, dissipavit; tentavit' (Brock. 768), Arb. *šḥt* 'égorger, tuer promptement' (BK 1 1060), Gez. *saḥaṭa* 'to wound, injure; to touch, pinch, scratch' (LGz. 494), Mhr.

play the flute' (KB 320). In some cases, finally, none of the verbs is traceable to PS (e.g., *patānu*). It cannot of course be excluded that Akk. *patānu* (*a/u*) 'to eat' and *patānu* (*i/i*) 'to be strong' may go back to PS *\*-ptun-* and *\*-ptin-* with the same meanings, and it is only because the hypothetical Arb. cognates are not attested that such reconstructions cannot be sustained. The number of such cases would be, at any rate, extremely small.<sup>56</sup>

### C. Lexical oppositions: primary nouns vs. deverbal nouns with homonymous consonantal roots

As I have tried to demonstrate above, primary nouns differentiated exclusively by their vocalic shapes can rarely be postulated for PS. However, within the nominal system of PS primary nouns were opposed not only to each other but also to nouns derived from verbal roots. Now, if a primary noun and a verbal root display an identical set of consonants, nominal forms produced from this verbal root on the one hand and the primary noun in question on the other hand are opposed precisely by their vocalic elements. The vocalic shapes of primary nouns would thus acquire some functional load. Are we able to detect such "consonantal homonyms across the parts of speech boundaries" in PS?

As far as the lists of primary nouns appearing in Fronzaroli's *Studi*, Fox 2003, SED I and SED II are concerned, pertinent examples are very rare. Typically, a given sequence of three consonants has only one basic meaning, either nominal (*\*ʔ-r-š* 'earth') or verbal (*\*n-t-k* 'to bite'). In other words, if there is a PS noun *\*ʔar-š* 'earth', we are unlikely to discover a PS verbal root *\*n-t-k* with whatever homonymous

*səḥāṭ* 'to slaughter' (JM 345), Hrs. *seḥāṭ* id. (JH 110), Soq. *šḥāṭ* 'battre, tuer' (LS 414); note Ugr. *šḥt* 'butcher' with *ḥ* instead of the expected *ḫ* (DUL 813). A few forms with non-emphatic *t* should not probably be disregarded either: Hbr. *šḥt* 'to ruin, destroy, annihilate' (KB 1470), Syr. *šhet* 'aeruginem contraxit; inquinatus fuit' (Brock. 771), Arb. *šḥt* 'arracher avec la racine; extriper, anéantir' (BK 1 1057), Sab. *sḥt* 'to rout, defeat, throw into disorder' (SD 125); it is uncertain whether Eth. verbs for 'to make a mistake, to be wrong' (Gez. *səḥta*, LGz. 494; Tgr. *səḥatä*, LH 171; Tna. *səḥatä*, K Tna 646; Amh. *satä*, K 529; Cha. Eža Muh. Msq. Gog. Sod. *satü*, Gyt. *sātä*, Enm. End. *sādä*, LGur. 565) also belong here. The variety of meanings postulated for *šḥāTu* A ('to drain', 'to smear', 'to wash, rinse') does not allow a coherent etymological interpretation but cf. Jib. *šḥaṭ* 'to paw the floor; to brush the floor with the hand, flick away sand, dust, dung' (JJ 226) and Soq. *šḥṭ* 'balayer' (LS 284).

