

Nominal Voices^{*}

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Abstract

There is robust cross-linguistic variation regarding the voices available for event-nominals, which contrasts sharply with the availability of these voices for verbs. We show that much of this variation falls within the scope of the Lexicon-Syntax Parameter (Reinhart & Siloni 2005), and that it is accurately predicted under this account.

The account achieves empirical coverage which appears unavailable for models assuming a “single generative engine” (and specifically, accounts banning a computationally-active lexical component).

1. Introduction

The distribution of event nominals in the various voices (e.g., reflexive, reciprocal, unaccusative, passive, etc.) has received very little attention in the literature. The paper reveals the considerable cross-linguistic variation that event nominals show in this respect. We argue that much of the variation follows from the component of grammar in which the operations implicated in the derivation of the specific nominal take place. Some operations are subject to the Lexicon-Syntax Parameter (Reinhart & Siloni 2005), which determines their locus of application (lexicon or syntax); some are universally post-lexical; others ought to apply in the lexicon cross-linguistically.

Recent years witnessed a sharp reduction in the derivational (operational) role of the lexicon. Increasingly, what used to be construed as lexical operations of valence or category change, were attributed to the syntactic derivation. This development culminated in current theories proposing the elimination of the lexicon as an active component altogether, and instead advancing an architecture of grammar that replaces it with non-computational lists of items Marantz (1997, 2000, 2001), Borer (2004). Such “single generative engine” hypotheses

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are currently being pursued along various paths, for example by, Alexiadou (this volume) and Harley (this volume), among others.

The significant empirical coverage of our account casts serious doubts on the validity of such approaches, providing support for the view of the lexicon as an active component of the grammar (Siloni 2002). We do not see a natural way to account for data to be presented here in a theory that bans computation in the lexicon.

2. The Cross-Linguistic Distribution of Nominal Voices

As will be shown in the following sub-sections, languages exhibit robust variation with respect to the various voices (e.g., reflexive, reciprocal, unaccusative, passive, etc.) available for the formation of event nominals. This stands in stark contrast with the inventory available for their verbal counterparts, which in the current sample, is more uniform across languages.

We will start by examining the facts – namely the availability or unavailability of each voice for the formation of event nominals in a given language.

2.1. Reflexives and Reciprocals

Reflexive and reciprocal event nouns are possible in certain languages (e.g., Hebrew, Hungarian, and Russian; (1-3)):¹

- | | | | |
|-----|----|--|-------------|
| (1) | a. | hitnaškut bney ha-‘esre | (Hebrew) |
| | | <i>kissing.RECIP son.PL the-teens</i> | |
| | | ‘The mutual kissing of the teenagers’ | |
| | b. | hitraxcut-am | |
| | | <i>washing.REFL-them.GEN</i> | |
| | | ‘Their self-washing’ | |
| (2) | a. | a gyerekek csókol-óz-ás-a | (Hungarian) |
| | | <i>the children kiss-RECIP-NOMINAL-AGR</i> | |
| | | ‘The children’s mutual kissing’ | |

¹ Notational abbreviations: AGR – agreement; DECAUS – decausative morphology; GEN – genitive Case; NEG – negation; NOMINAL – nominalization; PASV – passive morphology; PL – plural; PRT – particle; RECIP – reciprocal morphology; REFL – reflexive morphology; SE – valence reduction morphology; UNACC – unaccusative morphology.

- b. (a) János (rendszeres) borotvál-koz-ás-a
 (the) János (regular) shave-REFL-NOMINAL-AGR
 ‘János’ (regular) self-shaving’
- (3) a. obnimanie detej (Russian)
 hugging children.GEN
 ‘The children’s (mutual) hugging’
- b. perešjoptyvanie detej
 whispering.REFL children.GEN
 ‘The children’s mutual whispering’
- c. umyvanie rebjonka
 washing boy.GEN
 ‘The boy’s (self-)washing’

Interestingly, other languages (e.g., Romance, illustrated here with French examples, and Serbian) lack reflexive and reciprocal event nominals, despite the availability of these voices for verbs in these languages, as illustrated below (in French and Serbian, reflexive and reciprocal verbs are formed by the addition of the clitic *se*):

- (4) a. Jean s’entend. (French)
 Jean SE-hears
 ‘Jean hears himself.’
- b. Ils s’embrassent.
 they SE-kiss
 ‘They kiss each other.’
- (5) a. On se cuje. (Serbian)
 he SE hears
 ‘He hears himself.’
- b. Oni se ljube
 they SE kiss
 ‘They kiss each other.’

