Quadriliteral Reduplicated Roots as a Semelfactive Aspectual Marker

This entry presents the process by which verbs with Quadrilateral Reduplicated Roots (henceforth QRR), such as *hinhen* (nod) and *tiktek* (tick), gradually developed into a morphophonological marker of the semelfactive aspect in Modern Hebrew (MH).

Introduction

Quadrilateral Reduplicated Roots

Hebrew verbs are a combination of a root and a transfix typical of the Semitic languages. While roots are typically triliteral, quadrilateral roots are available as well. QRR verbs consist of the repetition of two pairs of consonants, $C_1C_2C_1C_2$ (e.g., *hinhen* – hn+hn 'nod', *tiktek* – tk+tk, 'tick'), and they constitute a small class of roots in Hebrew: 153 QRR verbs can be found through all stages of Hebrew, with about 100 of them in use in MH.

QRR can appear in three verbal templates: *pi'el* (*gimgem* – 'stutter')*, pu'al* (*cumcam* – 'reduced') and *hitpa'el* (*hitbalbel* – 'be confused') as their constructions permit four-consonantal slots. These roots can be configured in two different ways. The first is with a two-consonant base found in roots with only two stable radicals. For example, the verb *gilgel* 'roll' has the QRR root GLGL. The two-consonant base of this verb can be found in the noun *gal* ('wave') and the verb *golel* 'wrap.' The second configuration is generally onomatopoeic, and they appear only in the QRR construction, for example CKCK, e.g., *cikcek* – 'click tongue' (Schwarzwald, 2017).

Semelfactive Aspect

Semelfactive verbs describe *naturally atomic events*, which are repetitive (Rothstein, 2008). For example, when clock ticks (tik-tek), one can identify the discrete ticks of the clock, unlike other verbs that do not relate to naturally atomic events, such as 'eat' and 'hike'. Within certain contexts, semelfactive verbs can denote an extended event (1a/b). In other contexts, they are ambiguous and can denote either extended events or minimal events within a series (2a/b). Most semelfactive verbs can also denote a <u>single</u> minimal event (3a); however, some of them cannot denote a single minimal event and with the modifier once they only receive an extended event reading (3b) (with the meaning of shifting weight from one foot to the other.)

1. Extended event with the modifier *for X time*

    a. השעון תקתק במשך חמש דקות (extended event)

       ha-šaon   *tiktek*   **be-mešex**   *xameš dakot.*

       the-clock   tick.PST.MS   **for**   five   minutes.

       'The clock ticked for five minutes.'

    b. הוא דשדש חמש דקות

       hu   *dišdeš*   **be-mešex**   *xameš dakot*

       he   trample.PST.MS   **for**   five   minutes.

       'He trampled for five minutes'

2. Ambiguous with the modifier *again and again* – extended events / minimal events of the series)

a. השעון תקתק שוב ושוב

       ha-šaon   *tiktek*   **šuv**   **ve-šuv**

       the-clock tick.PST.MS   **again**   **and-again**

       'The clock ticked again and again.'

b. הוא דשדש שוב ושוב

       hu   *dišdeš*   **šuv**   **ve-šuv**

       he   trample.PST.MS   **again**   **and-again**

       'He trampled again and again.'

3. With the modifier *once* (a) ambiguous – a single extended event or single minimal event), (b) only single extended event.

a. השעון תקתק פעם אחת

       ha-šaon   *tiktek*   **pʕam**   **'axat**

       the-clock tick.PST.MS   **time**   **one**

       'The clock ticked once.'

b. הוא דשדש פעם אחת

       hu   *dišdeš*   **pʕam**   **'axat**

       he   trample.PST.MS   **time**   **one**

       'He trampled once'

QRR in MH and the development of the process during the History of Hebrew

The findings discussed in this entry suggest that QRR verbs have become an increasingly productive marker of the semelfactive throughout the history of Hebrew, to the extent that **in MH, QRR verbs have become the almost exclusive structure for expressing the semelfactive aspect.**