56. Curiously enough, full homonyms (i.e., verbs with both consonantal root and vocalic class identical) are almost the same in number as the hypothetical vocalic minimal pairs. For the *i/i* class, consider *kadāru* 'to be overbearing' (OB on) vs. *kadāru* 'to establish a border' (MB, MA on), AHw. 419, CAD K 30; *kamāsu* 'to squat, to kneel' (OB on) vs. *kamāsu* 'to gather' (OB on), AHw. 431, CAD K 114, 117; *labānu* 'to beg humbly' (OB on) vs. *labānu* 'to make bricks' (OA, OB on), AHw. 522, CAD L 8, 10; *sakālu* 'to balk, to get stuck' (SB) vs. *sakālu* 'to appropriate fraudulently' (OB on), AHw. 1010, CAD S 68-9. For the *a/u* class, v. *napālu* 'to dig out' (Oakk. on) vs. *napālu* 'to make a supplementary payment' (OA, OB on), AHw. 733-4, CAD N1 272, 275. It is rare that both members of such pairs have good Semitic cognates (which would allow to trace the homonymy back to PS). Thus, for Akk. *napālu* A note Mhr. *nəfūl* 'to break a splinter off a bone, piece of wood, stone', *hənḥūl* 'to throw stones down' (JM 284), Jib. *nḥl* 'to cut a sliver (of wood), break off a chip, splinter', *enḥēl* 'to cut down, destroy' (JJ 182) and, with a shift in diathesis, Hbr. *npl* 'to fall' (KB 709, with related Arm. forms), Sab. *nḥl* 'fall in battle' (SD 92), possibly also Amh. *naḥḥälä* 'to be in flood; to fall; to be in distress, anxious' (K 1080) whereas Akk. *napālu* B is obviously related to Arb. *nḥl* 'to grant' (v. above); for *kamāsu* A cf. Ugr. *kms* 'to buckle, bend' (DUL 446), for *kamāsu* B cf. Hbr. *kms* 'to store up' (KB 481) and Arb. *kmš* 'prendre, enlever avec la main autant qu'on peut' (BK 2 929; the sibilant correspondence is irregular but not without precedent). More typically, only one of the verbs is relatively well attested outside Akkadian. For *ḥamāṭu* 'to be inflamed' cf. Arb. *ḥmṭ* 'to burn' (above) and Tgr. *ḥamṭä* 'to burn' (LH 64), for *kadāru* 'to be overbearing' cf. Arb. *kadr-* 'nombreux, abondant', *kudurr-* 'gros, épais', *kundur-* 'gros, épais (âne, onagre, jeune homme)' (BK 2 874), Mnd. *kdr* 'to be heavy, weighty, hard' (DM 204).



'silver' vs. *ksp* 'to long for' (KB 490);<sup>65</sup> *kārah* 'frost, ice' vs. *krh* 'to have one's head shaved' (KB 1140);<sup>66</sup> *lāham* 'bread' vs. *lhm* 'to fight' (KB 526);<sup>67</sup> Hbr. *na šar* 'lad, adolescent' vs. *n šr* 'to growl', *n šr* 'to shake off' (KB 706-7);<sup>68</sup> *nēbāl* 'skin-bottle; a musical instrument' vs. *nbl* 'to sink, drop down; to be foolish' (KB 663-4);<sup>69</sup> *nēš* 'hawk' vs. *nšš* 'to shine; to bloom' (KB 717; v. SED II No. 168 for the nominal root; no cognate for the verbal root); *pa šam* 'foot; step' vs. *p šm* 'to stir, trouble' (KB 952; for the former v. SED I No. 207); Hbr. *pārād* 'mule' vs. *prd* 'to divide, separate' (KB 962-3);<sup>70</sup> Hbr. *šahar* 'dawn' vs. *šhr* 'to be black', *šhr* 'to search' (KB 1465-6).<sup>71</sup>

In a number of cases, however, both members of a pair have relatively reliable cognates in other Semitic languages and can, therefore, be projected to PS:

*ʔānōš* 'man', *ʔānāšīm* 'men' vs. *ʔnš* 'to be weak' (KB 70, 73)

*ʔēgāl* 'calf' vs. \**ʔgl* 'to be round' > *ʔāgōl* 'round', *ʔāgālā* 'waggon, cart' (KB 784-5)<sup>72</sup>

*ʔōl* 'yoke' vs. *ʔl* 'to insert' (KB 828; v. Kogan 2001:281-2 for the former, Kogan 2005 for the latter)

Gyt. *ašā*, End. *aššā*, Sel. Wol. *anže* 'to see' (LGur. 123), Gaf. *ažžū* 'voir' (LGaf. 173). The nominal root is sparsely attested (v. SED I No. 112).

64. The nominal root is very well attested (SED I No. 156) but no cognate for the verbal root is known beyond Ugr. *kly* 'to finish' (DUL 441), Pho. *kly* 'to complete, finish' (HJ 510-110), Jud. *kālē* 'to be finished, gone' (Ja. 641) and Mnd. *kla* 'to be complete, accomplish, end' (DM 216).

65. For the verbal root cf. perhaps Hbr. pB. *ksp* 'to peel, whiten', hip. 'to fade, wither; deteriorate, fall in value; to put to shame' (Ja. 655), Jud. *kšēp* 'to feel ashamed, frightened' (ibid.), Arb. *kšf* 'être dans l'éclipse; être troublé, voilé; prendre un air sévère; être dans de mauvaises affaires' (BK 2 898), Tna. *kāsāfā* 'to be displeased; to humiliate, be little' (K Tna 1620), Jib. *ekosf* 'to humiliate' (JJ 135). The nominal root is, as well known, not attested beyond the Syro-Palestinian and Mesopotamian areas.

