

THE ORGANIZATION OF A PHONETIC WORD AND SENTENCE PROSODY
IN BIBLICAL HEBREW

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The main principles of a phonetic word organization in Biblical Hebrew are discussed, with rules for vowel changes as to the place of the stress formulated. A basic analogy in the structure of a phonetic word and that of a sentence is postulated, for specific accent properties alongside with a special vowel change paradigm dependent on different positions as to the word-stress vs sentence prosody are characteristic for both.

I.1. There exists more or less general agreement about the importance of analyzing the pronunciation structure of a text and its constituents, i.e. sentences, tacts, or syntagms, phonetic words etc. see for discussion /1/. Nevertheless, the rules operating within such units as phonetic words and concerning their pronunciation structure have remained rather a terra incognita for an overwhelming majority of linguistic descriptions (thus, very few attempts, if any, have been so far made to propose a calculus of phonetic words possible in this or that language). The present paper is concerned with an attempt to formulate the rules of the organization of phonetic words (see 2.1., 2.2.), to propose the rules for constituting bigger pronunciation units out of phonetic words, with their specific prosody, i.e. accent characteristics, and to discuss specific prosodic patterns of a sentence, with the rules for distribution of phonetic words and/or syntagms according to their position within a sentence (see 3.), all on the material of Biblical Hebrew (hence BH). Discussing the organization of a phonetic word, we'll offer a classification of BH morphological units as to their "constructive class" (see 2.1., /2/). To describe the structure of a phonetic word and to classify specific positions within a sentence and/or a

phonetic word as to its prosody and the type of vowel changes, it appears necessary to provide a fragment of BH morphonemics (or archiphonemics, see 2.2., 3).

The main conclusions of our study which might be of a certain interest for future Hebrew studies as well as for studies in the field of typology of sentence prosody are presented in the last section (see 4).

I.2. The BH material is of a great interest for the analysis of sentence prosody and other pronunciation characteristics of the text, for the texts in BH are not only supplied with vocalization marks, which is a rare thing for a text in an ancient Semitic language, but with accent marks as well. The BH distinguishes two systems of accents - poetical ones (as in Books of Job, Psalms, Proverbs) and prosaic ones (as in other Books of the Bible) (see for details /3/, /4/). Our study will cover the system of prosaic accents only, basing on the text of the Tanah in Tiberian vocalization (early X cent. A.D.) without taking into consideration minor problems concerning specific vocalization marks (f.ex., dages, swa medium etc) and other slight inconsistencies within the text of the Bible, for on the whole it appears obvious that BH possesses a common system of rules for phonological, prosodic (see just above) and morphological organization.

2.1. To study the structure of phonetic words, it is necessary to classify the units of the language into constructive classes, according to their behavior as to accentual independence and to phonological processes operating on the inter-unit boundary (a common stress being held for a main parameter to distinguish a separate phonetic word). In BH, we distinguish three constructive classes of units and three types of inter-unit boundaries respectively: 1. Bases, i.e. the only units capable of constituting an independent phonetic word all alone, which fall into accented ones (here belong a great many lexical units,

such as *dābār* 'word', *šāmār* 'he kept') and unaccented ones (here belong some prepositions as *al* 'upon', *taḥat* 'under', *et alia*, and some adverbs, as *gam* 'also'); this opposition is relevant but for a syntagmatic level (the interunit boundary for bases will be marked with #). 2. Affixes, falling into declensional (or declensional, such as noun pl. masc. -im, fem. -ot) and word-formational (as verbal stems affixes (prefixes), noun suffixes -on, -an etc). The affix boundary is marked with + (for lack of space we'll not discuss here the opposition of prefixes, suffixes and transfixes in BH). 3. Clitics, falling into proclitics (as *ha-* (definite article), *wə-* 'and', *še-* 'that, which', prepositions: 'in', 'to', 'like', 'min' 'from' (traditionally denominated: prefixed prepositions) and enclitics (here belong direct object pronouns used with the verb), the clitic boundary is marked with #.

Each type of boundary is characterized by specific processes in operation. The peculiarity of a clitical boundary is that another phonetic word may be inserted into the phonetic word given only before it. Unlike bases, clitics and affixes can not alone form a phonetic word. Within a phonetic word, both affixes and clitics are ascribed a rang as to their place. Thus, word-formational affixes tend to be placed nearer to the base than desinences. In a set of clitic, each clitic has its specific rang, cp. an admissible sequence of proclitics, with the number of the rang as to the base given in brackets: *wə(1)še(2)lā(3,4)ir* 'from *wə(1)še(2)lā(3)ha(4)ir* 'and-which-to-the town...', as opposed to a wrong sequence **šewalaha'ir* (the process *lāha > lā* is an example of a specific process operating on a clitic boundary #) (comp. the rangs for clitics in clitic complexes in Hittite and other Anatolian languages, as well as in Berber, Cushitic etc). The specific rules regulate the compatibility of different types of clitics, affixes and bases with one another; a more detailed discussion of the problem lies outside the frame of the present paper. An ideal phonetic word admissible would be: *Cl(1)Cl(2)Cl(3)Cl(4)Aff(1)Aff(2)B-* *aff(1)Aff(2)Cl*, where Cl stands for a position reserved for clitics only, Aff- for that of an affix, B- for that of a Base, figures in brackets stand for rangs. Strangely enough, a normal phonetic word can consist also of *CL# + Aff* (a phonetic word of such a structure behaves as an unaccented base), f.ex. *bi(bə + -i)in me*. So, we may use the formula for 'allocations with repetitions' A2 and obtain the number of phonetic words possible which equals 2¹⁰. Naturally, not every sequence possible is allowed, beca-