Previous studies focused on semantic characteristics of these verbs. Although the conclusions vary slightly, all of them suggest that there is no common denominator for all verbs of this group. However, some verbs share semantic characteristics such as iteration, repetition (Yanai 1974, Ussishkin 1999, Tobin 2001, Schwarzwald 2017) or event internal pluractionality (Greenberg 2010). This is the case both when comparing QRR and semelfactive verbs from all stages of Hebrew

together and when focusing only on those in use in MH. This entry examines QRR verbs from the perspective of diachronic productivity, i.e., examining the neologisms that were coined during certain periods and their special characteristics (Haspelmath 2010:130). Throughout the different stages of Hebrew QRR verbs gradually became the productive way to denote the semelfactive aspect, as can be recognized when comparing new QRR verbs and the new semelfactive verbs coined in each period of Hebrew, as illustrated by Figure 1.
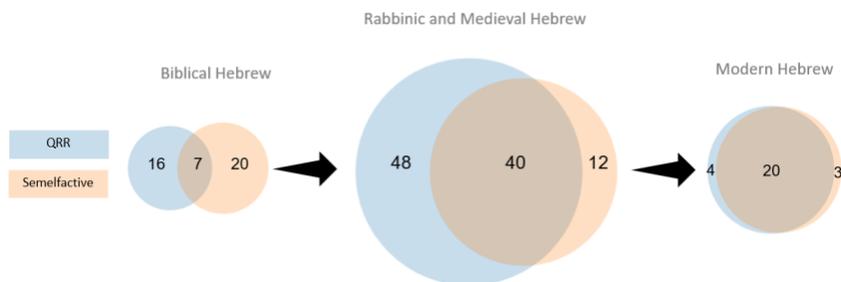

Figure 1. Historical development of **semelfactive** and QRR verbs

Figure 1 shows that there is a strong biconditional relation in **MH** between new verbs with QRR and new expressing inherently the semelfactive aspect: almost all new QRR verbs have a semelfactive aspect, and almost all new semelfactive verbs are within the QRR structure. For example, *difdef* 'browse/leaf [pages]', *himhem* 'hum', *hinhen* 'nod', *kixkeax* 'clear throat [repeatedly]', *kifkef* 'slap [repeatedly]', *pimpem* 'pump', *cikcek* 'click [tongue]', *zimzem* 'buzz', *rišreš* 'rustle'. We find a notable exception in three semelfactive verbs, not expressed by the $C_1C_2C_1C_2$ structure, and are the result of denominalization, where the last consonant of noun triliteral root is reduplicated – $C_1C_2C_3C_3$. For example, the verb *kidrer* 'dribble' has the root KDRR and is derived from the noun *kadur 'ball'* with the root KDR. Without this second kind of reduplication, the verb would not be semantically transparent. The findings show that in MH, verbs with Quadriliteral Reduplicated Roots have become the exclusive productive form for semelfactive verbs.

Examining earlier strata of Hebrew shows the early stages of the process of QRR becoming a semelfactive marker. In **Biblical Hebrew**, it is possible to identify the beginning of the phenomenon (*pirper* – 'shake, convulse', *cifcef* – 'tweet'); however, a general tendency is not yet observable. QRR verbs are rare in Biblical Hebrew in general (23), and the majority are not semelfactive. In addition, most semelfactive verbs of this period do not have QRR structure (našam 'brethe', kipec 'jump'. In **Rabbinic Hebrew**, the use of QRR verbs expanded (Segal 1936:145-146, 149, 263; Ben David 1967:458), and a small number of verbs were coined in **Medieval Hebrew** (83 from both periods, 6 of them attested in Medieval Hebrew). More than half of them express the semelfactive, and the vast majority of new semelfactive verbs have QRR structure (hivhev 'blink'', gimgem 'stutter').

The claim that QRR verbs in MH became a semelfactive marker is based on data on the productive incorporation of neologisms. It is strengthened by the data on verbs which were not retained from previous stages of Hebrew. The numerical data do not show a significant difference between

disused QRR semelfactives and non-semelfactives. However, a closer inspection of semelfactive verbs with QRR structure which MH has lost, shows that most of them had an alternative function within the QRR structure; in other words, we see here a mechanism of synonymy blocking (Haspelmath 2010). MH tends to retain QRR verbs unless in competition with an alternative QRR verb. For example, in place of *kiskes*, MH continues to use *šifšef* ('rub'); in place of *mitmet*, *zi'azea'* ('shake/agitate/shock'); in place of *sifsef*, *hivhev* ('flicker'); in place of *gi'agea'* and *'igieg* , *gilgel* ('roll') is used; in place of *gišgeš*, *kiškeš* ('babble'), in place of *kia'kea'*, *kixkeax* ('clear throat') was created, and instead of *qia'qea'*, *kirker* ('squawk/croak') continued to be used. The latter of these examples appear to be better suited to MH pronunciations.