66. For the verbal root v. SED I No. 38<sub>v</sub>. The nominal root does not seem to be attested beyond Jud. *karhā*, *korhā* 'ice, frost' (Ja. 1415), Syr. *karhā* 'procella' (Brock. 694) but cf. perhaps Amh. *ḳʾarra* (< \**krH*) 'to be cold; to froll (frost)' (K 717), Zwy. *korra* 'frost of the morning' (LGur. 495).

67. For the verbal root v. only Ugr. *lhm* 'to fight' (DUL 496) and Arb. *lhm* 'tuer qn.', V 'être, devenir acharné (se dit d'un combat); s'entretuer, se donner réciproquement la mort', *malḥamat*- 'combat, bataille' (BK 2 977-8); cf. also Arb. *lhm* 'frapper qn. sur le visage' (BK 2 981), Sab. *lhm* 'exchange of blows' (SD 82). The nominal root is somewhat better attested: Ugr. *lhm* 'grain, bread; food, meat' (DUL 496), Syr. *lahmā* 'panis, cibus' (Brock. 364), Arb. *lahm*- 'viande, chair' (BK 2 978); presumably denominative from a non-attested \**lahm*- is Akk. *lēmu* 'to take food or drink' (CAD L 126).

68. For each of the two verbal roots some parallels are known: Akk. *na ʔāru* 'to roar' SB (CAD N1 7, AHw. 694), Jud. *na ʔārūtā* 'camel's cry' (Ja. 922), *nə ʔar* 'clamavit (asinus)' (Brock. 435), Arb. *n šr* 'rendre un son nasillard ou rauque' (BK 2 1293), Amh. *anarä* 'to cause to resound' (K 1018); Jud. *nə ʔar* 'to shake, stir' (Ja. 921), Arb. *n šr* 'se lever et se mettre à quelque chose' (BK 2 1293), Tgr. *na ʔar* 'mischief, quarrel, revolt' (LH 335), Tna. *tāna ʔrārā* 'to be prideful' (K Tna 1351), Amh. *narä* 'to bounce upward, rise up' (K 1018). The nominal root, however, has virtually no cognate outside Hbr. and Ugr.

69. For the verbal root cf. Arb. *nbl* V 'mourir, crever', VIII 'mourir', *nabīlat*- 'cadavre, chagrogne' (BK 2 1188-9), Soq. *niblhol* 'détruit, ruiné' (LS 255). The nominal term is without cognates.

70. The verbal root is well attested (Arb. *frd* 'être seul, unique et isolé', BK 2 564; Gez. *farada* 'to separate', LGz. 165; perhaps also Syr., MSA and Akk. verbs meaning 'to flee in panic' compared in LS 340 and Eth. verbs meaning 'to judge' compared in LGz. 165) but the noun is poorly known (v. SED II No. 177).

71. For the nominal root v. Akk. *šertu* 'morning' (CAD Š2 322), Ugr. *šhr* 'dawn' (DUL 812), Jud. *šahrā* 'morning dawn' (Ja. 1551), Arb. *šahar*- 'point de jour' (BK 1 1059), Tgr. *šāharā* 'to eat at night' (LH 207), Jib. *šhor* 'today' (JJ 261). None of the verbal roots is widely attested outside Hebrew (tentative parallels for *šhr* 'to be black' are discussed in Bulakh 2003:13; comparison of Hbr. *šhr* 'to search' with Akk. *saḥāru* suggested in KB is unlikely for phonological reasons).

72. For the nominal root v. SED II No. 28; for the verbal root v. Jud. *ʔāgal* 'to be round' (Ja. 1041), Syr. *ʔāgaltā* 'currus, plaustrum' (Brock. 510), Arb. *ʔa ʔalat*- 'carriote, voiture; roue' (BK 2 182), Gez. *ʔagala* 'to make an enclosure, surround with a wall' (LGz. 59), Tgr. *ʔaggul* 'round', (*tü*) *ʔaggülä* 'to be surrounded by a wall' (LH 487).

