

Non-Active Verbs in Hebrew and the Input to Nominalization

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1. Introduction

- Since Chomsky (1970), many works have studied the relations between verbs and corresponding nominalizations.
 - Argument-event structure preservation / lack thereof in the deverbal noun compared to the base verb.
 - But, address almost exclusively transitive verbs, with less exploration of non-active verbs.
- In order to shed more light on nominalization of intransitives, we recruit Hebrew, a language which marks transitivity alternations on both verbs and nominal derivatives,
 - And as such: allows a more fine-grained mapping between underlying syntax and morphological marking, than does English.
- Based on a comprehensive survey of 3000+ Hebrew verbs, we conclude the following with regards to the availability of an Argument-Structure Nominal (ASN):
 - i. Unaccusatives are **compatible** with nominalization, and produce ASNs rather freely.
 - ii. Passives are **incompatible** with nominalization,
 - And this is the case for the two syntactic classes of passives in the language: one which has a Pass head in the input structure, and the other, in which it is absent.
- We suggest that nominalization of the latter class of passives is a result of competition with the nominal derivative of the Active counterpart form.

1.1 Nominalization

- Our focus is on Argument-Structure Nominals (ASNs, Borer 2013, *Complex Event Nominals* in Grimshaw 1990):
 - Convey an event meaning which corresponds to that expressed by the base verb.
 - Should pass the main ASN diagnostics (Grimshaw 1990 and subsequent literature):
 - **License arguments**
 - Allow aspectual and agentive modification
 - Take *by*-phrases
 - (Usually) non-countable, i.e. have mass noun properties

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1.2 Transitive Nominalizations

- Transitive verbs in English usually produce ASNs, which means they keep the argument realization pattern of the base verb.
 - But, with an important difference: unlike verbs, ASNs never require an overt external argument (2):

- (1) The volunteers rehabilitated the forest.
- (2) a. The **rehabilitation** of the forest.
 b. The (volunteers') **rehabilitation** of the forest.
 c. The **rehabilitation** of the forest (by the volunteers).

❖ Hebrew

- (3) *ha-mitnadvim šikmu* *et ha-ya'ar*
 the-volunteers rehabilitated.INTNS.ACT.3PL² ACC the-forest
 'The volunteers rehabilitated the forest'.

- (4) a. *ha-šikum* *šel ha-ya'ar*
 the-rehabilitation.INTNS.ACT of the-forest
 'The rehabilitation of the forest'.

- b. *ha-šikum* *šel ha-mitnadvim et ha-ya'ar*
 the-rehabilitation.INTNS.ACT of the-volunteers ACC the-forest
 'The volunteers' rehabilitation of the forest'.

- c. *ha-šikum* *šel ha-ya'ar (al yedey ha-mitnadvim)*
 the-rehabilitation.INTNS.ACT of the-forest by the-volunteers
 'The rehabilitation of the forest by the volunteers'.

The non-obligatory status of the external argument even in ASNs, together with the surfacing of *by*-phrases in some nominal constructions, has led many to propose that nominalized verbs and passivized verbs are alike:

- The two processes share in common the suppression of the external argument (Grimshaw 1990, Alexiadou 2001).
 - When not realized, agent is implicit, and has been claimed to be a null *pro* subject (Sichel 2009, 2010, Bruening 2013, Alexiadou et al. 2015).
- ❖ We explore the nominalization patterns for base verbs which lack an external argument (unaccusatives) or an overtly projected one (passives), with data and examples provided by our own database³ (Ahdout, in preparation).

² Glosses for Hebrew verbs, following Doron (2003): ACT stands for a morphological active template, MID for a Middle template, PASS for the passive templates.

X, Y, Z in template names represent Semitic root consonants; SMPL.ACT for the (traditionally known as) *qal/pa'al* verbal templatic form (*XaYaZ*), CAUS for the *hif'il* template (*hiXYiZ*), INTNS.ACT for *pi'el* (*XiYeZ*), INTNS.MID for *hitpa'el* (*hitXaYeZ*), SMPL.MID for *nif'al* (*niXYaZ*).

³ Database consists of 3000+ Hebrew verbs and deverbal nouns. Verbs: list of verbs provided by Ehrenfeld (2012). Verbs were subcategorized according to the different templates, specified for aspectual value and syntax

2 Non-Active Verbs and Nominalization

- Our focus is on two main groups of non-actives: unaccusatives (Section 2), and passives (Section 3). Unergatives were also checked, but will not be discussed in detail (see Appendix).

- The (small) literature on nominals derived from non-active verbs suggests that:

(5) **Unaccusatives produce ASNs.**

- ❖ Alexiadou: Greek, Catalan and Italian unaccusatives derive event nominals (2001: 40-42, 82, 84-85)⁴:

- (6) a. *la tornada dels turistes durant l'estiu* Catalan (2001:83)
the **returning** of.the tourists during the summer
b. *la crescuda del riu a la primavera*
the **swelling** of.the river in.the spring

English unaccusative verbs and nominals

- Nominals derived from **unaccusative** (7) verbs are morphologically non-complex/zero derived.
- Zero derived nominals have been suggested to lack argument structure (Marantz 1997, Alexiadou and Grimshaw 2008, Borer 2013, but see Newmeyer 2009 for some counterexamples based on transitive verbs).

