EGYPTIAN, SEMITIC
AND GENERAL GRAMMAR
STUDIES IN MEMORY OF
H. J. POLOTSKY

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Interdigitation of roots and patterns is justly regarded as the innermost core feature of the Semitic languages. Its productivity is especially overt in the generation of verbs and, within this domain, in the system of the so-called stems or conjugations, for which the Hebrew term *binyanim* is commonly employed. This term is implied in the title of this paper, yet my goal will be to show that the use of the term *binyan*, coined by medieval Hebrew grammarians a millennium ago, tends to obscure our view of the real nature of the Semitic verbal structure.

Being the very core of any Semitic language, the question of verbal formation is encountered by students of Semitic languages at their very first stages. They learn how to discern a verbal form and analyse it according to its overt signs. Yet, this acquired intuition is rarely analysed properly. The question is clear: What are the minimal components of each of the encountered forms? In other words: How many morphemes can be discerned there? A more complicated question will then follow: Having dissected the verb into its minimal units, how do speakers of Semitic languages generate the morphemic complex and how do they analyse it in order to get the meaning out of it? While the actual generation of individual forms may follow various patterns, the analysis of forms and the question of markedness is more straightforward and hence more palpable.

While such questions rarely find their way into modern analyses of Semitic languages, they were addressed in earlier studies. In his 1923 *Comparative Grammar* (208), De Lacy O’Leary lists three elements in a verbal stem: (1) the root; (2) “the formatives which appear as consonantal additions to the root modifying its meaning in derived formations”; (3) “the vocalization which is partly employed as a means of forming a noun or a verb from the root with or without added formatives, partly connected with the formative additions, and partly due to phonetic requirements...”.

Along similar lines, a thorough examination of the interplay between these elements may give us some insights not only regarding the verbal system in any of the Semitic languages, or the Semitic word structure in general, it can also contribute to the general understanding of language.

Questions to be asked are:

- What is the relationship between form and meaning of the distinct elements that constitute a Semitic verb?
- Where, on the scale between derivation and inflection, can any of the Semitic verbal morphemes be located?
• What is the order of joining the distinct elements to the root, and what can be learned from it regarding the distinction between derivation and inflection?

• What is the meaning of boundedness in this respect?

In what follows, I will first try to state briefly my view regarding the verbal system in Akkadian as a representative of the Semitic core languages, a view that I have published elsewhere (Izre‘el Akkadian Verb), and with which I am more comfortable. Then I will take a more detailed look at Israeli Hebrew, which — although quite remote from the Semitic core in other areas — still keeps the Semitic morphemic patterns to a large degree. As will be seen, the Israeli Hebrew system still vexes my mind. It is my hope that studies along similar lines will be undertaken using data from other Semitic languages, so that some comprehensiveness on the structure of the Semitic verb can be reached.

The Akkadian verbal system can be described as a three-dimensional complex (Figure 1): On one horizontal axis, depicting the first dimension, the primary stems of Akkadian are found. On another horizontal axis, being the second dimension, there are the secondary stems. On the vertical axis, the third dimension, the patterns are found. The resulting three-dimensional matrix is set to include all possible combinations of the verb complex, not including the rare stems (GAG §95).

FIGURE 1: A DESCRIPTIVE 3-D MATRIX: THE AKKADIAN VERBAL SYSTEM

Each dimension in this matrix is a reflection of a single rank of morphemes: the primary stems (G, D, Š and N), the secondary stems (Gt, Gtn, Dt, Dtn, Št, Štn, Ntn), and the TMA ( = tense-mood-aspect) morphemes (imperfective [ = present-future / imperfective /
present as Table 1. The forms as they are presented in this table are the respective vocalic patterns or patterns that include — in addition to vowels — the consonant set, there are also unmarked forms in this set. The markers on the vertical axis are Cohen’s column consists of forms that are morphologically unmarked, i.e., the G stem. The secondary stems are also regarded as consonantal markers: t and m. As with the rank-1 set, there are also unmarked forms in this set. The markers on the vertical axis are either vocalic patterns or patterns that include — in addition to vowels — the consonant t for the perfect, a doubling/length segment for the imperfective and the G participle, and — for all other participles — the prefix m.

The resulting underlying combined strings for all possible stems in Babylonian is presented as Table 1. The forms as they are presented in this table are the respective

<table>
<thead>
<tr>
<th></th>
<th>n (N)</th>
<th>i (D)</th>
<th>s (§)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF</td>
<td><em>a=</em></td>
<td>μa=*</td>
<td>S=a=*</td>
</tr>
<tr>
<td>PTCPL</td>
<td>m a=i*</td>
<td>mμa=i*</td>
<td>mμi<em>a</em></td>
</tr>
<tr>
<td>STV</td>
<td><em>a=</em>=</td>
<td>μa=*</td>
<td>S=a=*</td>
</tr>
<tr>
<td>IMPV</td>
<td><em>y=</em>=</td>
<td>μa=*</td>
<td>S=a=*</td>
</tr>
<tr>
<td>PFV</td>
<td><em>y=</em>=</td>
<td>μa=*</td>
<td>S=a=*</td>
</tr>
<tr>
<td>PFC</td>
<td><em>a=</em>=</td>
<td>μa=a*</td>
<td>S=a=*</td>
</tr>
<tr>
<td>IMPFV</td>
<td><em>a=</em>=</td>
<td>μa=a*</td>
<td>S=a=*</td>
</tr>
</tbody>
</table>

* Nt forms are extremely rare, and seem to be incompatible due to notional constraints (see below).
** Two resulting structures: ušta•a* and ušta•a•a*.

**Abbreviations:**
INFinitive — ParTiCiPLE — STatiVe — IMPeratiVe — PerfFectiVe (=“preterite”) — PerfFect
1MPerFectiVe (=“present-future”; “durative”)

1 For the relationship between consonantal doubling and vocalic length in Akkadian see Izre’el and Cohen LOB §§2.1.3, 2.4; Izre’el Leng.
2 Using Babylonian as a representative of Akkadian follows the grammatical tradition. The Assyrian system differs in some respects from the Babylonian one, but not in its basic morphological structure.
underlying morphemic strings, i.e., before applying any rules on either the morphophonemic or the phonemic level (e.g., rules that will resolve long consonantal strings or the assimilation of $n$).

While the three-dimensional matrix is a convenient didactic-descriptive tool, it seems that it works for only one direction of the learning process. When a student is confronted with the need to recognize forms in the course of reading a text rather than to learn the system through paradigms, this matrix is useful only as a comparative-search tool, and the process of recognizing a form is handled quite differently. What should interest the linguist is both the generative process and the analytical process, and in what follows I shall endeavor to tackle these two facets of the morphemic structure in an orderly manner.

Transposing the three-dimensional organization to a generative one, one may convert the three-dimensional matrix into an operational tool, where each axis will reflect the order of application of each of its respective markers to a selected root; one first applies any of the primary markers: $t$, $n$, or $\approx$. Only after a morph of this rank has been applied to the root, can the $t$ or the $tn$ morph be applied. Lastly, a pattern is applied.

One can formulate specific rules for the principles of joining bare roots to augments of either the primary or secondary rank, and for linking together patterns with the resulting strings. Each of these markers must be applied to a specific slot at the root string. The operational rules will determine restrictions of clustering and ways of resolving clusters. Rule-set 1 is a simplified set of such rules, eliminating from the discussion, for now, the nominal forms.