*šälām* 'young man' vs. *šlm* 'to be hidden, concealed' (KB 834-5)<sup>73</sup>  
*bəʔēr* 'well' vs. *bʔr* 'to explain' (KB 106)<sup>74</sup>  
*bāḳār* 'cattle' vs. *bḳr* 'to scrutinize, to look for, to attend' (KB 151)<sup>75</sup>  
*kilʔayim* 'of two kinds' vs. *klʔ* 'to restrain' (KB 475)  
*käsäl* 'loins' vs. *ksl* 'to be stupid' (KB 489)<sup>76</sup>  
*ḳānā* 'reed' vs. *ḳny* 'to buy' (KB 1111, 1113)  
*ḳōrē(ʔ)* 'partridge' vs. *ḳrʔ* 'to call, shout' (KB 1128, 1132)<sup>77</sup>  
*ḳārāb* 'entrails' vs. *ḳrb* 'to draw near' (KB 1132, 1135)  
*mōhar* 'bride-money' vs. *mhr* 'to hasten' (KB 553-4)  
*mārāḳ* 'broth' vs. *mrḳ* 'to scour, polish' (KB 638)<sup>78</sup>  
*par* 'bull, steer' vs. *pr* 'to break, destroy' (KB 960, 974)<sup>79</sup>  
*parsā* 'hoof' vs. *pr* 'to break' (KB 969-70)<sup>80</sup>  
*šəʔēr* 'flesh' vs. *šʔr* 'to remain over' (KB 1376, 1378)  
*šēšār* 'hair', *šəʔōrā* 'barley', *šašār* 'storm' vs. *šʔr* 'to know' (KB 1344-5)<sup>81</sup>  
*yābāl* 'watercourse' vs. *yōbēl* 'ram' (KB 383, 398)<sup>82</sup>

73. For the verbal root v. Gez. *tašalma* 'to be hidden, to disappear from sight' (LGz. 61), Tna. *šlām bälä* 'to disappear, to go under (water), to dive' (K Tna 1825), Amh. *əlləmm alä* 'to disappear suddenly, vanish; to go under (in water), to disappear from sight' (K 1105) and, probably, Ugr. *šlmt* 'concealment, darkness' (DUL 320).

74. For the verbal root v. Akk. *bāru* D 'to establish the true legal situation' (CAD B 125, AHw. 108) and, perhaps, Arb. *bwr* 'éprouver, essayer, soumettre à l'épreuve' (BK 1 177).

75. For the verbal root v. Ugr. *bḳr* 'to examine, scrutinise' (DUL 235), Syr. *bəḳar* 'perquisivit; perforavit' (Brock. 87), Arb. *bḳr* 'fendre, ouvrir en fendant; examiner en faisant des questions; connaître les affaires de qn.' (BK 1 148), Sab. *bḳr* 'to dig up, to dig out, excavate' (SD 30), Qat. *bḳr* 'to plow' (Ricks 32), Amh. *boḳḳärä* 'to make guide furrows on the ground for plowing' (K 907), perhaps Akk. *baḳāru* 'Anspruch geltend machen, vindizieren' (AHw. 104). For the nominal root v. SED II No. 59.

76. For the verbal root cf. Arb. *ksl* 'être paresseux, négligent' (BK 2 899), Wol. *käsälä*, Sel. *kēsälä*, Msq. *kässälä*, Cha. Enm. Gyt. *käsärä*, Eža *kässärä*, End. *akässärä*, Muh. *kässeä* 'to endeavour, become tired because of making an effort' (LGur. 353), Mhr. *kəsül* 'to be too tired' (JM 215), Hrs. *kēsel* id. (JH 70), *ksl* id. (JJ 136).

77. For the verbal root v. Ugr. *ḳrʔ* 'to call, shout, invite' (DUL 708), Bib. *ḳrʔy* 'to shout, to read' (KB 1971, with references to other Arm. forms), Arb. *ḳrʔ* 'lire' (BK 2 701), Sab. *ḳrʔ* 'order, command' (SD 106), Min. *ḳrʔ* 'ordonner, commander' (LM 72), Tgr. *ḳärʔa* 'to read, recite' (LH 243), Mhr. *ḳərü* 'to read' (JM 237), Soq. *ḳäre* 'lire' (LS 385). Akk. *ḳerü* 'to invite' (CAD Q 242, AHw. 918) can be alternatively compared to Arb. *ḳry* 'recevoir qn. comme hôte, l'héberger' (BK 1 730). For the nominal root v. SED II No. 134.

78. For the verbal root v. Syr. *mərəḳ* 'polivit, purgavit' (Brock. 405), Arb. *mrḳ* 'arracher la laine de la peau macérée d'un animal égorgé' (BK 2 1094).

79. For the nominal root v. SED II No. 181, for the verbal root v. Ugr. *pr* 'to break' (DUL 681), Jud. *pərar* 'to break' (Ja. 1241), Arb. *frr* IV 'fendre, couper en deux' (BK 2 559), perhaps Akk. *parāru* 'sich ablösen' (AHw. 829).