- (7) a. *The break of the glass (Marantz 1997:(14e)) **✗** Internal argument
b. *The break of the vase for an hour. **✗** Aspectual modification
c. *The frequent break of the glass. **✗** Event modification
d. A break/fall/tear; many tears. **✗** Non-Countability

- English is however less informative: it might be the case that these nominals are root-derived (Borer 2013), and thus do not embed the verb responsible for the licensing of argument/event structure⁵.

- ❖ Hebrew supports the view that **unaccusatives** can produce ASNs, and as such patterns with Greek, Catalan and Italian.

- Unaccusative verbs appear in several of the seven Hebrew verbal morphological classes (*templates*).

(unacc/unerg/trans/pass, etc.). Nominals: checked for the existence of an AS nominal for each verb, using speaker judgments and corpora consultation (Itai and Wintner 2008, heTenTen, Google).

⁴ Contra the system in Grimshaw, where it is required that a nominalization to have an external argument to suppress (as discussed above), thus predicting that unaccusatives cannot produce a CEN (1990:112).

⁵ Originally presented in Smith (1972), Alexiadou and Grimshaw (2008) discuss a confound with regards to zero-derivation: zero marking in English correlates with stem-origin; common with Germanic verbs, rare with latinates, a matter which further complicates the state of affairs in English.

- Each such template has a unique, designated nominal derivative, such that verb-nominal derivation is transparent.
- Nominals derived from unaccusative verbs in all templates produce ASNs:

(8) a. *ha-even* *nafla* *me-ha-kotel*
the-stone fell.SMPL.ACT.3SG.F from-the-western.wall
b. *nefilat* *ha-even* *me-ha-kotel*
the.fall.SMPL.ACT (of) the-stone from-the-western.wall
‘The stone falling from the western wall’. (www)

(9) a. *ha-yore* *nifga* *me-ha-rešef*⁶
the-shooter got.hurt.SMPL.MID from-the-spark
b. *al menat* *li-mno’a* *et* *hipag’ut* *ha-yore*
in.order to-prevent ACC the.getting.hurt.SMPL.MID (of) the-shooter
me-ha-rešef
from-the-spark
‘In order to prevent the shooter from getting hurt from the spark’.
(Itai and Wintner 2008)

(10) a. *molekulot* *ha-maim* *hit’adu* *mi-dfanot*
the.molecules (of) the-water vaporized.INTNS.MID.3PL from-the.edge
ha-ta’im
the-cells
‘The water molecules vaporized from the cell walls’.
b. *hit’adut* *šel* *molekulot* *maim* *mi-dfanot*
vaporization.INTNS.MID of molecules (of) water from-the.edges (of)
ha-ta’im
the-cells (www)

(11) a. *ha-taba’at* *hišxir-a* *tox* *švu-’aym*
the-ring blackened.ACT.CAUS-3SG.F in weeks-two
‘The ring blackened within two weeks’.
b. *ha-hašxara* *šel* *ha-taba’at* *tox* *švu-’aym*
the-blackening.ACT.CAUS of the-ring in weeks-two

Interim Summary

- In **Hebrew**, transitives and unaccusatives pattern alike: most derive ASNs.
- Hebrew vs. English: the role of morphology

In Hebrew, rich morphology on both verbs and nominals allows a clearer picture of nominalization behaviour patterns and possible restrictions.

- Nominalized form depends on verb template only, no affix-type variation as in English.
- Voice distinctions are preserved in the nominal.

⁶ The *nif’al* template (SMPL.MID) shows a lower rate of nominalization in general, including less nominals of unaccusatives (Ahdout & Kastner 2018). See sections 3.2 and 4.

- Phonology: the unique **u-a** vocalic pattern exemplified in (12) is accounted for (Arad 2005, Kastner 2018).

❖ Nominalization of Pass-passives?

- Passive templates: No nominal derivative (no form exists).
- Kastner and Zu (2017): show that the passive templates in Hebrew also lacks an infinitive form and an imperative form.

Table 1: Paradigm gaps in Hebrew verbal derivatives (Kastner and Zu 2017: 654)

	TEMPLATE	MNEMONIC	GLOSS	INFINITIVE	IMPERATIVE	VERBAL NOUN
1	<i>XaYaZ</i>	Simple	‘order’	<i>lifkod</i>	<i>pkod</i>	<i>pkida</i>
2	<i>niXYaZ</i>	Middle	‘be absent’	<i>lehipaked</i>	<i>hipaked</i>	<i>hipakdut</i>
3	<i>XiYeZ</i>	Intensive	‘command’	<i>lefaked</i>	<i>paked</i>	<i>pikud</i>
4	<i>XuYaZ</i>	Intensive passive	‘be commanded’	—	—	
5	<i>hiXYiZ</i>	Causative	‘deposit’	<i>lehafkid</i>	<i>hafked</i>	<i>hafkada</i>
6	<i>huXYaZ</i>	Causative passive	‘be deposited’	—	—	
7	<i>hitXaYeZ</i>	Intensive middle	‘ally himself’	<i>lehitpaked</i>	<i>hitpaked</i>	<i>hitpakdut</i>

- Attributed by Kastner and Zu (2017) to the presence of a passive head:
 - Selectional restrictions of Passive head: requires finite environments.
 - Nominalizations – non-finite.