**RULE-SET 1: THE FORMATION OF AN AKKADIAN VERBAL FORM**

1. Choose root
2. Add rank-1 augment
3. Add rank-2 augment
4. Add TMA pattern
5. Add person/gender/number affixes
6. Apply (morpho)phonemic rules

Some of the clustering rules are handled on the morphemic level, and before any clustering rules on the surface level are applied. As a more comprehensive treatment of the Akkadian verbal morphology has been published elsewhere (Izre’el *Akkadian Verb*), I wish to illustrate the operation of this set of rules by only a pair of examples:

<table>
<thead>
<tr>
<th>Rule</th>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Choose root</td>
<td>$PQD$</td>
<td>$PQD$</td>
</tr>
<tr>
<td>2. Add rank-1 augment</td>
<td>$SPQD$</td>
<td>$PQD$</td>
</tr>
<tr>
<td>3. Add rank-2 augment</td>
<td>$\text{SinPQD}$</td>
<td>$\text{PtnQD}$</td>
</tr>
<tr>
<td>4. Add TMA pattern</td>
<td>$\text{u\text{StanPQDaD}}$</td>
<td>$\text{u\text{Pta\text{nQDaD}}}$</td>
</tr>
<tr>
<td>5. Add person / gender / number affixes</td>
<td>$\text{tau\text{StanPQDaDa}}$</td>
<td>$\text{tau\text{Pta\text{nQDaDa}}}$</td>
</tr>
<tr>
<td>6. Apply (morpho)phonemic rules</td>
<td>$\text{tu\text{StanapqDaDa}}$</td>
<td>$\text{tu\text{Pta\text{nqDaDa}}}$</td>
</tr>
</tbody>
</table>

When personal affixes are mentioned in this paper, they always imply subject affixes rather than complementation (=accusative/dative) or attributive (=genitive) ones, which are applied at the very end of the process and are, in effect, external to the generation of the basic form.
This pair of examples demonstrates the essentials of this view. First we choose a root and then add a rank-1 augment. In the left-hand set, the segment ı is added in its designated slot preceding the first radical of the root. In the right-hand set, a doubling segment is augmented in its own specific slot, between the second and third radical. We thus have four-segment strings in both cases. Following the application of a rank-1 augment, we introduce a rank-2 augment, which in this example is the morpheme 𝑡𝑛 in both cases. This morpheme is designed to be inserted between the first and the second radical. At this juncture one should note that once a new segment has been introduced into the already existing string, it functions very much like a radical in all subsequent operations (Goldenberg Word-Structure). The next step is the interdigitation of patterns with the extant strings. The mentioned clustering principles are now manifest: the interdigitation process results in a slot patterning of 2-4-1 in both cases. Since augments and root-radicals are not distinct at this operational level, the entire string is interdigitized into the pattern with no regard to the elements that comprise this string. After the application of the personal affixes, in this case ta---a (cf. Izre‘el Person-Prefixes), we reach the morphophonemic level. The middle cluster is resolved through deletion of the length (doubling) segment and by insertion of an epenthetic vowel following the 𝑛, and the resulting forms, respectively tuițanapqadar and tuptanaqadar, both manifest an identical syllabic structure. Another morphophonemic rule will delete the vowel of the personal prefix (Izre‘el Person-Prefixes). This, I hope, will suffice at this time to illustrate the type of rules that are operative in the generation of verbs in Akkadian.

I have hitherto touched only upon the formal aspect, a description based in its essence on Gideon Goldenberg’s work (Goldenberg Word-Structure). As regards meaning, it is not my aim to delve here into the subtleties of this matter, which is a moot question indeed. For our present needs, it will be enough to note that

1. each of the morphs depicted on any of the three axes of the matrix represents a single morpheme, in that it constitutes a minimal unit within the morphology of the language; and
2. none of these morphs can be shown to constitute only a part of a single morpheme in the overall structure of the language.

What is important for us here is the question of the type of meaning added by each of these morphemes and the order of their application. Figure 1 is illustrative of both the relationship between form and meaning within an Akkadian verb and — by virtue of rank enumeration — also the process through which it is constructed.

In Figure 2 below, the line on the left represents the derivational–inflectional continuum. The rank-1 augments (𝑡, ı, 𝑛), represented above on the first axis of our three-dimensional cellular matrix, are usually regarded as derivational. It would be better to say that they are closer to the derivational end of a derivational–inflectional continuum. The order of the rank-1 augments reflects their relative proximity to the

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4 Cf. Bybee Morphology ch. 4; Aronoff Morphology ch. 5; cf. Dressler Prototypical. Aronoff (125) says that binyanim are obligatory in that no verb can exist outside of the binyanim system (obligatoriness taken as a criterion of inflection; so also Bybee 27 and Dressler 6). This conclusion is a direct outcome of the common view that binyanim are sets of patterns, a view that is being challenged here.
Constructive Constructions

derivational or inflectional ends of the continuum. So is the order of the t and the tn morphemes, which have been depicted above as constituting the second dimension of the matrix.

FIGURE 2: A SCHEMATIC REPRESENTATION OF THE AKKADIAN VERB FORMULATION

The relationship between the n and the t morphemes is especially illustrative of this observation: while n usually indicates the passive or middle voice, it can be found in active verbs, as in naplusu 'to look, to see'. Voice is found closer to the inflectional end of the continuum, and indeed, it shares this feature with the t morpheme, which is a rank-2 augment. The t morpheme indicates the passive of the D and Š verbs, along reciprocal and reflexive notions that are indicated by t-forms of the unmarked (G) verb. Still, non-active is not the only notion conveyed by the t morpheme, and, like n, one finds t-forms of the verb also where an active notion is implied (see Edzard Stämme; Buccellati Babylonian Grammar §16.4–16.6).

The tn morpheme, which shares the same axis with the t morpheme, indicates the iterative, and thus may be regarded as a subcategory of the imperfective, which is unquestionably inflectional. Still, as is the case with the n and t augments, there are also cases where tn can be regarded as derivational (Edzard Iterativstämme; Buccellati Babylonian Grammar). The derivational disposition in the case of tn verbs is much less prominent than in the cases of t, especially in the case of n, thus tn can be placed closer to the purely inflectional morphemes.

The verbal patterns mark aspect and mood, and can thus be viewed as purely inflectional. However, patterns are also used to mark the infinitive, the participle and the stative, forms that have hitherto been left out of our discussion. The infinitive, the participle and the stative are interesting with regard to our discussion here, since they are nouns characterized by some syntactic properties shared with verbs. As far as morphological criteria are concerned, they can form part of the verbal paradigm and are generated according to procedures similar to those that generate finite verbs. These
forms can be viewed as belonging somewhere mid-way on the derivational–inflectional continuum (cf. Dressler Prototypical).

The correlation between pattern and inflection is less clear in the case of these three categories, and pattern application can hardly be seen as purely inflectional, as in finite verbs. I have placed these forms apart, albeit beneath the augments and above the purely inflectional patterns, since the application of patterns in these forms also follows the application of the consonantal morphemes.

Beneath the patterns, and at the end of the inflectional–derivational continuum, we find the external inflectional morphemes. Here, too, we see the nature of the stative as a nominal form that can take nominal inflectional morphology (case and other affixes) like the infinitive and the participle, but also, when it is used as a predicate, it takes personal affixes and thus shares this generation rule with finite verbs. The stative, accordingly, is placed in our diagram between the verbal and nominal patterns.

Now, the diagram as drawn also reflects the order of application of rules as suggested above: a rank-1 morpheme is the first to be applied to the bare root; then a rank-2 morpheme is applied; the application of a pattern follows. It is to be noted that the nominal patterns are applied before any TMA pattern can be applied, as the latter are prevented from application once a nominal pattern has been applied. This rule also shows that the nominal patterns are closer to the derivational end of the continuum than the TMA ones. Lastly, the external inflectional morphemes are applied. Therefore, this organization of morphemes which takes part in the generation of an Akkadian verb shows that the order of application of the respective morphemes goes from the derivational to the inflectional.

It further shows that there is some rough correspondence between the derivational–inflectional continuum and the phonetic character of the morphemes involved, as is shown by the right-hand side of the diagram. Indeed, there is an interesting correlation between the type of morph and its function. Rank-1 and rank-2 morphemes, which are closer to the derivational end of the continuum, are consonantal; patterns are used for inflectional categories. If so, there is some intriguing feature which makes a distinction between verbal and nominal categories in this system, since in the nominal domain, patterns are used as derivational markers. It should be noted that this observation holds only for internal morphology.