80. For the verbal root v. Akk. *parāsu* 'abtrennen, entscheiden' (AHw. 830), Pho. *pr* 'portion, half a measure' (HJ 940-1), Jud. *pəras* 'to split, divide' (Ja. 1232), Syr. *pəras* 'divisit' (Brock. 599), Hrs. *ferōs* 'to eat carrion (wolf, hyena)' (JH 34), Jib. *fərs* 'to mash (potatoes etc.)' (JJ 61). The following Arb. and Eth. forms may go back to this root or to a (likely related) variant \**pr*: Arb. *frs* 'briser les os du cou d'un animal vivant avant de l'égorger; déchirer sa proie' (BK 2 568), Gez. *farasa* 'be demolished, be destroyed' (LGz. 167), Tgr. *färsä* 'to be ruined, perish' (LH 656), Tna. *färäsä* 'to collapse, to fall, to break down' (K Tna 2660), Amh. *färräsä* 'to fall apart, to be destroyed' (K 2277), Gog. *färräsä* 'be demolished', Enm. End. Gyt. Sel. Wol. Zwy. *afärräsä*, Gog. Msq. *afärräsä* 'to demolish, destroy, break clods of earth and soften them; annule (contract), violate (agreement)' (LGur. 244). For the nominal root v. SED I No. 220.

81. The nominal roots have been treated above. For the verbal root v. Arb. *šʔr* 'savoir' (BK 1 1237), Sab. *s₂ʔr* 'to be aware' (SD 131), Min. *s₂ʔr* 'se rendre compte de' (LM 85).

*yätär* 'tendon' vs. *ytr* 'to be left over' (KB 452).

A few illustrative word-pairs can be adduced from languages other than Hebrew, e.g. Akk. *rīmu* 'aurochs' vs. *rāmu* 'to love' or *nādu* 'waterskin' vs. *nādu* 'to praise' (AHw. 951, 986 and 704, in each case with basic etymological information).

Examples discussed in this section cannot be said to be typical of the linguistic structure of Semitic but they are certainly more numerous than those treated in the two preceding sections. Therefore, oppositions of this kind did exist in PS, providing the vocalic elements of primary nouns with some functional load.<sup>83</sup>

#### D. Morphological oppositions: primary nouns vs. denominal derivatives

Denominal derivation operating with extracted consonantal roots is attested throughout Semitic but its relevance for particular languages is uneven. As is well known, the maximum spread of this morphological procedure is attested in Arabic and other languages of the South Semitic area whereas in Akkadian it is relatively uncommon. Both extremes are unlikely to be automatically projected to PS for which an intermediate picture similar to that observed in Biblical Hebrew should probably be postulated. It means that vocalic oppositions like *bāḳār* 'large cattle' vs. *bōḳēr* 'herdsman', *šēṣār* 'hair' vs. *šāṣr* 'hairy', *ṣorlā* 'foreskin' vs. *ṣārēl* 'uncircumcised' or *ḥāmōr* 'ass' vs. *ḥōmār* 'a measure' were not totally alien to PS but by far less common than, for example, in Classical Arabic where several derived verbal and nominal forms are produced from almost every primary noun inherited from PS.

As established by G. Buccellati (1996:62-6), there is one segment of Semitic nominal lexicon where denominal derivation is not only well attested but practically obligatory in all major languages: the numerals. Fractions and ordinal numerals are usually derived from the consonantal roots of the respective cardinal forms and this was no doubt the case of PS too. In this connection, I wonder whether the extraordinary stability of the vocalism of most cardinal numerals (*\*ṭin-* 'two', *\*šalāt-* 'three', *\*ʔarba ʕ-* 'four', *\*šidṭ-* 'six', *\*šab ʕ-* 'seven', *\*tamāniy-* 'eight', *\*tiš ʕ-* 'nine') may be due to the constant need to oppose them to their denominal derivatives.

#### E. Morphological oppositions: nominal inflection

Internal nominal inflection is unlikely to play any substantial role in PS. The only pertinent case is the plural marker *\*-a-* brilliantly described in Greenberg 1955 but its actual participation in vocalic oppositions is very restricted. Differently from other Afroasiatic branches, Semitic mostly operates with

82. For the former v. Akk. *bubbulu* (< *\*wubbulu* ?) 'flood' (CAD B 298), Arb. *wabl-*, *wābil-* 'pluie forte et abondante' (BK 2 1478), Qat. *mwb-l-m* 'crops watered by heavy rain' (Ricks 48), Amh. *wābālo*, *wābāl* 'a fierce rainstorm which overturns houses and uproots trees' (K 1536; an Arabism?), for the latter v. SED II No. 245.