(15) Selectional restrictions of Passive head:

T[-fin] only selects for Voice, not Pass

=> [n Voice] OK, but *[n Pass]

=> [Inf Voice] OK, but *[Inf Pass]

=> [Imp Voice] OK, but *[Imp Pass] (See K&Z for additional discussion)

- As we shall see immediately below, this will not work for the other class of passives.

3.2 NonAct-passives: derived in Medio-Passive template *niXYaZ nif'al*

- Previous literature, Doron (2003), Alexiadou and Doron (2012), Kastner (2017):
 - *niXYaZ* is an instantiation of non-active Voice, comparable to the state of affairs described for Greek (Alexiadou et al. 2015, a.o)
 - ➔ Morphologically classified as marking “**middle**” Voice (Doron 2003).

- This means: hosts all kinds of non-transitive verbs (unaccusatives/ passives/ unergatives/ ambiguous between several non-transitive readings), but no transitives.

(16) *niXYaZ* verbs (passive readings in bold):

a. Unaccusative

ha-kise nišbar etmol be-ta'ut
 the-chair broke.SMPL.MID yesterday by.mistake

b. Unergative

ha-poše'a nimlat me-ha-kele
 the-criminal escaped.SMPL.MID from-the-prison'

c. Passive

ha- poše'a nircax al yedey mitnakšim
 the-criminal was.murdered.SMPL.MID by assassins

d. Ambiguous, e.g. unaccusative,

ha-delet nisgera (me-ha-ru'ax ha-xazaka)
 the-door closed.SMPL.MID from-the-wind the-strong.SG.F

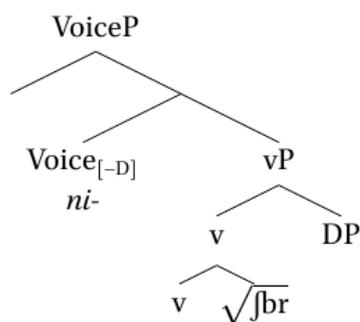
or passive

delet ha-kita nisgara al yedey ha-more
 door (of) the-classroom closed.SMPL.MID by the-teacher

❖ Syntactic representation

- Non-active verbs in *niXYaZ* are derived using a non-active head similar to “expletive Voice” of Alexiadou et al. (2015), see Kastner (2017), cf. Schäfer (2008) “Marked Anticausatives”.

(17) (unaccusative) verb *nišbar* ‘broke’:



- Voice head: has a [-D] feature, which blocks a DP from merging in the specifier of Voice (“expletive Voice” of Schäfer 2008, Alexiadou et al. 2015).
- This structure represents 3 types of non-active verbs that are associated with *niXYaZ*:
 [1] Unaccusative (as in ex.)
 [2] **passive only**
 [3] Medio-passive (both unaccusative and passive), (16)d.

- Two possible interpretations of Voice_[-D] head: Thematic vs. expletive Voice in Alexiadou et al. (2015), or contextual allosemy of Voice in Kastner (2016:71), Myler (2016).

(18) [[Voice_[-D]]] = $\lambda P \lambda e \exists x.e \ \& \ \text{Agent}(x,e) \ \& \ \text{Theme}(\dots) / \{ \sqrt{\text{rcx}} \text{murder}', \sqrt{\text{amr}} \text{'say'}, \dots \}$
 = $\lambda P.P$ (elsewhere = unaccusative)

- We will refer to passive verbs/readings in this template as NonAct-passives, to highlight the nature of the morphological pattern hosting them.

❖ **Nominalization of NonAct-passives?**

- Unlike Pass-passives: non-categorical behaviour.
- **Generalization: from all subgroups of verbs in niXYaZ** (16) (unacc, unerg, pass, ambiguous, 400+ in total), **passives nominalize the least** – and very rarely:

Examples (from own database):

(19) Non-ambiguous passives:

- a. *nikba* ‘be set by’
 **hikab*’ut ‘being set by’
- b. *nixxat* ‘be blackmailed/squeezed by’
 **hisaxtut* ‘being blackmailed/squeezed by’.

- Ambiguous verbs with a passive reading, e.g. unacc/pass verb *nim’ax* ‘get/be squished (by)’: passive reading not preserved in the nominal:

- (20) a. *ha-uga nim’exa* *b-a-tik* **unacc V**
 the-cake got.squished.SMPL.MID.3SG.F in-the-bag
 ‘The cake got squished in the bag’.
- b. *ha-psolet nim’exa* *al yedey ha-mexona* **passive V**
 the-waste got.squashed.SMPL.MID.3SG.F **by** the-machine
 ‘The waste was squished using a machine’.
- (21) a. *ha-hima’axut* *šel ha-uga b-a-tik* **V unacc N**
 the-squishing.SMPL.MID of the-cake in-the-bag
- b. **ha-hima’axut* *šel ha-psolet al yedey ha-mexona* **X passive N**
 the-squashing.SMPL.MID of the-waste by the-machine