The data shows the tendency of MH is to retain semelfactive meanings and to lose non-semelfactive ones in verbs inherited from older strata. For example, the verb *gimgem* has a few readings: 'hesitate' from the Mishnaic period; 'to argue against' from Medieval Hebrew; and 'stutter' from Mishnaic Hebrew. Only the last of which was retained into MH and has the semelfactive meaning. In addition, all new semelfactive meanings in MH are assigned to QRR verbs exclusively.

However, there is limited potential for any major expansion in the creation of neologisms within the QRR structure for the expression of the semelfactive in MH. This entry assessed the domain which delineates the possibilities of production of new QRR verbs given morphological, phonological, and semantic limitations. The main morphological constraint is a limited number of combinatorial options, which can be made up of two different consonants, phonological constraints avoid some phonological combination as two phonemes with the same place of articulation and to avoid homophonies, and of course, the word will only appear if it has a semantic need. The few exceptions within the identified trend suggest that there are two expected directions of development: denominative QRR verbs which do not express the semelfactive and semelfactive verbs which are built from the construction KTLL.

Factors Which Influenced the Process

There are at least two factors that influenced the process by which almost all new QRR verbs in MH are semelfactive. The first is a diachronic, language-internal factor, and the second is the external influence of language contact during the Revival Period of MH.

Iconicity

The internal factor is the systematic integration of two types of iconicity into a single verb - **onomatopoeia**, which iconically represents sound, and **reduplication**, which iconically represents plurality. Numerous onomatopoeic elements are found among QRR verbs (Yanai 1974; Schwarzwald 2017), and this research shows that the trend of incorporating new onomatopoeic verbs in this construction expanded throughout the development of Hebrew. For example, the verbs *kixkeax* 'clear throat', *cikcek*, 'click [tongue]' *circer* 'chirp', and *rišreš* 'rustle' was coined in MH. Most of onomatopoeic verbs are naturally semelfactive because onomatopoeic events tend

to be cyclic. The combination of onomatopoeia and reduplication increased the number of semelfactive verbs in MH. Alongside this trend, the general tendency to express the semelfactive by way of QRR verbs increased as well (Figure 2):
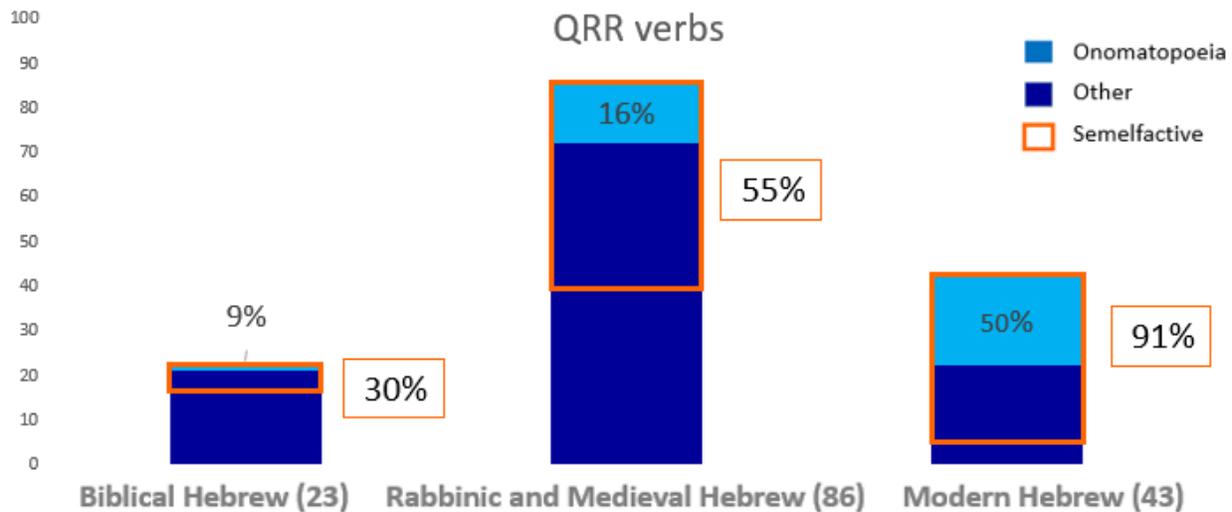

Figure 2: Onomatopoeia and semelfactive in QRR verbs, coined at different stages of Hebrew

The combination of onomatopoeia within QRRs appears to be the result of two features of the Hebrew verb system. On the one hand, this system is suitable for accepting reduplicated roots, which iconically represent plurality (Inkelas & Zoll 2005: 200 – 2001). There is verb structure - QRR, which can adopt reduplicated syllable – $C_1C_2C_1C_2$.