There seems to be a similar correlation between markedness and the type of pattern used in the inflectional domain: the more marked inflectional categories are augmented by either a consonant (the perfect) or a length (doubling) element (the imperfective), whereas the less marked are recognized by purely vocalic patterns (imperative, perfective). It is intriguing, however, to note that in Semitic languages the perfective is the less-marked category, which stands against the more widespread tendency among the world languages for the perfective to be the marked component in the pair perfective:imperfective (Dahl Tense and Aspect ch. 6; Bybee Morphology 147).
There are still some intriguing observations that can be made about markedness and patterns, or about iconicity and marking within the inflectional domain (Izre’el Rev. Kouwenberg 360–361; cf. Kouwenberg Gemination §2.2.4.2), but these must be left out of the present investigation.

We shall return to the derivational–inflectional continuum later, but before that, let us put aside the oldest attested Semitic language and try to take a look at Israeli Hebrew, which can be regarded as the newest Semitic language (cf. Izre’el Emergence), yet one that still preserves the Semitic morphological structure to a large extent. Table 2 lists some commonly attested forms as well as some newly created ones, all arranged in a grid that has the traditional seven Hebrew binyanim horizontally, and the TMA/nominal forms vertically, arranged in three groups: (1) active forms with alternate vocalization (marked by ~); (2) passive forms with a נֵרְפֶּל pattern; (3) deverbal nominal forms (infinitive and nomen actionis). It is designed to serve as an anchor to the comments that follow.

TABLE 2: ISRAELI HEBREW STEM: COVERT AND OVERT MORPHEMIC STRUCTURE

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>h</th>
<th>ht</th>
<th>qal</th>
<th>piel</th>
</tr>
</thead>
<tbody>
<tr>
<td>~</td>
<td>nIGZAL+</td>
<td>hIGDAL+</td>
<td>hISPik+</td>
<td>hIPATER+</td>
<td>YADDA/+</td>
</tr>
<tr>
<td>PC (“future”)</td>
<td>+FIKîNes</td>
<td>sIGIAL+</td>
<td>sISPik+</td>
<td>sIPATER+</td>
<td>IGDAL+</td>
</tr>
<tr>
<td>PTCPL</td>
<td>nIGZAL</td>
<td>sIGDAL</td>
<td>sISPik</td>
<td>sIPATER</td>
<td>GODEL</td>
</tr>
<tr>
<td>IMPV</td>
<td>(hi)KîNes</td>
<td>hIXNîS</td>
<td>hIPATER</td>
<td>FIFX</td>
<td>MISED</td>
</tr>
<tr>
<td><em>H•A</em></td>
<td>sc</td>
<td>—</td>
<td>hIGDAL+</td>
<td>kIPATER+</td>
<td>MUSAD+</td>
</tr>
<tr>
<td>PC</td>
<td>—</td>
<td>+HIGDAL</td>
<td>+HIPATER</td>
<td>+XCHAV</td>
<td>+MUSAD</td>
</tr>
<tr>
<td>PTCPL</td>
<td>—</td>
<td>+HIGDAL</td>
<td>+HIPATER</td>
<td>XCHAV</td>
<td>MLUBAL</td>
</tr>
<tr>
<td>INF</td>
<td>(hi)KîNes</td>
<td>hIXNîS</td>
<td>hIPATER</td>
<td>lGODA</td>
<td>MISED</td>
</tr>
<tr>
<td>NOM-ACT</td>
<td>hTIMHAXUT</td>
<td>hIRk•Èd</td>
<td>hIPATER</td>
<td>lGODA</td>
<td>MISED</td>
</tr>
</tbody>
</table>

Abbreviations:
Suffix Conjugation | Prefix Conjugation | Participle | Imperative | Infinitive | Nomen Actionis

There is a complicated network of structural relations between the forms in the Israeli Hebrew verbal system. As noted by Goldenberg (Word Structure §13; Conservative 5–6), Israeli Hebrew, too, shows a tendency to converge towards a unified system of patterning. This is true for both the suffix conjugation and the prefix conjugation. The following four sets of forms are representative of most of the allomorphic sets of verbal conjugation:

For example, the difference in marking of the participles, where the G-participle is marked by a vocalic pattern (the length element is a matter of interest to be further explored), while it is marked by an extra consonant (m-) elsewhere.  

A high-rank officer told Ha’aretz that the instruction of the brigade commander was given in order “to make them look better” (nir•ut, literally: ‘for reasons of appearance’; — mir•e ‘looks (intr.)’ [mifal soad] + at [abstract noun marker]) (Ha’aretz, July 15, 2001; vocalization and quotes in the original).
Suffix conjugation | Prefix conjugation
--- | ---
2SGM | 2SGM
•a•a•ta | •i•v•
hi•a•ta | •i•v•
ni•a•ta | •i•v•
hit•a(*)i•ta | •i•v•
•i•(*)a•ta | •i•v•
3SGM | 3SGM
•a•v• | •i•v•
hi•v• | •i•v•
ni•v• | •i•v•
hit•a(*)v• | •i•v•
•i•(*)v• | •i•v•
Indeed, the surface structure of forms seems to reflect the same constructional principles and similarity of forms. Still, conjuga-
tional sets vary in subtle ways. In fact, there is no one single paradigm where all forms are neutralized, be it on any point of the deriva-
tional–inflectional continuum. Deviations may occur in a single person throughout the paradigm, in one single vowel of a form, or in the existence or absence of a vowel. These deviations must be taken into account in our analysis, although they occur only in the surface form. After all, it is through the surface form that addressees can make sense of the uttered string. On the other hand, the overwhelmingly similar structural neutralization does make us realize that “binyanim” markers and TMA patterns must be regarded as distinct morphemic entities, to be discerned — again — only after having analysed their respective paradigmatic and cross-paradigmatic relationships.

For example, while the difference between the piel and the nifal 3SGM prefix-conjugation form is realized only by the existence or absence of the vowel following the person prefix (e.g., yšamer ‘he will preserve’ vs. yšamer ‘he will watch himself’), one also has to take into account the surfacing of n in the nifal suffix-conjugation forms. The n marker also exists at the morphemic level in the prefix conjugation, but it is deleted on the way to the surface. By the same token, the 3SGM forms of the suffix conjugation and the prefix conjugation of hitpael not only differ in terms of the location of their respective personal affix (hitgaber ‘he has overcome’ vs. yitgaber ‘he will overcome’), but also by the paradigmatic relations with other persons, since the vowel e of the 3SGM alternates with a in other persons only in the suffix conjugation (hitgaber vs. hitgaberta ‘you have overcome’).

Thus, very much like in Akkadian, vocalic patterns must be regarded as distinct morphemes carrying their own meanings, while the consonantal morphs n, h, ht, must be regarded as markers of the so-called binyanim. In other words, the latter are morphemes that form augments to the root rather than sets of patterns that include these respective augments. As with Akkadian, n and h form augments of the first order (rank-1), and ht forms a rank-2 augment. We have seen above that in Akkadian n and t are incompatible. In Hebrew, ht is incompatible with both n and h, and when an ht morpheme is

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9 The vowel e which may appear in piel forms (yšamer) is epenthetic and therefore does not show at the morphemic level. For a different analysis see Schwarzwald Verb.
augmented to a root, it inhibits either of these two rank-1 augments from being part of the string. This rule is observable in *ht*-verbs that are derived from *h* forms, as will be shown below (e.g., *hizdaken*), and virtually also from *n* forms.

One other difference between Israeli Hebrew and Akkadian is found in the *piel* conjugation. Scholars have disagreed regarding the form of the *piel*, as to whether it should be analysed with a deep-structure doubling of the second root radical (as maintained by Goldenberg *Word-Structure* 42–43) or without it (as maintained by Schwarzwald *Verb*). We shall return to this issue later. But first I would like to touch, very briefly, on the issue of meaning, or rather the *signifiés* of the *binyanim* markers.