use of the restrictions on compatibility between separate units (see above). Here are some examples of allowed phonetic words: 1/ B# CL: *sāmārHā* 'he preserved her', 2/ B+Aff: *sāmār+a* 'she preserved', (cp. different phonological processes of vowel change on the # and + boundaries!), 3/ CL# CL# CL# B+Aff: *wəšəbasifr+enu* 'and-which -in-book+our'. 2.2. For the further study in the prosody of phonetic words, it would be necessary to study the main stress patterns proper to it. In general, the main stress would tend towards the end of a phonetic word. When the stress place is changed, there occur phonologically conditioned vowel changes. These changes can be given in a special paradigm, called an archiphonemic paradigm. Let's call 'an archiphoneme' an abstract unit to be interpreted with any phoneme (in the sense of Prague School 'soundtype') belonging to set of phonemes distributed according to purely phonological context. The units (i.e. archiphonemes) with a common set of phonological rules (or a common context) are united into one archiphonemic paradigm. So, for archiphonemic paradigm of BH vowels the position as to the stress (see below) together with openness of the syllable is the main 'context-forming' feature. One more context-forming feature is the type of inter-unit boundary (see 2.1., 1/, 2/ for different vowel changes on + boundary and # boundary). (One should remark in brackets that distinguishing between phonologically conditioned vowel changes and morphologically conditioned ones provides us with a most powerful tool for the description of morphonology and morphology of BH, as well as that of Modern Hebrew, allowing, f.ex., to reduce the number of noun declensional classes to 4 from about 340 and verbal ones to 2 from about 14). Most phonetic words consisting of a B only are stressed on the last syllable, except for words in (-)CVCeC, V being e, e, o, obtained by phonological rules from (-)CVCC and similar, like *seper < *sīpr, melek < *malk* etc, some aramaic loans (as *lamma* 'why') and a few real exceptions (as *laylā* 'night', *koḥkōd* 'skull'). If a phonetic word contains a clitical and/or an affix boundary before the base, it does not affect the stress and thus the vowels (with an only exception being the verbal declensional prefix *wə-'waw* consecutive). If an affix boundary lies after the Base, following situations can occur: a) affix belongs to 'unstressed' ones, as, f.ex., noun locative -a, verbal I Sg Perf. -ti, 1 Pl Perf. -nu etc; then no changes occur; b) affix belongs to 'stressed' ones, then the stress is moved to the affix, as with affixes like masc. Pl. -im, fem. Pl. -ōt, 3 Sg Fem Perf. -ā etc.

(The information as to whether an affix is 'stressed' or 'unstressed' is due to a special morphological dictionary.) When the stressed is transferred to the suffix, vowel changes according to an Archiphonemic paradigm take place (let's call it AP I). For lack of space, the whole AP I will not be presented here. We'll but bring some examples: \bar{a}_1 (an archiphoneme): $\bar{a}_1 \rightarrow \bar{a}$ in an open syllable immediately preceding the stressed one, $\bar{a}_1 \rightarrow \emptyset$ in an open syllable not immediately before the stress, applying the rules to an AP version $\text{Da}_1\text{Ba}_1\text{R}$ of dābār 'word' + pl. -im , we obtain a correct form dābārīm , \bar{a} being an automatic vowel; $\bar{a}_2 \rightarrow \bar{a}$ in an open syllable immediately before the stressed one, $\bar{a}_2 \rightarrow \bar{a}$ in a closed syllable not immediately before the stressed one, so from $\text{Sā}_1\text{Mā}_1\text{R}$ + \bar{a} we get a correct form sāmārā (see 2/), with an automatic \bar{a} .

(The AP rules are to be applied beginning from the stressed syllable). If a clitical boundary lies after a B, or B+Aff, the stress is removed to the clitic, and the vowel change operating come from a different AP paradigm, thus (let's call it an AP 2), $\bar{a}_1 \rightarrow \emptyset$ in a syllable not immediately before the stressed one, and $\bar{a}_2 \rightarrow \bar{a}$ in a syllable immediately before the stressed one, and according to these rules we get a correct form out of $\text{Sā}_1\text{Mā}_1\text{R}$ + \bar{a} : sāmārā (see above, ex. 1/). Therefore, it is absolutely necessary to distinguish between two APs for a phonetic word.