On the other hand, the system is not suitable to directly reflect onomatopoeia, which iconically represents sound, because the vowels are dependent on the verb structure which changes between conjugations. The binary consonant element, like TK, must be extended into a Triliteral or Quadriliteral consonant root. But due to varying vowels, the verb system cannot consistently retain syllable patterns. TK element can be extended to inflectional forms *la**tuk**, ***tak**, *ya**tuk** in one way to extent to Triliteral root, *li**tkot**, ***taka**, *yi**tke** in another way, and also into forms *le**taktek**, ***tiktek** to Quadriliteral root. In Hebrew, there is no single stem which carries the onomatopoeic effect and as a result, the onomatopoeic effect is weakened. As opposed, for example to English where a stem **is** constant through the inflection: to **tick**, **tick**ed, will **tick**. Since one of these ways is weaker, the importance of the second became stronger and onomatopoeic verbs became integrated into the reduplicated structure. As such, this structure began to increasingly mark repetitive minimal events, that is to say, the semelfactive.

Influence of Contact languages

A major external influence during the Revival Period of the late 19th century and into the early 20th century was the Slavic substrate underlying the language of Hebrew-speaking Russian immigrants. More specifically, many elements for a number of reduplicated verbs were calqued

from Russian. Half of the new onomatopoeic verbs with the QRR construction in MH have an identical consonant base with Russian verbs. For example, **bor**motat' – *lebarber* ('to speak nonsense'), **gogo**tat' – *lega'gea'* 'to gaggle', **cyk**at' – *lecakcek* 'to click [one's tongue]'. Onomatopoeia is characterized as being able to naturally and independently evolve in different languages, whereby a verb like *tiktek* can have the same basic elements in Hebrew, English, Russian, and other languages. Nevertheless, the number of Hebrew onomatopoeic verbs of this type and the socio-historical circumstances of Hebrew's revival (Dubnov 2013) both support the proposal that Russian was an influential source for onomatopoeic loan words. It is suggested here that the influx of many onomatopoeic verbs strengthened the general trend of QRR verbs denoting the semelfactive.

Another reason to suspect that Russian may have influenced the semelfactive category in Hebrew may be due to certain types of Russian verb pairs. Russian marks the extended event and the single minimal event differently. The verb which expresses an extended event—a series of minimal events—is imperfective and marked accordingly. By contrast, the verb which expresses a minimal event is perfective and has the suffix "nu" which marks the single event. For example, the imperfective *morgat'* 'blink' denotes an extended event, and *morgnut'* 'blink once' is perfective, and is marked with the morpheme [nu] and denotes a single minimal event (Khrakovskij, 1998). It may be that Hebrew-speaking Russian immigrants felt the need to mark semelfactive verbs in Hebrew. This need increased the productivity of the already existing marker, QRR. However, this explanation is speculative as these categories do not overlap entirely and require further investigation.

Conclusion

This entry discussed quadrilateral roots composed of the repetition of a two-consonant base. Throughout the history of Hebrew, QRR verbs have increasingly and productively denoted the semelfactive aspect, a trend that grew stronger in MH, whereby QRR verbs became the almost exclusive way to denote this meaning. Despite the strong trends seen in MH, it does not appear that there is any far-reaching potential for future productive semelfactive neologisms in QRR structure.

Several factors may have influenced the development of this process in Hebrew and include the integration of reduplicative onomatopoeic verbs in the QRR construction, which can be seen throughout the history of Hebrew. Onomatopoeic verbs are, for the most part, naturally semelfactive, which reinforced the repetitive minimal event meaning of QRR verbs. The external influence of Russian further strengthened this process in MH during its revival mostly by way of the calquing consonantal root base.

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