Productivity, which may prove essential to our understanding of the linguistic perception of speakers, is accessible in Hebrew, so I went to the colloquial, even to slang, because these types of language can furnish insights about productivity and perception of the verbal system.

The *binyanim* markers in Israeli Hebrew have, in many ways, climbed up the derivational–inflectional continuum and are now much closer to the derivational end. Also, Israeli Hebrew differs from Akkadian and other ancient Semitic languages in one important measure, which is its marked tendency to derive verbs based not only on semantic properties, but also on formal grounds (Bolozky *Strategies* §3.1.6; *Productivity* 15–16, 58–62; *Roots*).

I was lucky enough to attend an *ad hoc* generation of a verb when my son, upon hearing, within a Hebrew context, the English expression ‘let them bleed’, echoed in response its exact translation as ≈eyablidu (lit.: nominalizer 12+they-will-bleed). Obviously, this verb generation in the *hifil* pattern was sensitive to the English consonantal clustering and vocalic pattern of the form ‘bleed’, which fits into the Hebrew *hifil* pattern. While *hifil* is productive mostly for the causative (e.g., *higdil* ‘enlarge, increase’ vs. *gadal* ‘grow’; *hixnis* ‘bring in’ vs. *nixnas* ‘enter’), formal constraints also play part in newly generated *hifil* forms (e.g., *hi≈vic* ‘boast’ < Yiddish ≈vicn).

10 In Akkadian, the incompatibility between *t* and *n* is probably due to notional constraints, as both indicate non-active voice. In Hebrew, the notional constraint seems to be of a lesser value than in Akkadian, either for the pair *n* – *ht* and, especially, for the *h* and *ht* forms, where no such notional clash seems to be the case. Indeed, other Semitic languages do not show incompatibility in their cognate respective formations (Brockelmann *Grundrisse* I 531–532; Lippiński *Semitic Languages* §41.55).

11 Tobin (*Invariance* 252–263) suggests that *nippet* should be regarded a separate *binyan* in Hebrew, distinct from both *hitpael* and *nifal*. This follows his methodology of assigning each discrete signifier a meaning, which is similar to the methodology followed here. I, however, believe that differences between *hitpael* and *nippet* forms are not distinct in meaning, but follow sociolinguistic or other distributional rules. For example, a legal text shows *nippet* in a finite verb while the *nomen actionis* of the same verb — describing the same event and occurring in the same discourse — has a *hitpael* form: *nitgalta* ‘it(F) was discovered’ vs. *hitgaluta* ‘its(F) discovery’.

12 The nominalizer *še* is frequently used for the expression of modality.

13 This was noted in October 8, 1989. My son was 15 at the time.

14 Traditionally, verbs are listed in the *3o* suffix conjugation form of the *qal* in Hebrew dictionaries. This tradition is followed here for the Hebrew forms, but not for the translation, which gives the basic form in English.
hexvir ‘become pale’, hiššir ‘blacken’ (intransitive), hišmin ‘grow fat’, which in older stages of Hebrew (and Akkadian as well) would tend to indicate the ingressive aspect, i.e., entering into a state (Speiser Elative). The hifil can be seen as purely derivational in such cases as himci ‘invent’ (which is not the causative of maca ‘find’), himtin ‘wait’, hinpik ‘issue’, hispik ‘suffice’, ‘manage’, hiskim ‘agree’, and many others where other verbal derivatives of the same root either do not exist or do not share corresponding meanings.

Nifal is productive in indicating non-active voice. While generated mostly from qal forms (e.g., masar ‘hand over’ : nimsar ‘be handed over’), nifal is also derived from other stems, and possibly also directly from nouns. Possible examples are nidbak ‘stick to’ from either the verb hidbik ‘to glue’ or the noun devek ‘glue’; and nisdak ‘cracked’, which seems to have derived directly from the noun sedek ‘crack’. Whereas the passive voice is marked by the pattern •u•a• (see below), verbs in nifal can either indicate non-active voice or they can be derivational. Thus nixnas means ‘enter’, which is active (no qal counterpart exists); nifkad is not only a person who has been visited by census registrars (non-active voice), but also one who has defected from the army (derivational); nizhar is not someone who has been made to shine (< zahar), and thus does not mark non-active voice, but one who is careful, and hence derivational; nismar is not only someone under guard (non-active voice), but also he who is on guard or something which has been preserved (derivational); and so on. Nifal forms are also used for the inchoative (or ingressive), e.g., ne’emad 15 ‘stand up, halt’ vs. amad ‘stand’ (stative) (Blanc Yiddish Influences).

The derivational and inflectional characteristics of the ht morpheme are shown by its augmentation onto roots extracted from all types of verbs, or directly from nouns. This stands against the strong link it had with the piel in older stages of Hebrew (Joüon Biblical Hebrew §53; Segal Mishnaic Hebrew 118–120). Examples are hitdapek ‘keep knocking on the door’ from dafak ‘knock’; hitganev ‘sneak’, which seems to be the reflexive of higniv ‘smuggle’ rather than the reflexive of ganav ‘steal’, whereas ginev is not part of the repertoire of Modern Hebrew; hizdaken ‘get old’, which is the reflexive of hizkin (same meaning) rather than of the non-existing ziken or classical Hebrew zaken. Examples of denominal derivation are hitxaver ‘became friend’ (< xaver ‘friend’); hit’alek ‘cling to somebody (derogative)’, (< aluka ‘leech’); hixtaxcen ‘boast’ (< šaxcan ‘boaster’). This morpheme serves to mark reflexivity, reciprocity and some aspectual notions (cf. Mor Conjugations), alongside simple verbalization when an intransitive marker is required (cf. further Bolozky Productivity ch. 3), as in the last two examples. An interesting example is hitno’sut ‘becoming a subject (nose)’ (Borochovsky-Bar Aba Verb 238–239, 241–242); where the original nominal stem is retained (for a more elaborate analysis of similar forms see below).

15 The change from i to e is morphophonemic. Bolozky (Productivity 189) further observes a tendency for a more general, phonetic change, of i → e in hifil forms.

16 As against hitmas’ut ‘becoming an object (musa)’ (Verb passim). While hitmas’ut is already taken (‘patronizing’), *hitmas’ut would be interpreted as passive (see below).
The passive pattern •u•a• is applied to both bare and augmented roots. In more traditional terms, it forms the pattern pual out of piel, and hufal out of hifil. I suspect that its productivity might go beyond these two forms also to qal. As qal is nonproductive in Israeli Hebrew, it is difficult to find substantial proof for this suggestion, especially since the nifal assumes productivity in this slot. Still, there is one nice example in Taube Passive, xucavnu ‘we were forged’, where the active counterpart would be xacav rather than xicev.17 The default status of the pattern •u•a• for passive is shown in the seemingly extensive use of participles like memuna ‘mobile (with car)’ (< manoa, ‘engine’), where no verb exists and where transitivity of a possible active counterpart is not an issue. Passive participles of this type are shown to be first in productivity by both Taube Passive and (for slang) by Muchnik Slang Adjectives.

The potential of the •u•a• pattern as the general passive marker in Israeli Hebrew is further shown in the formation of the passive-reflexive forms hitputar ‘forced to resign’18 and hitnudav ‘forced to volunteer’, both with a sarcastic flavour added. This doubly-marked formation has not shown much productivity since these two verbs were coined (cf. Sappan Slang 61; Dictionary 62). Still, Grizman lists three more verbs of this type: hitxubak ‘forced to hug’, hitgyas ‘forced to join the army’ and hitnušak ‘forced to kiss’ (Grizman Slang 95, following Ben-Amotz & Ben-Yehuda Dictionary). Most recently, a police officer said on the Israeli radio that a bomb was blown up, using the form hitpucaq. The speaker elaborated on this incident by saying harobot poce otob ofen mevukar ‘the robot blew it [the bomb] up in a controlled manner’.19

The correlates between active and non-active verbs, like the relations between qal, piel and hifil, are thus much less obvious than as usually described. The passive pattern •u•a• makes stronger the claim that the Hebrew verbal system should be viewed as consisting of a set of augments and a set of patterns, where augments assume positions towards the derivational end of the continuum, and patterns assume positions towards the inflectional end. This is especially manifest in the passive construction. If a morpheme is defined as the minimal unit of a language that carries meaning, then obviously the passive morpheme is the •u•a• pattern, while h or ht carries the meaning of the causative or of the reflexive, respectively. Further support for this analysis is given by nominal forms like hagdala ‘enlarging, increasing’ (nomen actionis). Obviously, it is not the pattern that carries the meaning of the causative, since it occurs in other nominal forms as well (e.g., parnasa ‘subsistence’), and therefore one must draw the obvious conclusion that the causative meaning is carried by the augment h alone.