Table 2: *niXYaZ* verbs and rate of nominalization

STRUCTURE	PASS	UNACC	UNERG	EXAMPLE	NOMINALS/ VERBS PER SUBGROUP	%	
PASSIVE	a	+	-	-	<i>ne'exal</i> 'be eaten (by)'	7/172	4%
MEDIO-PASS	b	+	+	-	<i>nisraf</i> 'burn/be burned (by)'	11/78	14%
UNACCUSATIVE	c	-	+	-	<i>nigmar</i> 'ended'	25/91	27%
ACTIVE/FIGURE REFLEXIVES	d	-	-	+	<i>neevak be-</i> 'wrestled'	19/32	59%
AMBIGUOUS ⁷	e	-	+	+	<i>nitsmad (le-)</i> 'attached'	12/17	71%
	f	+	-	+	<i>nitla</i> 'hung on to/be hanged (by)'	12/15	80%
	g	+	+	+	<i>niftax</i> 'open up/get/be opened (by)'	10/10	100%

4 A Competition Account of NonAct-passives

- A processing-performance view based on competition between forms (see e.g. Hetzron 1975, Bresnan 2001, cf. Embick and Marantz 2008) can help us account for the scarcity of nominalized NonAct-passives.
- Hebrew has a morpho-syntactic Voice alternation between **active/trans.** and non-active (unacc or pass) forms, in both verbs and nominals.
 - Middle form is derived from the active form (a.m.o. Doron 2003, Arad 2005, Kastner 2016):

(22) *yacar* 'create sth.' > *nocar* 'be created (from/by)'

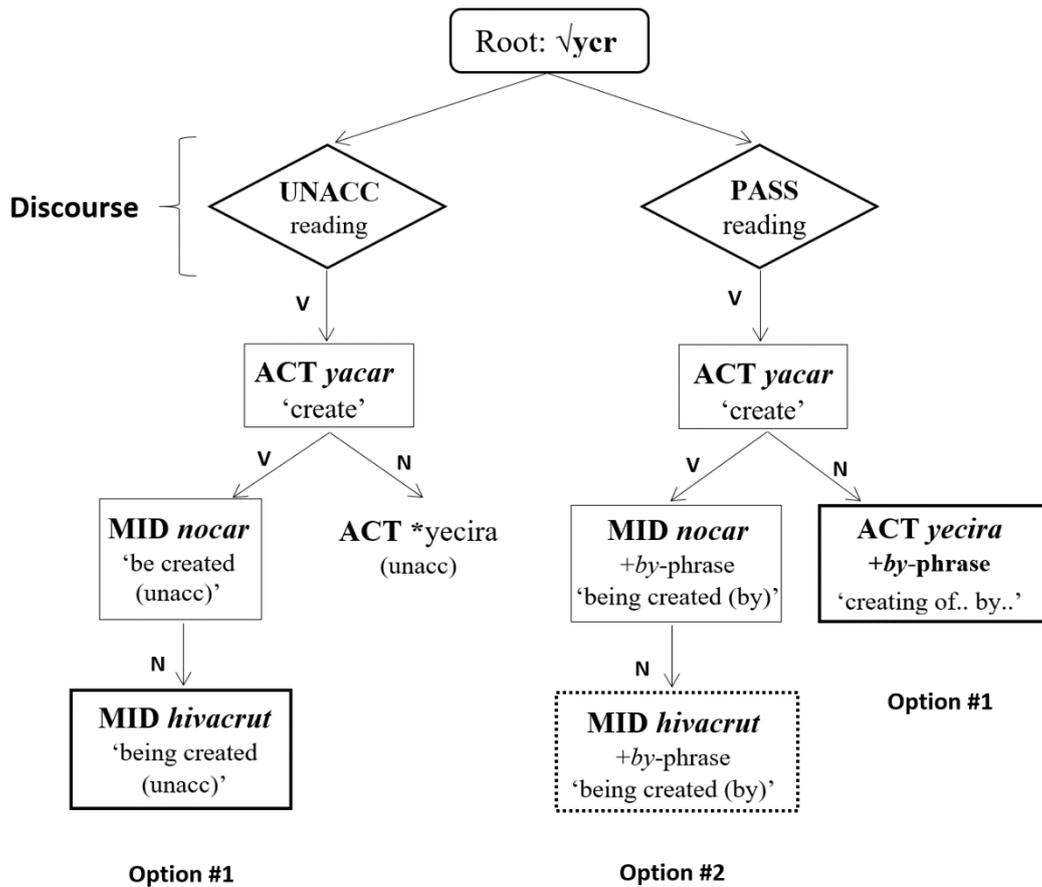
Table 3: Voice alternation and nominal derivatives

Voice marking	Verb	Nominal
SMPL.ACT <i>XaYaZ</i> (trans. reading)	<i>yacar</i> 'create'	<i>yecira</i> 'creating, creation'
SMPL.MID <i>niXYaZ</i> (unacc/pass. reading)	<i>nocar</i> 'be created (from/by)'	<i>hivacrut</i> 'being created (from/*by)'

- In the following diagram (23), we represent the derivation of the two competing forms,
 - Assuming that the choice of reading (unaccusative or passive) reading (as well as expressing it in a nominal form rather than a verbal form) lies at the discourse level.
 - For the **passive** reading in the nominal domain (right branch), **two** options are available.
 - For the **unaccusative** reading in the nominal domain (left branch), only **one**. Hence, no competition.

⁷ Overall, for ambiguous verbs, it is usually either the unaccusative or (more often), the unergative reading that is attested – but never the passive one.