3. Now let's pass to the analysis of the structure of bigger units, i.e. syntagms, or facts, and the sentence prosody properties. A syntagm may be equal to a phonetic word, or exceed it. Within the frame of a sentence (in BH, the end of a sentence is usually marked with !) several positions can be identified, and if we regard a sentence as an accentual or prosodical unit, these positions can be treated as analogous to the positions as to the stress place within a phonetic word. These positions in a sentence are: an unaccented position, a strongly stressed (or a 'pausal') position and a normally stressed (or a 'non-pausal') one. The opposition of s.c. pausal and non-pausal forms in BH has been known since the earliest descriptions of BH (see 1/3, 1/4), but no evaluation of a pausal position (i.e., a position, for which a pausal form is required) has ever been proposed. Every position in a sentence is characterized by a specific set of accent marks used to identify it. So, a phonetic word within a syntagm occupying a normally stressed position has no special accents, but for a secondary stress (the accent mark meteg) on every closed syllable with a long vowel, as in battim 'houses', the second-

ary stress not affecting any AP. The phonetic word within a syntagm in the position under consideration may combine with so called 'weak disjunctive accents' marking the role of this or that constituent in the logical organization of the sentence (here belong accents as zakkaf , geres and some other). If a phonetic word occurs in an unstressed position, it is automatically united with another phonetic word or a syntagm into a new syntagm. Moreover, an unaccented base (see above) may not constitute a separate syntagm. The unstressed position is marked by the s.c. 'conjunctive accents', lying on the second (i.e. stressed) constituent of a syntagm, the graphic marker of the unstressed position being also a horizontal line - linea makkef between the constituents. A secondary stress may appear on the constituent in an unstressed position, unless it is an unaccented base. F.ex., 3/ Gen. I, 5 $\text{wayahī-ereb wayahī-boker}$ 'evening came and morning came' (where - stands for linea makkef , x is meteg on a phonetic word in an unstressed position, x - a conjunctive accent merha marking an unstressed position for yahī 'be, was').

A phonetic word and/or a syntagm stands in a strongly stressed (pausal) position before a pause, i.e. in the very end of a sentence and/or in the end of a logically complete passage. S.c. 'strong disjunctive accents' (atnah and silluk) are used to identify the position in question. The most interesting property of BH from the point of view of archiphonemics consists in the fact that there are independent APs with specific vowel change paradigm for each position. Thus, in a strongly stressed position no vowel changes occur and the stress is never removed, whatever structure a phonetic word may possess, and another vocalism is characteristic of it in comparison with other positions. Cp. following examples of syntagms in strongly-stressed positions: 4/ Kings II, 11, 14: $\text{wattikra' (atālayā 'et-dahā wattikra' keser' kaser 'Athalia tore her garments and shouted: "Treason, treason!" (x - silluk, kaser - a specific form used in a strongly stressed position of the word keser); 5/ Jer. 22, 29: 'erec 'erec 'ārec šim'i dabar-yhw 'O, land, land! Listen to the word of Yāhwe!, land, land! (x - atnah, 'ārec - a strongly stressed position form of erec); compare the different vowel patterns in: pausal: 'āmārtī, nonpausal: 'āmārtī 'I said', 'āmārū vs 'āmārū 'they said'.$

The unstressed position also possesses a specific vowel pattern; its AP is close to the AP I of a normally stressed position. The only complication about the vowel patterns occurring in unstressed positions is that they partly coincide with the morphemes: a set of noun declension, for there are specific morphological

forms of nouns (those of construct state) which are found only in this position.

Thus, the position of a phonetic word in a sentence (and/or that of a syntagm) appears to constitute one more 'context-forming' (in the above sense) parameter for an AP. In this respect the prosodic organization of a sentence in BH is analogous to that of a phonetic word, compare also the analogy of the operation of a secondary stress within a syntagm and/or a phonetic word and that of the s.c. 'weak disjunctive accents' in a sentence. A specific archiphonemic paradigm is characteristic for different positions in a phonetic word as to the stress, as well as for different positions of a phonetic word in a sentence; in both cases the 'strongly stressed' is the word's sentence final position.

4. By the way of analyzing the principles of a phonetic word organization and its functions within syntagms and sentences we have arrived at a conclusion of a basic analogy between the structure of a phonetic word and that of a sentence at least on the archiphonemic level of presentation. This analogy may be of some interest not only for Hebrew studies but perhaps for historical and typological studies of sentence prosody as well. The analogy in question reminds us of an analogy in the structure of hierarchically regulated units of different kind - i.e., morphemes, morphemes, words etc - drawn by some linguists. Can a structural analogy between the hierarchically regulated units of a different type - those connected with a 'linear', or pronunciation organization of the language, and not with the 'paradigmatic' organization of the language in the sense of /I/ - be maintained, too? (Anyway, it might be interesting to analyze from this point of view other laws and patterns of pronunciation organization of a sentence, as well as the rules for placing phonetic words of different types within them; consider, f.ex., the rule for placing clitics in a specially reserved position, usually a second position in the sentence in many Indo-European and Afro-asiatic languages; the ban for unstressed bases to occupy a sentence-final position in Modern Hebrew and so on).

References.

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