[17] Taube Passive believes that such forms are derived in practice from pre-existing passive participles such as xacav.
[18] This form has now entered into standard use, and is not confined to slang. On February 25, 1998, Reuven Merxav, director-general of the Foreign Ministry, used it in a television interview: hitputruto shel Isar Har ‘the forced resignation of I. H.’, where the pronominal suffix marks the form as standard. On the next day, this very form was used in the morning news edition of the Israeli radio.
[19] I thank Aharon Geva-Kleinberger and the lamented Rafi Talmon, who heard this piece of news during the time of the conference (on July 12, 2001) and brought it to my attention.
Generation of verbs in qal is sporadic now,\(^{20}\) and productivity of verb derivation in Israeli Hebrew is largely confined to piel, which is the default pattern for generating new verbs. When we speak of a default form, it means that new verbs will assume the piel set of allomorphic patterns unless specific circumstances determine that they adopt a different set. Such circumstances can be a required added meaning, like causative, passive or reflexive (for which see below), some formal properties of the core stem (e.g., the form of the originating noun from which the verb was created in the first place, as illustrated above) or historical circumstances that have resulted in an innate constraint of the root, which follows its historical patterning.

The piel patterning is helpful in generating verbs from roots with more than three radicals, extracted from either existing or newly acquired nouns. As examples one can cite the already wearily used tilfen ‘make a telephone call’ (< telefon ‘telephone’) and flirtet (< flirt ‘flirt’), but also mised ‘institutionalize’ (< mosad ‘institution’), and many others. The formal character of this formation is illustrated by the verb fikses-yfikses ‘tax’ where the extraction of a mere three radicals would have resulted in a verb like fikes, yet the tendency to keep with the original syllabic pattern and consonant clustering of the originating form has resulted in a verb based on a four-radical string. By the way, fikses is used for ‘focus’, where no clustering exists in the original form. The tendency towards the piel pattern is especially noteworthy in forms where the old-new tendency for verb generation through a three-slot pattern introduces a third radical, and still a verb is generated in the piel even if a qal formation would be equally accepted. This is the case with the newly created kiyef ‘pickpocket’ (< kis ‘pocket’), kiyef ‘have fun’ (< kef ‘fun’), miyen ‘sort, classify’ (< min ‘kind, sort’), šivek ‘market’ (< šuk ‘market’), siveg ‘classify’ (< sug ‘kind, class’), and their like. Productivity tests (Berman New Root Derivation) have shown a general tendency for two-consonant root augmentation by either vocalic radicals or by reduplication.

Examples like kiyef ‘have fun’ prove that the piel formation is not necessarily perceived as marked for transitivity in contemporary Hebrew. Other examples are diğa ‘work as a deejay’ and nifes ‘smoke pot’. Ad hoc generation instances of verbs can be heard occasionally, as in the case of Menny Pe’er, one of the top Israeli TV talk-show hosts, who said in an interview: ata roce paxot lehilaxem, paxot lekacen ‘you want to fight less, to be less engaged in officer (kacin) activities’ (Channel 1, March 18, 2002). Such instances, notably those where intransitive verbs are coined, show that even in cases where the extracted root has less than four, or even less than three radicals, and there are therefore no formal constraints on the use of the piel pattern, it is still chosen by default. Numerous neologisms like birber ‘blabber’, kixev ‘star’ or fišel ‘screw up’

\(^{20}\)In accordance with other clothing and wearing verbs like lavaš ‘dress’, xagar ‘put on a belt’, anad ‘wear (jewels etc.)’, the more recent garav ‘put on socks’ (< gever ‘sock’) and lisrox ‘lace up’ (< srox ‘(shoe) lace’) were formed. Other examples are lipor ‘to watch birds’ (< cipor ‘bird’; laxlov ‘milk’ (< xalav ‘milk’ [noun]); laxrop ‘to sleep’ (< Yiddish srox ‘sleep’ [noun]). The last four examples are given in their infinitive form, show similarity also in the syllabic form and consonant clustering of the derived verb and its originating noun. Mor (Conjugations 276–277) lists some other examples, which, however, are attested only in the (active or passive) participle. See further Bolozky Productivity ch. 3.
give further support to this observation. When a transitive denotation is observed, this
notion is derived from either the immediate context or because it contrasts with another
existing form of the same root, which is intransitive and derived in a different pattern.
In sets like gadal ‘grow up’ : gidel ‘raise’ : higdil ‘enlarge, increase’, it is the very
existence of a qal form that implies transitive uses for its piel counterpart, i.e., the
transitive notion of the latter is an implicature rather than a marked feature. In short,
the choice of a piel form is not necessarily determined by either semantic or formal
criteria, and can thus be regarded as the default formation of an Israeli Hebrew verb.

One other significant question regarding the piel formation in Israeli Hebrew is its
marked element. Akkadian has the doubling element, a morpheme that overtly existed
previously in Hebrew. As is clear from my transcription of piel verbs above, the
surface structure of (all but a few rare varieties of) Israeli Hebrew has lost its overt
doubling. The question still remains whether piel forms should be analysed as consisting
of a deep-structure doubling element. As mentioned, some scholars tend to represent
doubling also for Israeli Hebrew as a covert, underlying element. I am reluctant to
hypothesize the existence of a doubling element where it would not assume any
semantic role. This will be the case with all verbs where piel is taken as a default
pattern, where verbs with this patterning are intransitive, as well as for verbs that do
not have qal counterparts carrying a similar lexical notion.

The inherent contradictory role of the piel as forming transitive counterparts of qal
verbs and its role as the default set of patterns seems hard to reconcile. This difficulty
is amplified by the fact that doubling is never recognizable on the surface and has to
be regarded as an abstract entity, and there thus seems to be no overt sign for its role
when it indicates valence enhancing. On the other hand, if we admit to an abstract
doubling in this form, it would seem counter-intuitive to me to have an augment for a
default form side by side with another non-augmented form (i.e., the qal form) that
may otherwise mark similar valences and notions.

One possible solution might be to describe the Israeli Hebrew system as having the
piel as the default verbal choice and to see the qal set as the marked member in such
pairs as gadal ‘grow up’ vs. gidel ‘raise’; yada ‘know’ vs. videa ‘inform’. Taking into
account the transitive inclination of the piel set, this solution seems to be counter-intuitive
for a traditional Semitist and exceptional to the iconic-markedness tendency in languages.

An alternative way of tackling this problem is to have two non-augmented default
classes for the verb, where the choice between them will depend on the root. Such a
description will conform with the biradical slot in the second position in the piel
pattern, as shown by Goldenberg (Word Structure 42–43). The default pattern will
thus consist of a four-slot base with a three-slot clustering (*•••*), with only a single

21 A different view is suggested by Bolozky, who says that “speakers tend to look for the most
prominent and for the most-readily-available pattern they observe in the recent everyday lexicon. A
derivation pattern may be used widely enough to function as the default pattern for some category, but
even then is still associated with some broad semantic (or at least syntactic) feature. Generally, the
broader the semantic category, the more likely is the default pattern to be selected: pu‘al for passive
verbs, hitpael for all other non-agentive verbs, piel for agentive ones...” (Bolozky Productivity 193).
radical in the middle position where roots are triradical. We may leave it as such, and thus have a list of forms spelled out in the mental lexicon for us to pick up and match with a default verb with derivation and inflection thereon with each verb going its own way. This would leave us with the question of markedness for the *piel* set for verbs with lexically-related *qal* forms.