(23)



- First, let's look at **unaccusative** readings, where no such competition exists.

Unaccusative reading

(24) *sedek nocar* *be-xazit* *ha-banyan* (*me-acmo*)
 crack formed.SMPL.**MID** in-front the-building by.itself
 'A crack formed in the front part of the building (by itself).'

- In the nominal forms:

- The **Active** nominal entails an Agent argument, and cannot be interpreted as unaccusative:

(25) **yecirat* *sedek be-xazit* *ha-binyan* (*me-acmo*)
 the.creation.SMPL.**ACT** crack in-front the-building **by.itself**
 (Agent is implied)

- If the speaker wishes to express a “subjectless” nominalization of the event, she will only be able to use the nominalization of the Middle form:

(26) *hivacrut* *sedek be-xazit* *ha-binyan* (*me-acmo*)
 formation.SMPL.**MID** crack in-front the-building by.itself
 'The formation of a crack in the front part of the building (by itself).'

(Adapted from Siloni and Preminger 2006:369)

eating.SMPL. ACT	in-the-life	by	a.monster
b. <i>he'axlut</i>	<i>b-a-xaim</i>	<i>al yedey</i>	<i>miflecet</i>
being.eaten.SMPL. MID	in-the-life	by	a.monster

'Being eaten alive by a monster'.

(Itai and Wintner 2008)

- In (30), using the Active form in (30)a would sound odd, as the noun *plita* is associated with involuntary omission of gas or liquids (e.g. by babies), which is not the case in the event denoted in (30):

(30) a. # <i>le-axar</i>	<i>plita</i>	<i>me-ha-matos</i>	<i>al yedey</i>	<i>manoa raketi</i>
after	emission.SMPL. ACT	from-the-plane	by	engine rocket
b. <i>le-axar</i>	<i>hipaltut</i>	<i>me-ha-matos</i>	<i>al yedey</i>	<i>manoa raketi</i>
after	being.emitted.SMPL. MID	from-the-plane	by	engine rocket

(Itai and Wintner 2008)

'...After being ejected from the plane by a rocket engine'.

- In (31), the use of the different morphological forms seems to entail different values of telicity, with the MID form restricted to a non-telic reading, while the Active form showing no such restriction:

(31) a. <i>ha-grira</i>	<i>šel</i>	<i>ha-oto (l-a-musax)</i>	<i>al yedey</i>	<i>masa'it</i>
the-towing.SMPL. ACT	of	the-car to-the-garage	by	a.truck
<i>(be-tox ša'a)/be-mešex</i>		<i>ša'a</i>		
In	a.hour/in-duration (of)	an.hour		
b. <i>ha-higarerut</i>	<i>šel</i>	<i>ha-oto</i>	<i>(l-a-musax)</i>	<i>al yedey</i>
the-being.towed.SMPL. MID	of	the-car	to-the-garage	by
<i>masa'it (*be-tox ša'a)/be-mešex</i>		<i>ša'a</i>		
a.truck	in	an.hour /in-duration (of)	an.hour	

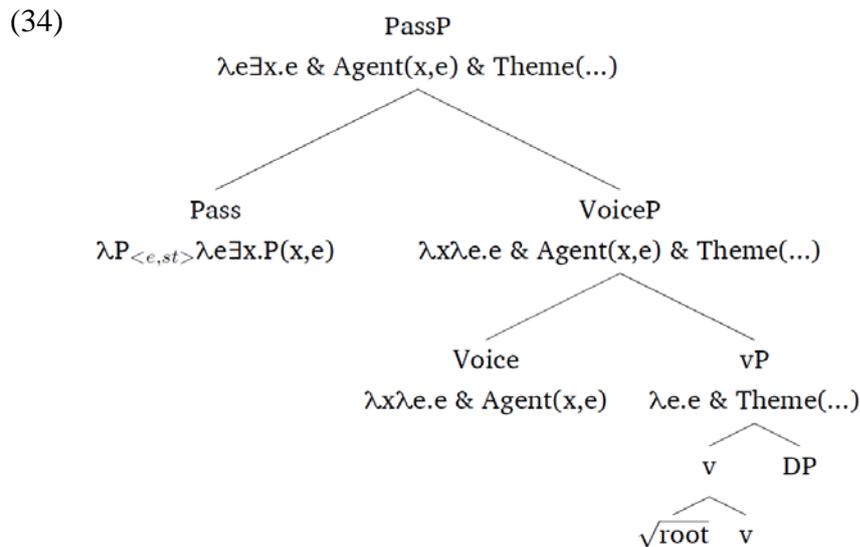
'The towing of the car by a truck in an hour to the garage/for an hour'.

- Further research will allow us a better understanding of the phenomenon, and the conditions under which the less common form is nonetheless chosen.
- We next briefly consider two alternative analyses which do not make reference to competition.

5 Alternative Accounts

5.1 Alternative Account #1: Pass head?

- Could *niXYaZ* NonAct-passives be Pass-passives in disguise, with a silent Pass head?
 - And thus: show the same selectional restrictions of the Pass head (15) (Kastner and Zu 2017)?
- We claim that the answer is **no**; unlike "true" passive templates...



