

## The interaction between Nominalization and Voice

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**Introduction:** Nominalizations have contributed substantially to our understanding of argument structure (Chomsky 1970, Marantz 1997), with most research examining how derived nominals differ from the underlying verbs in terms of their complements or aspectual readings (Grimshaw 1990, Alexiadou 2001, Borer 2013, Bruening 2013). Less attention has been given to possible restrictions on nominalization based on the syntactic structure and semantic characteristics of the verbal base that serves as the input to this process. This paper makes explicit a connection between the availability of a derived nominal and the nature of the verbal input, based on a novel analysis of “middle” verbal forms in Hebrew. We show that unergatives in the Hebrew template *niXYaZ* are the most likely to produce an event nominal, unaccusatives much less so, and passives the least likely. Our analysis is based on the possible values of the head Voice, which allows us to combine existing crosslinguistic observations with the Hebrew data under a unified analysis.

**Case study:** Our case study is a class of verbs in Modern Hebrew that are marked with what is traditionally considered to be “medio-passive” morphology, *niXYaZ* (where X, Y and Z represent root consonants). Event nominals in this class appear in a designated form, *hiXaYZut*, as in (1) for  $\sqrt{\text{gr}}$ :

- (1) Verb:                    *nigrar* (*axrej*) ‘trailed after’  
Nominal:                 *higarerut* (*axrej*) ‘trailing after’

From our comprehensive survey of over 400 *niXYaZ* verbs, we learn that some produce an event nominal (2), while many others fail to do so, e.g. the verb *nidxaf* ‘was pushed (by)’, 0. The puzzle consists in understanding why some verbs with this morphology can nominalize and others cannot.

- (2) a. *ha-jeled nigrar axrej birjonim* VERB (unergative)  
the-boy trailed.MID after bullies  
‘The boy trailed after bullies’.
- b. *ha-higarerut fel ha-jeled axrej birjonim* NOMINAL  
the-trailing.MID of the-boy after bullies  
*hed’iga et horav*  
worried-3SG.F ACC his.parents  
‘That the boy trailed after bullies worried his parents’.
- (3) a. *hu nidxaf al jedej ha-foded* VERB (passive)  
he got.pushed.MID by the-robber  
‘He got pushed by the robber’.
- b. *\*ha-hidaxfut felo al jedej ha-foded* \*NOMINAL  
the-getting.pushed.MID his by the-robber  
*garma lo le-pci’a*  
caused to-him to-injury  
[Int. meaning: ‘That he got pushed by the robber caused him to get injured’].

**Generalizations, verbs:** The first step towards addressing the puzzle consists of showing that although the verbs in this template share morphophonology, distinct structural classes exist. A set of diagnostics shows that although verbs in *niXYaZ* are marked uniformly, the overall class is syntactically non-uniform, having either non-active (unaccusative and/or passive) or active (unergative) underlying structures (or are ambiguous between the two), varying by root. For example, active verbs are compatible with agent-oriented adverbs, (4a), while non-active ones are not, (4b):

- (4) a. *eliana nixnesa l-a-kita be-bitaxon*  
Eliana entered.MID.3SG.F to-the-classroom in-confidence  
‘Eliana confidently entered the classroom.’
- b. *\*ha-tsamid nijbar be-mejomanut*  
the-bracelet broke.MID in-skill  
(int. ‘The bracelet was dismantled skilfully’)

Similarly, it can be shown that these two classes differ with respect to the *by-itself* diagnostic, as well as two traditional unaccusativity diagnostics in Hebrew: non-active verbs in *niXYaZ* allow Verb-Subject order (Borer and Grodzinsky 1986) and the possessive dative (Shlonsky 1987), whereas the active ones do not (Kastner 2017). Passive readings of some non-active verbs are also available with a *by*-phrase. We therefore take the non-active/active distinction to be an internal/external argument distinction (unaccusative/unergative).

A second structural difference between these verb classes is that unergatives take an obligatory PP complement. Compare for example unaccusative *ni/bar* 'broke' and passive *ne'exal (al jedej)* 'was eaten (by)' with unergative *nimlat \*(me-)* 'escaped from' or *neevak \*(be-)* 'fought'.