It is, indeed, quite difficult to decide upon a unified descriptive and explanatory system that will be comprehensive enough. Let me try one other alternative. Let us remember at this point the implications of the claim that the pattern */i•e•* and its variants is the default patterning. This point of view will also make an argument for discarding the debate over the nature of the forms with added š whether they form a separate binyan or a set of quadriliteral roots (cf. Schwarzwald & Neradim Šaf‘el; Goldenberg Šif‘ël; Schwarzwald Morphology §9.3.3): having noted that the pattern */i•e•* is the default pattern for generating new verbs in Hebrew, one may well see the š in forms like *šišev* ‘rewrite’ or *šiarex* ‘evaluate (financially)’ as an element augmented to the root, which then assumes an inflectional pattern, which is the default one. According to the same line of thinking one may regard any other augmented element or reduplication as a derivational element (or, rather, close to the derivational end of the continuum) added to the root, which then assumes the default inflectional pattern */i•e•* or its variants. Examples are */ivteax* ‘provide security’ (←’4btx), *šikšerm* ‘communicate’ (←t+kšr), *šixšev* ‘computerize’ (←m+xšhiv), *šixšen* ‘calculate’ (←xšhiv+n); *šixvret* ‘socialize’ (←xvr+t), *šišen* ‘annoy’ (←cbhiv+n); *šifxes* ‘fax’ (←fk{s}x2), *šifdef* ‘browse’ (←[df]x2), and many other quadriliterals that still recall the lexical attribution of their triliteral bases and are, in many cases, recent neologisms (cf. Schwarzwald Morphology §9.3.3). Similarly, forms like *šitbaxyen* ‘whine’ (←bxy+n) assume the *hitpael* pattern after having been augmented with the *ht* morpheme.22

Now, to the set of augments we can add one other, namely a doubling marker of the good old *piel*. The doubling element will have its own slot into which it would be

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22 The most common clustering organization is */i•e••••*. In fact, the middle slot can hold more than two radicals. Two of the most commonly cited forms illustrate this fact: As against *šifret* ‘flirt’ with a 2-2-1 scheme, one also has *šihšpirc* ‘splash’ (< Yiddish shpritsen), with a clustering of 1-3-1. Reasons can be formal or phonetic. Both *šifret* and *šihšpirc* keep their originating syllabic structure. In *šinpluc* ‘manipulating’ <manipulacya ‘manipulation’, liquids are constrained against clustering in the first slot, and there are no constraints against the three-consonant clustering in the middle slot (I owe this example to Uri Mor). Ora Schwarzwald cites in her article in this volume the form *še’aksplayn* ‘to explain’ and *šibstret* ‘made abstract’, which are explainable as following the originating nominal form in their syllabic (=clustering) structure, as well as by phonetic reasons: clustering of a zero radical (or, perhaps, a glottal stop) with another consonant is impossible, and no phonetic constraints are there to block a loaded middle slot, up to four consonants in these cases. Cf. also *šilgref* ‘telegraph’, *šinkren* (or *šinrex*) ‘synchronize’ (Schwarzwald Modern Hebrew 33).

23 An interesting case is *šista’rev* ‘disguise oneself as an Arab’, more common in its plural participle form *šištara‘vim*, which denotes commando troops who act in disguise among the Palestinian population. Obviously, this form is built after the Arabic 10th conjugation (ista‘raba ‘adopt the customs of Arabs; become a naturalized Arab’), yet the Hebrew construction must be regarded as having an š rank-1 augment and the rank-2 augment *ht*. It would be of interest to explore the range of potential augments in contemporary Hebrew.
inserted, following the second radical rather than preceding the first radical, as is the case for augments like š, ʾ or h. This fact should not constitute a counter-argument for this thesis, as there are also augments that are inserted at the end of the root string (e.g., ’cb+n→’cbn) or elsewhere within the string (e.g., šixpec ’restored (a building)’ < šipek [outdated]; hitxašmek ‘fancy’ < hitxašek; Grizman Slang 98). It is precisely this similarity that Goldenberg (Word Structure) has relied upon in his work on verbal patterning in Semitic. Very much like the overt consonantal augments, the underlying doubling augment will either add a meaning component to the root or make a change in the meaning of the core root. It can also go down the derivational–inflectional continuum and bring about a grammatical change in the verb, acting on the syntactical level to change valence. This will account for pairs such as ka≈ar ‘tie’: ki≈er ‘connect, link’, which are closer to the derivational end. It will also account for pairs such as gadal ‘grow, grow up’: gidel ‘raise’, which are closer to the inflectional end. These forms will have a doubling element in their morphemic level, yet this doubling will not be overt on the surface level. Thus, morphophonemic rules will have to be accounted for, which will change kišer to kišer and gidel to gidel. Some reflexes of this doubling may be seen in the change from spirant to stop in the case of b-v, k-x, p-f, as suggested by Ornan (Ancient Allophones); see also Goldenberg Word Structure 43. Perhaps forms like gibën ‘make cheese’, although they have no counterparts in qal, can still be regarded as belonging to this class with augmented doubling, when compared with their nominal counterparts, gvisa ‘cheese’ in this case. The doubling element might be taken to bear some semantic load, which will make it derivational. However, the alternation between this tripartite set of stops and fricatives is too complex to deal with as merely phonetic or phonemic variants, and both allomorphy and sociolinguistic variation must also be taken into account when dealing with this issue. In any case, much further research is needed here.

Now, in addition to the roots augmented by a doubling element as described, there will be a different class of verbs, where no rank-1 augments are added, yet still using the default pattern. This class will account for all intransitive verbs such as kiyef ‘have fun’ and fi≈el ‘screw up’, as well as for many forms that have no counterparts in qal, whether new or old, transitive or intransitive, and all verbs with roots with more than three radicals. By the same token, hitpael forms can be described either as having a doubling augment or without it. This differentiation has been suggested by Ornan (Hitpael), who noticed doublets like hitbatel (←hitbattel) ‘be cancelled’ vs. hitbatel (←hitbatel) ‘be idle’. The notorious pair hitxaver ‘become friends’ vs. hitxaber ‘connect’ is also explainable in these terms, according to Ornan. While such an explanation depends on a specific theory of bkp-vxf distribution (cf. Ornan Ancient Allophones), the form hitxaber can be seen as having a doubling augment also according to the suggestion offered in these pages, since it has counterparts in piel (siber ‘link, join’, transitive) as well as in qal (xavar ‘join’, intransitive).

A set of rules for the generation of an Israeli Hebrew verb can be formulated along principles similar to those used for the one formulated for Akkadian. Rule-set 2 is a
simplistic representation of a set of such rules, where, as is the case with Akkadian, the nominal forms are eliminated from the discussion at this point.

RULE-SET 2: THE FORMATION OF AN ISRAELI HEBREW VERBAL FORM

1. Choose root
2. Add rank-1 augment
3. Add rank-2 augment
4. Apply passive pattern
5. Apply non-default TMA pattern
6. Apply default TMA pattern
7. Add personal affixes
8. Apply (morpho)phonemic rules

First, some remarks on the root are in order. A root is a morpheme that plays a role in the grammatical structure of a language. While it serves as a linking element between the lexicon and the grammar, it is not part of the lexicon itself. Like other morphemes, roots may have allomorphs. Their distribution and rules of occurrence must hence be described as constituting part of the grammatical system.