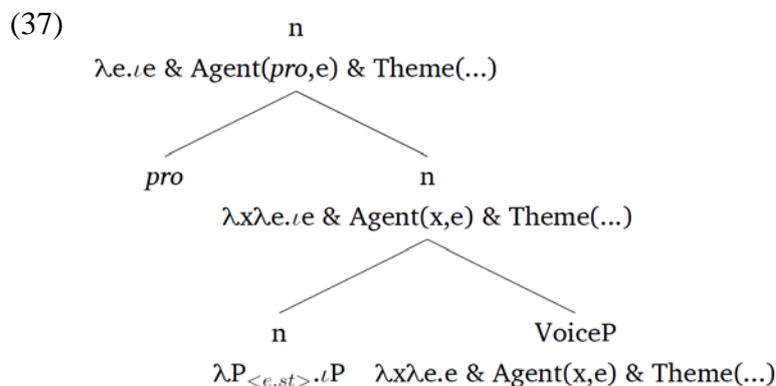
- o With a *by*-phrase, a different alloseme of Pass is chosen, (35)b:

(35)
$$[[\text{Pass}]] = \begin{cases} \text{a. } \lambda P_{\langle e, st \rangle} \lambda e \exists x. P(x, e) \\ \text{b. } \lambda P_{\langle s, t \rangle} \lambda e. P(e) \end{cases} \quad / \text{ ___ } by\text{-phrase}$$

- The literature on **nominalizations** has converged on the conclusion that the implicit external argument in ASNs is a null pronoun (Sichel 2009; Bruening 2013; Alexiadou et al. 2015).
- Formalized simply as follows, following Bruening (2013:32)⁹:

(36)
$$[[n]] = \begin{cases} \text{a. } \lambda P_{\langle e, st \rangle} . \iota P \quad / \text{ } pro \text{ ___} \\ \text{b. } \lambda P_{\langle s, t \rangle} . \iota P \quad / \text{ ___ } by\text{-phrase} \end{cases}$$

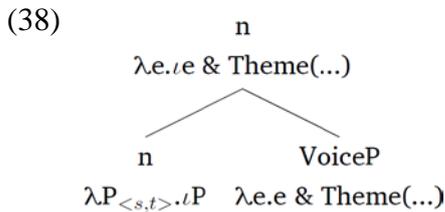
- Nominalization of a **transitive** verb with no by-phrase requires projection of *pro* by the nominalizer (alloseme (36)a)¹⁰:



⁹ Bruening (2013:32): “Nominalizing heads, then, are semantically vacuous. They simply change the syntactic category, from V to N. They also require that all arguments of the verbal projection be saturated, and project the external argument as PRO if they are not.”

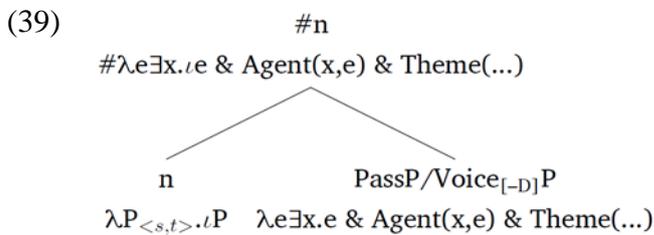
¹⁰ This predicts that unergatives are possible.

- For **unaccusatives** we will need the other alloform of *n* (as it does not have an open slot for the external argument), (36)b, so that nominalization of an unaccusative verb looks as follows:



➔ Unaccusative verbs should be fine as an input to nominalization.

- Finally, we compose *n* with **Pass-passive** or with a **NonAct-passive**.
 - As far as the system goes, passives should behave the same as unaccusatives, i.e. incorrectly ruled in¹¹:

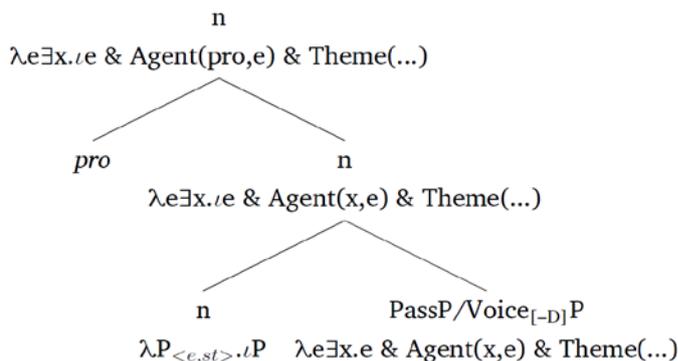


- A semantic explanation cannot account for the incompatibility of (NonAct) passives and nominalization.

6 Conclusions

- ❖ Our goal in this talk was to address the nominalization patterns of non-active verbs: unaccusatives, and mainly passives.
- ❖ Hebrew allows fine-grained correspondence between verbs and nominals, due to Voice distinctions being carried on to the nominal domain

¹¹ Alternatively, perhaps the nominalizer does project *pro* after all, in which we would need to open the predicate so that *pro* can compose with it, only for some kind of economy constraint to rule out the composition:



- ❖ In accordance with existing literature, we showed that unaccusatives produce ASNs.
- ❖ Passives, however, were shown to be incompatible with nominalization.
- ❖ For passives with a Passive head in their underlying structure, a selectional restrictions account could be opted for, but we claimed that a similar account is incompatible with NonAct-passives, for which a Pass head is absent.
- ❖ For NonAct passives, we suggested an explanation in terms of competition, where the more simplex and productive Active nominalization is preferred over the complex NonAct/Middle form, thus accounting for the scarcity of NonAct-passive nominals.