Hebrew and Hungarian mark reflexive and reciprocal nominals using the same morphology used for the corresponding verbs (namely, the relevant template or suffix, respectively). This morphology is typical of valence-reducing operations in these languages in general; for example, the same morphology is found with unaccusatives:

- (6) hitgalgelut ha-kadur (be-morad ha-giv'a)
rolling.UNACC the-ball (in-slope the-hill)
 'The rolling of the ball (down the hill).'

Conceivably, one could conjecture that the absence of reflexive and reciprocal nominals in French, for example, is a result of the incompatibility of the valence-reduction morpheme (*se*) with the nominal category. However, note that in Russian, the relevant valence-reduction morphology (the suffix *-sja*) is also incompatible with nouns. Crucially, this does not block the appearance of reflexive and reciprocal nominals (3a-c). This simply renders many nominal forms ambiguous between the active (transitive) and reciprocal ((3a) or reflexive (3c) reading. Some reciprocal nouns are disambiguated using the prefix *pere-* (3b), which appears on many reciprocal verbs, but is neither a necessary nor sufficient condition for reciprocity in Russian.

It therefore seems that morphological compatibility of a valence-related morpheme cannot simply be the reason for the absence of certain voices in the nominal paradigm. This view is further supported in light of the cross-linguistically invariant existence of unaccusative and subject-Experiencer nominals, including in French (see §2.2).

2.2. Unaccusatives and Subject-Experiencers

Unlike reflexive and reciprocal nominals (§2.1), unaccusative and subject-Experiencer nominals are possible in all languages in the current sample:

- (7) a. hitkavcut ha-mixnasayim ba-kvisa (Hebrew)
shrinking the-pants in.the-washing
 'The pants' shrinking in the washing'
 b. hit'anyenut-o ba-be'aya
interest-his.GEN in.the-problem
 'His interest in the problem'
- (8) a. le rétrécissement du pantalon au lavage (French)
the shrinking of.the pants in.the washing
 'The pants' shrinking in the washing'
 b. l'intérêt de Marie pour ce livre
the-interest of Marie for this book
 'Marie's interest in this book'

- (9) a. az ing össze-gyűr-őd-és-e (Hungarian)
the shirt PRT(together)-wrinkle-UNACC-NOMINAL-AGR
 ‘The shirt’s wrinkling’
- b. János-nak a téma iránti érdekl-őd-és-e
János-DAT the topic regarding interest-DECAUS-NOMINAL-AGR
 ‘János’ interest in the topic’

Unaccusative and subject-Experiencer nominals are possible in French (8a-b), although their verbal counterparts appear with the *se* morpheme. The aforementioned morpheme’s incompatibility with nouns does not block their formation; they are simply created without valence-reduction morphology. This further undermines the possibility for an account for the absence of reflexive and reciprocal nominals in Romance and Serbian (§2.1) simply in terms of morphological incompatibility of the *se* morpheme.

2.3. Passives

Interestingly, there are no nominal passives that are morphologically coded as such. This is particularly conspicuous in Hebrew: the verbal passive templates *CuCaC* and *huCCaC* do not have corresponding nominal templates. Moreover, verbal templates that are ambiguous between a passive reading and a non-passive reading (i.e., unaccusative, reflexive, or reciprocal), such as *niCCaC*, have a corresponding nominal template (*hiCCaCut*) which only supports the non-passive reading:^{2,3}

- (10) a. Ha-nasix nextaf al yedey ha-šoded. (Hebrew)
the-prince kidnapped.PASV on hands the-robber
 ‘The prince was kidnapped by the robber.’
- b. * hexatfut ha-nasix
kidnapping.PASV the-prince
- (11) a. Ha-rav ne’erax le-vo ha-xag.
the-Rabbi prepared.REFL to-arrival the-holiday
 ‘The Rabbi prepared for the arrival of the holiday.’

² This observation is due to Shani Erez and Dov Murik (personal communication).

³ The forms in (11c-d, 12c-d) (*he’arxut*, *hivacrut*) do not by themselves represent any specific voice; rather, they represent general valence-reduction morphology in Hebrew (see §2.1).