83. It was the relative rarity of such cases that often induced Semitists to explain them in terms of derivation (deverbal, more rarely denominal) rather than true homonymy. Some of such explanations are discussed in Fronzaroli's studies in connection with *\*ḏakar-* 'male' vs. *\*-ḏkur-* 'to call, to mention, to remember' (Fronzaroli 1964:19-20), *\*mašk-* 'skin' vs. *\*-mšuk-* 'to pull' (ibid. 27), *\*ḏirā ʕ-* 'elbow' vs. *\*-ḏra ʕ-* 'to sow' (ibid. 34; cf. 1969:9), *\*basār-* 'meat' vs. *\*bšr* 'to bear tidings' (ibid. 52), *\*ʔalp-* 'cattle' vs. *ʔlp* 'to be friendly, accustomed' (id. 1969:15). A proper evaluation of such hypotheses is an important task of comparative Semitics but their relevance for the present discussion is rather limited: since both *\*ḏakar-* and *\*-ḏkur-* are attested more or less throughout Semitic, both of them must be traced back to that level of PS reconstruction which is the primary object of the present contribution. Now, if *\*ḏakar-* coexisted with *\*-ḏkur-* already in PS, it must have also been opposed to the derived nouns produced from the latter such as *\*ḏikr-*.

"*a*-intercalation" which means that *-a-* is normally opposed to zero rather than to another vowel (*\*raʕš- ~ \*raʕaš-*, *\*ʕudn- ~ \*ʕudan-* etc.). Vocalic oppositions in the strict sense (*i : a*) are present in the very few cases of "*a*-replacement" like Hbr. *bēn : bān-īm* or *šēt : šāt-ōt*.

#### F. Morphological oppositions: verbal inflection

Semitic languages are well known for the great importance of vocalic elements in the verbal inflection. However, most of the vocalic alternations do not immediately affect the prefix conjugation base -CCVC-. The only truly vocalic (i.e., not implying gemination, changes in syllabic structure etc.) minimal pair involving this base is the apophony *u, i : a* expressing the opposition active : passive, either in the "internal passive" (Arb. *yaḳtulu : yuḳtalu*) or in pairs like Hbr. *yāšōr : yēšar* studied in Kuryłowicz 1972:68 and Joosten 1998:209ff. It should be kept in mind, moreover, that both phenomena are absent from Akkadian and in both cases a concomitant apophony in the prefixes (*a : u* and *a : i* respectively) is likely to have been obligatory in proto-WS. I am aware that the same apophony may have played a more substantial role on earlier stages of the development of PS for which the opposition "preterite *i, u* : "present *a*" could be postulated (similar to Old Assyrian *iddin : iddan* and agreeing with the Proto-Cushitic and Proto-Afroasiatic reconstruction outlined in Zaborski 1975:164). But here too it is only *a* that is opposed to the remaining two vowels. The opposition *i* vs. *u* (which alone is important for the above discussion of the non-motivated verbal vocalism) most probably never existed in the base of prefix conjugation G.

\* \* \*

The results of the six excurses (from A to F) can be summarized in the following way:

Primary nominal lexemes were not opposed by their vocalic shapes: with rare exceptions, a given combination of consonants is reserved for one nominal concept only.

Verbal roots were not opposed by their thematic vowels: a given combination of radicals is reserved for one verbal concept only.

Inflectional forms of primary nominal lexemes were not opposed by their vocalism.

The only two areas where some functional load can be postulated for the root-vocalism are the oppositions of primary nouns vs. their denominal derivatives on the one hand and primary nouns vs. derived nouns produced from verbal roots with an identical set of root consonants on the other (synchronically illustrated by such examples as Arb. *ṭalāṭ-* 'three' vs. *ṭulṭ-* 'one third' and Arb. *ḍakar-* 'male' vs. *ḍikr-* 'mention' respectively). Both phenomena are, however, not very common and hardly made any serious impact on the PS system of lexical and morphological oppositions.