Verbal roots can be identical to their nominal counterparts (kašar kešer ‘tie a knot’), but in many cases they are different. One interesting example is the verbal root cvrx (hictavraxti ‘I became moody’), which derives from macavrux ‘mood’ (<macav ‘state’ + ruax ‘spirit’, evidently derived initially from the passive pual participle m(e)cuvrax ‘moody’) (Bat-El Extraction 47–48; Word Structure 155–156). Suppletion, or rather allomorphy, is quite common within verbal formation. It is manifest in different binyanim, as in yarad ‘go down’ (yrd, qal) vs. horid ‘take down’ (ord, hifil); yaladi ‘I gave birth’ (yld, qal) vs. noladi ‘I was born’ (old, nifal); herik ‘empty’ (rik, hifil) vs. roken, same meaning (rokn, piel); savav ‘go round’ (svv, qal) vs. sovev ‘turn round’ (svv, piel). Furthermore, one can observe regularities in allomorphic behaviour among classes of roots, as is the case with the so-called primae yodh verbs already cited above, not only in different binyanim, but also in inflectional categories, e.g., nolad ‘he was born’ (old) vs. yivaled ‘he will be born’ (vld). Hebrew linguistics traditionally views suppletion in forms like yarad: horid for ancient yrd and vrd respectively, allomorphy that had been brought about by historical, morphophonemic change of w>y/ (Joüon Biblical Hebrew §26f). In Modern Hebrew it seems better to describe the second allomorph as vrd rather than vrd, since no phonemic rule for changing w to o seems feasible any longer. The case of allomorphy as against phonetic or phonemic rule-governed change is more manifest in the case of the nifal prefix-conjugation forms, where yivaled ‘will be born’ must be regarded as based on vld, thus corresponding to yld in the qal and old both in the suffix conjugation of nifal as well as in the hifil.

While these are the most noted cases and have been recognized as such by all grammarians, one can observe distribution of root variants in many other cases as well. Moreover, if one regards the pairs b-v, k-x, p-f as representing distinct phonemes by way of establishing minimal pairs, which can easily be shown in Hebrew (already
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Weiman Native and Foreign Elements 9–15; Rosén Our Hebrew 146; Kutscher History of Hebrew 248–249), then suppletion is quite widespread also among roots comprised of these phonemes; e.g., badak ‘he checked’ : yivdok ‘he will check’; raxaš ‘he purchased’ : yirkaš ‘he will purchase’; pana ‘he turned/addressed’ : yifne ‘he will turn/address’.

Given all these data, which point to a widespread root allomorphy in Israeli Hebrew, I would like to suggest yet another allomorphic class for the •o•e• formation, and describe forms like roken and sovev as having the default pattern, viz., piel. The load will thus be put on root allomorphy rather than on patterning system. 24 This seems to conform better to the way Israeli Hebrew operates its verbal system, rather than regarding these forms as belonging to a special binyan (pace Schwarzwald Three Issues). Thus, a root ↝rokn, when integrated with the default pattern •i•e•, will result in the form roken after a morphophonological operation deleting the vowel i of the pattern when preceding the vowel o: RiOKKeN→roken. The same applies to sovev (←SiOVeV), as well as to hifil forms such as horid (←HiORiD; ↝ord), which will be contrasted with hirid ‘become pink’ (←yrd). In the passive pattern, a morphophonemic rule for deleting the vowel o is applied as is the case with hufal of primae yodh verbs: rukan (←RuOKeN) ‘he/it was emptied’; hurad (←HiOraD) ‘he/it was taken down’.

Verbs with an o radical in the default pattern do not change in inflection, and thus we set aside roken ‘he emptied’ also yroken ‘he will empty’. This applies both to roots where o is not an augment added to a primary root such as sovev (←SiSV), and to verbs where o is a radical of the primary root itself, as in the case of šnorer ‘scrounge’ (←šnorer ‘scrounger’), koded ‘encode’ (←kod ‘code’), or ‘otet ‘signal’ (←‘ot ‘sign’) (in the last two cases, the augmented radical is a reduplication of the last radical of the primary root).

Some of the verbs consisting of augmented roots are representative of derivational operations because they change lexical meaning (e.g., mixšev ‘computerize’ vs. xišev ‘calculate’); others illustrate derivation by the very fact that they are used in a different part of speech, viz., verb as against noun (e.g., fikses ‘to fax’ < faks ‘fax’; difdef ‘turn pages, browse’ < daf ‘page’). It remains to be seen for each etymon, for each root and for each operation when exactly the operative root (be it either an allomorph or an augmented root) is formed. It is a matter of both the lexical system and the grammatical one to describe the relationship between such sets as ↝xšv, ↝xšbn and ↝mxšv. In contrast, the set ↝xsv and ↝šovv are probably related to the grammar only. I shall not delve into this complicated matter, as much research is to be done here. Some remarks on this issue will nevertheless be found below.

Table 3 exemplifies the way generating rules operate. The columns represent distinct generation processes; the numbers at the left represent the formation rules as listed in Rule-set 2 above.

24The idea of having polel forms as the integration of piel patterning with a quadriradical root having o as its second radical came up in a meeting with Ora Schwarzwald and Pablo-Isaac Halevi (Kirtchuk) one evening during the conference in Jerusalem. I thank both of them for an insightful and enjoyable discussion.
TABLE 3: VERB FORMATION IN ISRAELI HEBREW: SOME EXAMPLES

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Glosses: (1) you (sgm) will restore; (2) we returned (tr.); (3) they entered; (4) you (sgm) will whine; (5) they were raised up; (6) we will raise; (7) we will turn round (tr.); (8) they grew up; (9) we blew it; (10) he will code.

In the first example, the derivational morpheme ≈ (a rank-1 augment) is added to «xzr (col. 1), h is augmented to the same root in col. 2, an initial n to «kns in col. 3, a final n to «bxy in col. 4, a doubling augment, «gdl, in cols. 5 and 6, and an o augment to «svv in col. 7. No rank-1 augment is added in the other three cases. It is interesting to note the difference between the respective dispositions in cols. 7 and 10. The primary root in the first case is taken to be triradical («svv), but quadriradical in the second («kodd). «svv is used in qal and is intransitive, and sovv in piel and is transitive. Therefore, the augment o in sovvev is taken to bear a transitive added meaning to the primary root, very much like the doubling augment in the case of gidel (¯ gidel). In fact, a sociolinguistic variant of this form is sivev (apart from the normative sibev, which is hardly in use), which, according to the system suggested here, is to be analysed as having a covert doubling augment as well.25 (Note that in both cases, viz., in the generation of either sovvev or sivev, we opt for the default patterning.) In contrast, «kodd is preferably not to be analysed in a similar way, since it does not have a qal counterpart, and no specific meaning can be assigned either to the vowel o, if we take the primary root to be kdd, or — if we take the original kod to be the primary root, which makes better sense — to the extra d. In the latter case, the formation of the root is to be assigned in a stage prior to the addition of any augment.26 It must be noted that roots are not generated each time a verbal form is generated; rather people use a stored root kodd, which is related to the noun kod, as they use «fkss, which is related to the noun faks, or «dfdf, which is related to the noun daf.

A rank-2 augment (ht) is applied to the augmented root bxyn in col. 4. In col. 5 the passive marker •un•a is applied to the augmented root gdd. Note that the passive pattern is incompatible with the augment n not only when it indicates non-active voice, as in the case of nikna 'was bought': in our example in col. 3, nixnsu is active and n is to be regarded as derivational. The next step is the application of a TMA pattern when a non-default pattern is required. This is the case with roots that require qal patterning.

25 Which causes another complication for the analysis of the bkp-vxf distribution in Israeli Hebrew.
26 One must note that, as in the case of sovvev, a sociolinguistic variant kided exists as well. The arguments put forward above for not analysing it as including an underlying doubling morpheme still hold.
as well as where an augmented string includes the rank-1 augments \( h \) or (initial) \( n \), or the rank-2 augment \( ht \). This is the result of historical processes, either ancient or recent, which are reflected in the formation of some verbs. In the case of \( h \), these are the old hifil patterns that are applied, as is the case with (initial) \( n \)-augmented strings, which require the ancient nifal patterning. The \( ht \) augment requires the application of the ancient hitpael pattern. In the case of gadal, as in our col. 8, it is the existence of the doubling-augmented string that requires the resulting intransitive verb to take on the qal patterns. In cases like garav or laxrop it is the root or the original string from which the derivation was initially shaped that constrains the choice of this patterning.