- b. Ha-šulxan ne'erax al yedey ha-melcar.
the-table set.PASV on hands the-waiter
 'The table was set by the waiter.'
- c. he'arxut ha-rav le-vo ha-xag
preparation.REFL the-Rabbi to-arrival the-holiday
 'The Rabbi's preparation for the arrival of the holiday'
- d. * he'arxut ha-šulxan (al yedey ha-melcar)
setting.PASV the-table (on hands the-waiter)
- (12) a. Sedek nocar be-xazit ha-binyan.
crack formed.UNACC in-front the-building
 'A crack formed in the front part of the building.'
- b. Ha-pesel nocar al yedey oman šveycari.
the-sculpture created.PASV on hands artist Swiss
 'The sculpture was created by a Swiss artist.'
- c. hivacrut sedek be-xazit ha-binyan
formation.UNACC crack in-front the-building
 'The formation of a crack in the front part of the building'
- d. * hivacrut ha-pesel al yedey oman šveycari
creation.PASV the-sculpture on hands artist Swiss

Notice that there is nothing specifically wrong with nominalizing the verbs in (11d, 12d). The corresponding non-passive nominals do exist:

- (13) a. arixat ha-melcar et ha-šulxan
setting the-waiter ACC the-table
 'The waiter's setting of the table'
- b. yecirat ha-oman et ha-pesel
creation the-artist ACC the-sculpture
 'The artist's creation of the sculpture'

Moreover, these nominals allow dropping the external argument, without being morphologically marked, as discussed in the next section.

2.4. Nominals Involving Arbitrary Saturation

2.4.1. Nominals Claimed to be Passive

Consider the nominals in (14a-b):

- (14) a. arixat ha-šulxan (al yedey ha-melcar)
setting the-table (on hands the-waiter)
‘The setting of the table (by the waiter)’
b. yecirat ha-pesel (al yedey ha-oman)
creation the-sculpture (on hands the-artist)
‘The creation of the sculpture (by the artist)’

Such cases have often been claimed to be passive nominals lacking morphological marking. However, notice that unlike regular verbal passives, these require that their implicit external argument be [+human]. This is why omission of the *by*-phrase with nouns denoting activities specific to animals (e.g., *hakaša* ‘biting’, which is specific to snakes) results in anomalous expressions (15b, 17b, 19) – in contrast with the corresponding verbal passives (16, 18)⁴:

- (15) a. hakašat ha-yeled al yedey ha-naxaš (Hebrew)
biting the-boy on hands the-snake
‘The biting of the boy by the snake’
b. # hakašat ha-yeled
biting the-boy
- (16) Ha-yeled hukaš (al yedey naxaš).
the-boy bite.PASV (on hands snake).
‘The boy was bitten (by a snake).’
- (17) a. ukushenie rebjonka sobakoj (Russian)
biting child.GEN dog.INSTR
‘The biting of the child by the dog’
b. # ukushenie rebjonka
biting child.GEN dog.INSTR
- (18) Rebjonok byl ukushen (sobakoj)
child.NOM was bitten (dog.INSTR)
‘The child was bitten (by the dog).’

⁴ Hungarian has no eventive verbal passive (see Kiss 2002).

- (19) *Peter a megcsíp-és-e (Hungarian)
Peter the sting-NOMINAL-AGR
 (Szabolcsi 1994)

In addition to the lack of passive morphology, this divergence from the behavior of verbal passives casts further doubt on the idea that (14a-b, 15a-b, 17a-b, 19) are simply the nominal counterparts of the corresponding passive verbs (16, 18). The former require their implicit external argument to be [+human], which is typical of the operation of arbitrary saturation, as discussed below.

2.4.2. Saturation and Arbitrary Saturation

Following Chierchia (2004) and Reinhart (2002), we assume that passivization involves saturation of the external θ -role. A saturated θ -role is a role that is assigned, in the semantics, to a variable bound by an existential operator, as schematized in the semantic representation (20b) of example (20a):⁵

- (20) a. The room was cleaned.

$$b. \lambda e.\exists x \left[\text{cleaning}(e) \wedge \text{Agent}(e, x) \wedge \text{Theme}(e, \llbracket \text{the room} \rrbracket) \right]$$

Unlike “regular” saturation (20), arbitrary saturation creates a variable, the range of which is restricted to [+human] individuals (following Chierchia 2004). In French, for example, arbitrary saturation occurs in impersonal passives, which use the *se* morphology (21) (compare with the regular, periphrastic passive in (22)) and in middles (23).