References

- Ahdout, Odelia. In preparation. *Nominalization in Hebrew and Beyond*. PhD dissertation (Humboldt Universität zu Berlin).
- Ahdout, Odelia, and Itamar Kastner. 2018. The interaction of nominalization and Voice. Ms., HU Berlin.
- Alexiadou, Artemis. *To appear*. Passives, unaccusativity, and nominalisation. *Valency in verbs and verb related structures*, eds. Maria Bloch-Trojnar, Anna Malicka-Kleparska. Peter Lang Publishing.
- Alexiadou, Artemis. 2017. Ergativity in nominalization. In *Oxford Handbook on Ergativity*, edited by Jessica Coon, Diane Massam, and Lisa deMena Travis, 355–372. Oxford: Oxford University Press.
- Alexiadou, Artemis. 2001. *Functional Structure in Nominals: Nominalization and Ergativity*. Amsterdam: John Benjamins.
- Alexiadou, Artemis, and Edit Doron. 2012. The syntactic construction of two non-active voices: Passive and middle. *Journal of Linguistics* 48:1–34.
- Alexiadou, Artemis, and Jane Grimshaw. 2008. Verbs, nouns, and affixation. In *SinSpeC (1): Working papers of the SFB 732*, ed. F. Schafer, 1–16. Stuttgart: University of Stuttgart.
- Alexiadou, Artemis, Elena Anagnostopoulou, and Florian Schäfer. 2015. *External arguments in transitivity alternations: A layering approach*. Vol. 55. Oxford Studies in Theoretical Linguistics.
- Arad, Maya. 2005. *Roots and patterns: Hebrew morpho-syntax* (Vol. 63). Springer Science & Business Media.
- Borer, Hagit. 2013. *Taking form: structuring sense*, Vol. III. Oxford: Oxford University Press.
- Bresnan, Joan. 2001. Explaining morphosyntactic competition. In M. Baltin & C. Collins (Eds.), *Handbook of contemporary syntactic theory* (pp. 1–44). Oxford: Blackwell Sci.
- Bruening, Benjamin. 2013. By phrases in passives and nominals. *Syntax* 16:1–41.
- Chomsky, Noam. 1970. Remarks on Nominalization. In Roderick A. Jacobs and Peter S. Rosenbaum (eds.), *Readings in English Transformational Grammar*, 184–221. Boston: Ginn.
- Doron, Edit. 2003. Agency and voice: The semantics of the Semitic templates. *Natural Language Semantics*. 11(1), 1–67.
- Ehrenfeld, Lior. 2012. *The morphology of the Hebrew causative alternation*. Master's thesis, Hebrew University of Jerusalem, Jerusalem.
- Embick, David and Alec Marantz. 2008. Architecture and blocking. *Linguistic Inquiry*, 39(1), 1–53.
- Grimshaw, Jane. 1990. *Argument structure*. Cambridge, MA: Massachusetts Institute of Technology Press.

- Harley, Heidi and Rolf Noyer. 2000. Formal versus encyclopedic properties of vocabulary: Evidence from nominalizations. In Bert Peters (ed.), *The lexicon-encyclopedia interface*, 349–374. Amsterdam: Elsevier Press.
- Hetzron, Robert. 1975. Where the grammar fails. *Language*, 859-872.
- Itai, Alon and Shuly Wintner. 2008. Language Resources for Hebrew. *Language Resources and Evaluation*, 42: 75-98.
- Kastner, Itamar. 2016. *Form and Meaning in the Hebrew Verb*. Doctoral dissertation, New York University.
- Kastner, Itamar. 2017. Reflexive verbs in Hebrew: Deep unaccusativity meets lexical semantics. *Glossa* 2(1).
- Kastner, Itamar. 2018. Templatic morphology as an emergent property: Roots and functional heads in Hebrew. *Natural Language and Linguistic Theory*.
- Kastner, Itamar, and Vera Zu. 2017. Blocking and paradigm gaps. *Morphology* 27:643-684.
- Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. *University of Pennsylvania working papers in linguistics* 4(2). 201–225.
- Myler, Neil. 2016. *Building and interpreting possession sentences*. MIT Press.
- Newmeyer, Frederick. 2009. Current challenges to the lexicalist hypothesis. *Time and again: Theoretical perspectives on formal linguistics*, 91-117.
- Pesetsky, David M. 1995. *Zero syntax: Experiencers and cascades*. Cambridge, MA: Massachusetts Institute of Technology Press.
- Pross, Tillmann. 2014. Mono-eventive Verbs of Emission and their bi-eventive nominalizations *Proceedings of NELS 45*, MIT.
- Reinhart, Tanya and Tal Siloni. 2005. The lexicon-syntax parameter: Reflexivization and other arity operations. *Linguistic inquiry*, 36(3), 389-436.
- Schäfer, Florian. 2008. *The syntax of (anti-) causatives: External arguments in change-of-state contexts* (Vol. 126). John Benjamins Publishing.
- Sichel, Ivy. 2010. Event structure constraints in nominalization. In Artemis Alexiadou & Monika Rathert (eds.), *The syntax of nominalizations across languages and frameworks*, 151–190. Berlin & New York: Mouton de Gruyter.
- Siloni, Tal, and Omer Preminger. 2009. Nominal voices. *Quantification, Definiteness and Nominalizations*, edited by A. Giannakidou and M. Rathert. Oxford University Press: Oxford.
- Smith, Carlotta. 1972. On causative verbs and derived nominals in English. *Linguistic Inquiry* 3. 36-38.
- Ussishkin, Adam. 2005. A fixed prosodic theory of nonconcatenative templatic morphology. *Natural Language and Linguistic Theory* 23:169–218.
- Wood, Jim. 2014. Reflexive *-st* verbs in Icelandic. *Natural Language and Linguistic Theory* 32:1387–1425.