Rule 6 requires the application of the default TMA pattern marking. In some cases there is a neutralization of the TMA marking, and it is the place of the personal marker that indicates the inflectional meaning, notably when the passive pattern is applied, where the application of any further inflectional pattern inhibited (e.g., gudalta ‘you were raised’; tgudal ‘you will be raised’). Now the personal affixes are added. This is the last step in the morphemic formation of the verb, yet to be followed by morphophonemic or phonemic rules, which are manifest in various ways in our examples.

On the same principles according to which the Akkadian verbal system was depicted, the related morphemes in the Israeli Hebrew system would also manage to find their respective locations along a derivational–inflectional continuum, as shown in Figure 3.

The notion of continuum is very helpful, as it can account for many phenomena in language. In our case, the derivational–inflectional continuum will serve to describe not only the functional gradation of morphemes used in the verbal system, but also to describe each one of them. As we have seen, each one of the binyanim markers can be employed either as a derivational or as an inflectional morpheme. Thus, each augment can move along the continuum within the range of its potential uses (lexical or grammatical, derivational or inflectional). Figure 3 represents a very preliminary and tentative disposition of the respective morphemes as regards their relative proximity to the derivational end of the continuum. Much further research is still needed to establish, at least quantitatively, the respective functional distribution of each of the rank-1 augments among roots. The rank-2 augment \( ht \) is obviously closer to the inflectional
end than the rest of the augments, as only a small number of its occurrences may be regarded derivational.

This chart also reflects the order of application of the respective morphemes: rank-1, rank-2, the passive pattern and the TMA patterns. This implies that the h\textsuperscript{t} morpheme is compatible with all rank-1 augments except for the last two listed, viz., \textit{n} and \textit{h}, as explained above. It further means that the passive pattern is compatible with all augments, either rank-1 or rank-2, except for the \textit{n}- morpheme, as mentioned. Another implication is that the application of the passive pattern, since it precedes the application of the TMA pattern, inhibits the application of the latter (in this case, due to formal reasons, as the passive marker already occupies the pattern slot).

As with Akkadian, the patterns of the verbal nouns are added following the augmentation of the \textit{binyanim} markers instead of the TMA patterns. One can observe here too the intriguing fact that — in contrast to the verbal domain — patterns are not used as inflectional markers, but are closer to the derivational end of the continuum.

One last comment is in order as regards choice of patterns on formal grounds, as in the case of \textit{šeyablidu} ‘let them bleed’ (discussed above). It has already been mentioned that in the case of \textit{kod}, the formation of the verbal root is to be assigned to a stage prior to the addition of any augment. I have suggested that the derived root \textit{kodd} (or \textit{kdd}, for those sections in the speech community who would use \textit{kided} rather than \textit{koded}) is stored beside the noun \textit{kod}. In contrast, for the generation of the form \textit{sovev}, the root \textit{svv} is stored, whereas the augment \textit{o} will be added to it in the verbal derivation process. By contrast, in ad hoc formations like \textit{yaḥlidu}, it is the pattern that is chosen first, and the augment must be regarded as parasitic. This is the case for all cases of historical generation of forms, which are not generated from roots but from full stems, either via root extraction or without it. After this initial generation, a root may be formed and enter the grammatical system of a language and thus become part and parcel of the linguistic system of each of the individual speakers within the speech community. Needless to say, much research is needed to establish these highly tentative suggestions, both in descriptive linguistics and in psycholinguistics.\textsuperscript{27}

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Distinguishing between derivational and inflectional morphemes or strategies has always been a moot question in the general study of language. Languages differ in their expression of individual forms and linguistic relationships, and similar notions can be expressed using lexical, derivational or inflectional strategies (Bybee \textit{Morphology}). What can our study of Semitic languages add to the general study of word formation?

First of all, I believe that it shows again that the distinction between derivation and inflection cannot be made clear-cut, and that (1) in spite of some known cross-linguistic tendencies, it is language specific; (2) it requires a continuum upon which the individual morphemes and strategies will be set.

\textsuperscript{27}Obviously, I have taken the side of those scholars who believe in the existence of roots as mental entities rather than in their being formed at each production of a linguistic form. For a summary of the debate see Bolozky \textit{Roots}.  

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Second, it shows again that inflection and derivation can use similar strategies, but it also shows that they can differ in other aspects, as in the order of their application, or in their employment of similar forms in different strategies for different domains of language. In the two Semitic languages explored here, patterns are employed for nominal derivation, but in the domain of verbs they are used as inflectional markers. As regards the stem system, it must be emphasized that augmented roots play a role not only in the generation of verbs or verbal nouns, but also in what are usually regarded as pure nominal forms. This, however, must be left for another investigation.

An interesting question arises with regard to the view that derivational affixes are closer to the root than inflectional ones (Bybee Morphology 96–98; Dressler Prototypical 8 #19; Akmajian, Demers & Harnish Linguistics 81–82). While personal affixes, which are purely inflectional, do conform to this strategy, other verbal inflectional morphemes are strictly bound to the root in Semitic languages: these are the patterns, into which the root is interdigitized and without which a root cannot be pronounced. Still, the application of the respective morphemes to the root can support this theoretical observation, yet from a different angle. As we have seen, the formal analysis of the generation of the morphemic complex can tell us something about the location of the respective morphemes on the derivational–inflectional continuum. The closer a morpheme is to the derivational end of the continuum, the earlier its application to the root is made. Boundedness versus unboundedness, or rather closely bound affixes versus remotely bounded affixes is not what we have in a Semitic language. It is the order of the application of these affixes that counts (cf. Anderson A-Morphous Morphology 126).

There are still some theoretical problems involved in the derivational–inflectional continuum as regards the respective Akkadian and Israeli Hebrew systems, regarding its applicability as a language universal or, rather, as a convenient tool for linguistic observation. For example, as has long been recognized, and as we have also seen in our analyses, the same markers can be used in either derivational or inflectional morphology (e.g., Matthews Morphology ch. 3; for Hebrew see Aronoff Morphology §3.3; Schwarzwald Morphology §5.4). This latter observation may eventually require a revision of the theoretical concepts of derivation and inflection. However, if we accept the notions of derivation and inflection as such, this type of continuum is a necessary emendation to the conceptual postulate, and it reflects the relative proximity of any of the morphemes to either the derivational or the inflectional end, taking into account also the type of morphemic marking. In plus, each of the internal morphemes taking part in verb formation, unless it marks a TMA signifié, is in itself not discretely derivational or inflectional, but a stretch on the derivational–inflectional continuum. Obviously, there are implications for the configuration of meaningful units along this line. This can be one contribution of Semitic linguistics to the general study of language.

One last comment is due on the term binyan, which the title of this paper connotes. In the opening of this paper I stated that my goal would be to show that the use of the term binyan tends to obscure our view of the real nature of the Semitic verbal structure.
The term *binyan* was first used for what it basically means, viz., construction, indicating the way words are structured (cf., e.g., Bacher *Terminologie* 27 [1127]). Later it was restricted to designate the derivational classes of verbs that include both the augment and the various patterns, and it has been used with this meaning ever since. I hope that by now it has become clear to my readers why I believe the term *binyan* is not a happy one. As I hope to have shown, the patterns are not morphemes that indicate derivational meanings usually connoted by the term *binyan*, but, rather, they are used as inflectional markers for the finite verbal forms or as derivational markers for the verbal nouns, indicating their part of speech. Since the term *binyan* in the common perception connotes, rather, the meaning that is borne only by the augments, it seems to be neither accurate nor helpful. If at all, the term *binyan* should be confined to its initial grammatical implicature, as used by the first Hebrew grammarians, i.e., to indicate the way words are structured. This would be highly anachronistic, of course, and should therefore be abandoned altogether.

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28 I thank Gideon Goldenberg for referring me to this publication.
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