In short, the functional load of root vocalism in PS was rather insignificant. Then a fundamental question arises: can and should one altogether try to reconstruct vocalized proto-forms for primary nouns and verbs of Proto-Semitic? The answer of most modern Semitists seems to be negative<sup>84</sup> even if concrete arguments in favor of this approach are rarely formulated explicitly. A remarkable exception is represented by a series of studies by A.M. Gazov-Ginzberg (1965a, 1965b, 1974; for an interesting

84. As documented, on the one hand, by the common use of such formulations as "Proto-Semitic *\*kḏb* 'dog'" and, on the other hand, by an almost total lack of scholarly attention towards vocalic reconstruction as a whole.

presentation of these little-known contributions v. recently del Olmo Lete 2003:44-6). Gazov-Ginzberg fully exploited both the non-functional nature of the nominal root vocalism and its variability: "The vowel in Semitic primary nouns has no morphological function and, in most cases, alternates indiscriminately within a given noun ... Conversely, we do not know a single case of two primary nouns distinguished only by the vowel" (1974:75-6).<sup>85</sup> In Gazov-Ginzberg's view, the formation of root vowels is a relatively late phenomenon conditioned by a complex interplay of influences from neighbouring consonants (ibid. 76-7). Accordingly, the vocalic element is not to be considered as part of the root in PS (1965a:201) for which the author postulates a monovocalic system where "undetermined vocalic elements were used to facilitate the pronunciation" (1965b:95).

Even if some of Gazov-Ginzberg's observations are correct, it is hard to share the agnosticism of his general approach to the problem. As we have seen above, for many dozens of PS primary nouns a full agreement in vocalism between all major Semitic languages can be observed. The same holds true for Akkadian-Arabic comparisons in the domain of verbal roots. In my opinion, such a high number of coincidences can by no means be accidental and unambiguously suggests that the respective vocalic elements should be reconstructed as Proto-Semitic.<sup>86</sup> Now, it does not seem realistic to suppose that some 150 PS primary nouns did have fixed vocalic shapes whereas some other 150 were completely chaotic in this respect. It looks more promising to believe that originally all PS primary nouns and verbs possessed a given vocalic element which can be, admittedly, very hard to retrieve on some occasions.

My answer to the first part of our question is thus positive: the original root-vocalism of PS primary nouns and verbs can be—at least in principal—reconstructed. In this sense, I tend to agree with Diakonoff's critical evaluation of Gazov-Ginzberg's theory (1972:455): "The solution of obscure points in the vocalism of identical roots when differently reflected in the individual Semitic languages should be sought, first, in a correct reconstruction of the Proto-Semitic and Proto-Semitic-Hamitic phonological system, secondly, in a more exact reconstruction of the Proto-Semitic root patterns, and also by taking the history of the individual language groups more rigorously into account. It is only after this that generalizations on the subject of the language at its primaeval stage should be attempted".

85. As pointed out by Gazov-Ginzberg, this fact has been recognized also by I.M. Diakonoff (1970:454): "it must be conceded that no fully satisfactory minimal pair contrasting only in vocalism can apparently be found among the primary Semitic roots".

86. In this sense, Gazov-Ginzberg's presentation is very uncritical. Firstly, the whole of his theory is based on some 20 examples of roots denoting body parts (most extensively in 1965b:92-4). This list is suggestive but certainly not representative. Secondly, the author does not take into account the rather obvious fact that the degree of conservatism in the vocalic system varies from one Semitic language to another (thus, as pointed out in fn. 5, Fox is no doubt correct in ascribing to the Arm. data less importance than to those of Hebrew, Arabic and Akkadian). Accordingly, one should not treat in the same way PS \*ʔVʕk- 'testicle' (which does display extremely variable reflexes throughout Semitic) and, for example, PS \*ʔanp- 'nose' which can be reliably reconstructed with \*-a- on the evidence of all major Sem. languages (the forms ʔanf, ʔnf observed in non-classical Arabic are certainly secondary). Thirdly, some examples contradicting the author's theory are simply omitted from the discussion (thus, PS \*ʔurl-at- 'foreskin', with a "non-motivated" -u- is said not to be worth discussing because of "an unclear etymology, the possibility of borrowing and the unusual combination -rl-"; each of the three objections is either baseless, or irrelevant for the problem of vocalic reconstruction). But above all, Gazov-Ginzberg's contributions suffer from his incapacity to distinguish between the PS reconstruction resulting from the immediate comparison between the attested Semitic languages and the internal reconstruction of the (once reconstructed) PS language. Thus, it is theoretically possible (though, in my opinion, very unlikely) that the choice of -i- as the thematic vowel of PS \*šinn- 'tooth' is due to the combination of a sibilant and a nasal as the radicals (1974:77). However, since \*šinn- is reflected regularly in all Semitic languages, the alleged phonetic conditioning must be postulated for a very remote "Pre-Proto-Semitic" stage.