Appendix: Unergatives

Previous literature suggests that,

(1) **Unergatives do not produce ASNs.**

- ❖ Alexiadou: unergatives in Greek, Italian and Catalan fail to derive event nominals (2) (2001: 40-42, 82, 84-85)¹², e.g. Catalan:

¹² For unergatives, Grimshaw predicts the lack of CEN. In her system, only complex events (e.g. accomplishments) may produce CENs. Unergatives, being mono-eventive, should then fail to do so.

(2) a. **el salt per part de l'atleta* **X** Licencing of *by*-phrase
 the **jump** on the part of the athlete

❖ English – nominals derived from **unergative** (3) verbs are morphologically non-complex/zero derived.

(3) a. The/Eliana's walk/dance/run/spin/sleep (*for two hours). **X** Aspectual modification
 b. The *frequent/*deliberate walk/dance/run. **X** Event modification
 c. *The walk/dance/run by Oren and Eliana. **X** Licencing of *by*-phrase
 d. A/the walk, many walks along the river, half a dance. **X** Non-Countability

• As with zero-derived unaccusatives (see Section 2), these forms are less informative.

❖ Hebrew: We distinguish between two types of **unergatives**:

1. **Simple** unergatives: don't select for a PP.

▪ *rac* 'run', *rakad* 'dance', *kafac* 'jump', *halax* 'walk'.

• Occasionally produce ASNs (4).
 • Some (inconclusively) pattern with non-ASNs (5), more on a par with English (3).

(4) a. *ha-xayalim 'amdu memušaxot ke-xelek mi-targil*
 the-soldiers stood.SMPL.ACT.3PL lengthily as-part from-a.drill
 'The soldiers stood for long during a drill'.

b. *ha-'amida (ha-memušexet) šel ha-xayalim*
 the-standing.up.SMPL.ACT the-prolonged.SG.F of the-soldiers
ke-xelek mi-targil (be-mešex ša'a)
 from-a.drill in-length (of) an.hour

(5) a. *hem rakdu/halxu/racu be-mešex ša'a*
 they danced/walked/ran.SMPL.ACT.3PL in-length (of) an.hour
 'They danced/walked/ran for an hour'.

b. ??*ha-rikud/halixa/rica šelahem be-mešex*
 the-dance.INTNS.ACT/walk/run.SMPL.ACT their in-length
ša'a
 an.hour

? Aspectual modification

c. *ha-rikud ha- memušax/ha-halixa/rica*
 dance.INTNS.ACT the-prolonged/the-walk/run.SMPL.ACT
ha-memušexet šelahem
 the-prolonged.SG.F their

X Event modification

d. <i>kama</i>	<i>rikud-im/ricot/halixot</i>
a couple (of)	dance.INTNS.ACT-PL/runs/walks.SMPL.ACT
	✕ Non-Countability

2. Complex unergatives: agentive verbs with non-active marking which select for a PP complement (“Figure Reflexives” in Kastner 2016, Ahdout and Kastner 2018, following Wood 2014):

- *ne’evak* *(*be-/‘im*) ‘wrestle, struggle (with)’
- *nixnas* *(*le-*) ‘entered (into)’
- *nigrar* *(*axrej*) ‘trail (after)’
- *hištameš* *(*be*) ‘used sth.’
- *hitnageš* *(*be*) ‘collided (with sth.)’

- Complex unergatives nominalize more freely¹³:

(6) a. *ha-yeled nigrar axrej birjonim*
 the-boy trailed.SMPL.MID after bullies
 ‘The boy trailed after bullies’.

b. *ha-higarerut ha-txufa šel ha-yeled axrey*
 the-trailing.SMPL.MID the-frequent.SG.F of the-boy after
birjonim
 bullies

(7) a. *hi hitmoded-a ‘im ha-maxala memušexot*
 she coped.INTNS.MID-3SG.F with the-disease lengthily
 ‘She coped with the disease for long’.

b. *ha-hitmodedut ha-memušexet šela ‘im ha-maxala*
 the-coping.INTNS.MID the-prolonged.SG.F her with the-disease

- ❖ To sum up: unergatives in Hebrew show more variation than do transitives/unaccusatives:

- Not all produce an ASN, but instead a non-argument taking nominal.
- Presence of selected PPs seems to correlate with availability of ASN.

¹³ This may reflect the claims in Grimshaw (1990) that only complex events may produce argument-taking nominals, see fn. 4.