**Proposal, verbs:** We assume that **non-active** verbs in *niXYaZ* are derived using the non-active head  $\text{Voice}_{[-D]}$ , similar to “expletive Voice” of Alexiadou, Anagnostopoulou and Schäfer (2015); this derives a straightforward structure which can be interpreted as anticausative or passive (AAS 2015). The account of our **active verbs** is more elaborate, treating them similar to Icelandic “figure reflexives” (Wood 2014): a low *p* head licenses the PP (following Koopman 1997, Svenonius 2007, Gehrke 2008, a.m.o), introducing a Figure as its subject; the *pP* is the complement to the verb. We claim that in figure reflexives this *p* head has a [-D] feature (prepositional “expletive Voice”), meaning no DP can be merged in  $\text{Spec},pP$ . The thematic role of Figure cannot be saturated within the *pP* now. Instead, the DP merged in  $\text{Spec},\text{VoiceP}$  will saturate both the Agent role of ordinary Voice and the Figure role of  $p_{[-D]}$  in delayed saturation (see Wood 2014, 2015, Myler 2015, Kastner 2017 for similar analyses). Finally, the identical spell-out of  $p_{[-D]}$  and non-active  $\text{Voice}_{[-D]}$  can be explained by seeing them as contextual variants of one functional head that introduces non-core arguments, albeit at different heights of attachment within the verbal projection (Wood and Marantz's 2017 *i\**). Further details are omitted in order to return the focus to the nominalizations; the relevant consequence is that the active structure has an external argument licensed by Voice and a PP licensed by  $p_{[-D]}$ , a head which is a contextual variant of  $\text{Voice}_{[-D]}$  and hence spelled out identically.

**Generalizations, nominals:** Returning to event nominals in *niXYaZ*, the puzzle we started with can now be understood in structural terms. The variation in acceptability of nominalizations with verbs sharing morphological marking is not random, but directly related to the structure of the underlying verb. Our survey reveals that only 4% of passive verbs have attested nominalizations (7/172), 21% of unaccusatives or ambiguous unacc/pass verbs have derived nominals (36/169), and 72% of figure reflexives do (53/74). Cases in which a given form is ambiguous between two structures can also be observed, e.g. *nitla (al-)* 'hung (onto)', which is ambiguous between an anticausative and a figure reflexive. In these cases acceptability is boosted: Passive < Unaccusative < Unergative.

**Proposal, nominals:** We adapt Bruening (2013) by assuming that nominalizing *n* selects for  $\text{VoiceP}$  whose Voice head does not project an external argument. The exact condition is different than in that study: the Voice head in the input must be capable in principle of projecting an external argument, i.e. it must be an active Voice head only without a specifier (his  $\text{Voice}[S:N]$ ). The overt Voice morphology of Hebrew confirms that this is the case: verbs in the other active templates (*XaYaZ*, *XiYYeZ*, *heXYiZ*, *hitXaYYeZ*) do derive nominalizations productively, and these templates have been argued to have active features on Voice (Kastner 2016, 2017, to appear). But  $\text{Voice}_{[-D]}$  can never project a DP in its specifier (recall that it is a non-active Voice head) and is thus ruled out as input to *n*. This problem does not arise for the figure reflexives, which are derived with regular (active) Voice.

**Discussion:** Grimshaw (1990) argues that unergatives should not derive event nominalizations since they are mono-eventive and not transitive (cf. Myers' Generalization). We refine the claim: first, external arguments are privileged with regards to nominalization, in particular agents, as in the literature on “agent exclusivity” effects (e.g. Sichel 2010). And second, figure reflexives are unergatives but have added event complexity (*pP* argument).

Alternative analyses based on lexicalist approaches cannot account for the dual nature of verbs in *niXYaZ*, since it is assumed to be an atomic lexical morpheme. As noted above, the claims about distinct classes of verbs as well as nominalizations in this template are novel.

Addressing a final loose end, we have noted that a fifth of unaccusatives do nominalize, even though our proposed restriction is meant to be grammar-based, i.e. categorical. These verbs include *nolad* 'was born', *notsar* 'was created' and *nitsmad* (*le-*) 'attached (to)'. We speculate that the structure of these verbs is more akin to that of the figure reflexives, with a covert PP/goal. Preliminary support comes from the fact that this PP can be overt, (5):

- (5) a. *hu nitsmad el-eha be-xavana ve-bli refut*  
 he clang.MID to-her on-purpose and-without permission  
 'He clang to her intentionally and without permission'.
- b. *ha-beged nitsmad el ha-ktefaim kol pa'am fe-hitkofef*  
 the-garment clang.MID to the-shoulders all time that-bended.3SG.M  
 'The garment clang to his shoulders each time he bended'.