The second part of our question is more difficult to answer: the language as a whole and its lexicon in particular being a system of oppositions, it is legitimate to doubt that so much effort should be spent on reconstructing elements with such a low oppositional value.

#### Abbreviations of Languages and Dialects

Akk. - Akkadian, Amh. - Amharic, Arb. - Arabic, Arg. - Argobba, Arm. - Aramaic, Cha. - Chaha, DSS - Dead Sea Scrolls, Ebl. - Eblaite, End. - Endegeñ, Enm. - Ennemor, Eth. - Ethiopian, Gaf. - Gafat, Gez. - Geez, Gog. - Gogot, Gyt. - Gyeto, Har. - Harari, Hbr. (pB.) - Hebrew, Hrs. - Harsusi, Jib. - Jibbali, Jud. - Judaic Aramaic, MA - Middle Assyrian, MB - Middle Babylonian, Mhr. - Mehri, Mnd. - Mandaic, Min. - Minaean, MSA - Modern South Arabian, Msq. - Masqan, Muh. - Muher, NA - Neo-Assyrian, NB - Neo-Babylonian, OA - Old Assyrian, OAKk. - Old Akkadian, OB - Old Babylonian, Qat. - Qatabaian, Pho. - Phoenician, PS - Proto-Semitic, Sab. - Sabaic, SB - Standard Babylonian, Sel. - Selti, Sod. - Soddo, Soq. - Soqotri, Syr. - Syriac, Tgr. - Tigre, Tna. - Tigrinya, Ugr. - Ugaritic, Wol. - Wolane, WS - West Semitic

#### Abbreviations of Lexicographic and Grammatical Tools

AHw.	W. von Soden. <i>Akkadisches Handwörterbuch</i> . Wiesbaden, 1965-1981.
BK	A. de Biberstein-Kazimirski. <i>Dictionnaire arabe-français</i> . Vol. 1-2. Paris, 1860.
Brock.	C. Brockelmann. <i>Lexicon Syriacum</i> . Halle, 1928.
CAD	<i>The Assyrian Dictionary of the Oriental Institute, the University of Chicago</i> . Chicago, 1956-.
CDA	J. Black et al. <i>Concise Dictionary of Akkadian</i> . Wiesbaden, 2000.
DM	E. S. Drower, R. Macuch. <i>A Mandaic Dictionary</i> . Oxford, 1963.
DUL	G. del Olmo Lete, J. Sanmartín. <i>A Dictionary of the Ugaritic Language in the Alphabetic Tradition</i> . Leiden-Boston, 2003.
GAG	W. von Soden. <i>Grundriss der akkadischen Grammatik</i> . Rome, 1995.
GVG	C. Brockelmann. <i>Grundriss der vergleichenden Grammatik der semitischen Sprache</i> . Hildesheim, 1961.
HJ	J. Hoftijzer, K. Jongeling. <i>Dictionary of the North-West Semitic Inscriptions</i> . Leiden-New York-Köln, 1995.
Ja.	M. Jastrow. <i>A Dictionary of the Targumim, the Talmud Babli and Yerushalmi, and the Midrashic Literature</i> . New York, 1996.
JH	T. M. Johnstone. <i>Ḥarsūsi Lexicon</i> . Oxford, 1977.
JJ	T. M. Johnstone. <i>Jibbāli Lexicon</i> . Oxford, 1981.
JM	T. M. Johnstone. <i>Mehri Lexicon</i> . London, 1987.
K	T. L. Kane. <i>Amharic-English Dictionary</i> . Wiesbaden, 1990.
K Tna	T. L. Kane. <i>Tigrinya-English Dictionary</i> . Springfield, 2000.
KB	L. Koehler, W. Baumgartner. <i>The Hebrew and Aramaic Lexicon of the Old Testament</i> . Leiden-New York-Köln, 1994-2000.
LA	Ibn Manḡūr. <i>Lisānu l-Šarab</i> . Bayrūt, 1990.
Lane	E. W. Lane. <i>Arabic-English Lexicon</i> . London, 1867.
LArg.	W. Leslau. <i>Ethiopic Documents: Argobba. Grammar and Dictionary</i> . Wiesbaden, 1997.
LGaf.	W. Leslau. <i>Etude descriptive et comparative du Gafat (Ethiopiens méridional)</i> . Paris, 1956.
LGur.	W. Leslau. <i>Etymological Dictionary of Gurage (Ethiopic)</i> . Vol. III. Wiesbaden, 1979.
LGz.	W. Leslau. <i>Comparative Dictionary of Ge'ez (Classical Ethiopic)</i> . Wiesbaden, 1987.
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