- (21) a. Il s’est dévoré beaucoup d’enfants dans cette région. (French)

it SE-was devoured lots of-children in this region

‘Many children have been devoured in this region by humans.’

$$b. \lambda e.\exists x_{\text{Arb}} \left[\text{devouring}(e) \wedge \text{Agent}(e, x_{\text{Arb}}) \wedge \right. \\ \left. \text{Theme}(e, \llbracket \text{many children} \rrbracket) \wedge \text{in}(e, \llbracket \text{this region} \rrbracket) \right]$$

- (22) a. Il a été dévoré beaucoup d’enfants dans cette région.

it has been devoured lots of-children in this region

‘Many children have been devoured in this region.’

⁵ The semantic representations herein abstract away from clausal features (e.g., tense, aspect).

$$b. \lambda e. \exists x \left[\begin{array}{l} \text{devouring}(e) \wedge \text{Agent}(e, x) \wedge \\ \text{Theme}(e, \llbracket \text{many children} \rrbracket) \wedge \text{in}(e, \llbracket \text{this region} \rrbracket) \end{array} \right]$$

It is the case that (21a) can only refer to an episode of cannibalism, whereas (22a) can also describe an attack by wolves, etc. – which is expected if arbitrary saturation (unlike “regular” saturation, of the kind implicated in regular passivization) restricts the denotation of the implicated variable to the set of *humans*.

(23) a. Des courgettes crues se mangent souvent (à Genève) (French)

a(PL) fresh zucchinis SE eat often (in Geneva)

b. Gen e, x_{Arb} :⁶

$$\left[\begin{array}{l} \text{eating}(e) \wedge \text{Agent}(e, x_{Arb}) \wedge \text{Theme}(e, \llbracket \text{fresh zucchinis} \rrbracket) \\ \text{often}(e, x_{Arb}) \end{array} \right]$$

Similarly, the sentence in (23) (a case of middle-formation) can only refer to eating by a person (and not, for example, eating by rabbits, etc.).

2.4.3. Arbitrary Saturation in Nominals

Given the behavior discussed in §2.4.1, it appears that the nominals in (14a-b, 15a-b, 17a-b, 19) involve arbitrary saturation, on par with impersonal passives and middles (as discussed in §2.4.2). This is illustrated using the example in (24):

(24) a. yecirat ha-bor (Hebrew)

creation the-hole

‘The creation of the hole.’

$$b. \lambda e. \exists x_{Arb} \left[\text{creation}(e) \wedge \text{Agent}(e, x_{Arb}) \wedge \text{Theme}(e, \llbracket \text{the hole} \rrbracket) \right]^7$$

As such, the nominals discussed in this section (and exemplified in §2.4.1) cannot be the nominal counterparts of verbal passives. In other words, event nominals reject regular

⁶ The operator *Gen* is a dyadic operator, binding any free variable in its scope, and relating two open formulas. In this case, it binds the event variable e , and the arbitrarily saturated variable x_{Arb} . It relates the first formula, describing the *eating* event, to a second formula, representing the fact that the event e (the same event implicated in the first formula) has the property of being easy for the participant x_{Arb} (see Marelj 2004).

⁷ We abstract away from the semantic contribution of the definite article *the* (namely, closure of the event variable e).

saturation; the saturation they undergo is arbitrary, whence their implicit external argument must be [+human].⁸

In sum, unaccusative and subject-Experiencer nominals are attested in all the sampled languages, while reflexive and reciprocal nominals are attested only in some languages (in Hebrew, Russian, and Hungarian; but not in Romance and Serbian). Finally, true passive nominals are not attested at all.

We first show that the Lexicon-Syntax parameter to be discussed below is responsible for much of the variation exhibited in the domain of nominal voices.

3. Proposal

3.1. Background – Reflexives and Reciprocals Cross-Linguistically

Reinhart and Siloni (2005) propose the Lex(icon)-Syn(tax) parameter (25), from which a cluster of cross-linguistic distinctions in the behavior of reflexive and reciprocal verbs across languages is shown to follow. Some of these distinctions are summarized in (26). We abstract away here from the working of the operations of reflexivization and reciprocalization themselves (for more on reflexives, see Reinhart & Siloni 2005; on reciprocals, see Siloni to appear).

(25) The Lex-Syn Parameter:

Arity (valence changing) operations apply in the lexicon or in the syntax.

(Reinhart & Siloni 2005)

⁸ We believe that Hebrew tough constructions (studied extensively by Botwinik-Rotem 2004, Engelhardt 1998) can, in fact, be analyzed as cases of generic middle constructions, which are based on nominal predicates:

- (i) tanurim xadašim hem kalim le-nikuy (Hebrew)
ovens new they(COPULA) easy to-clean
 ‘New ovens are easy to clean.’

Gen e, x_{Arb} :
 $\left[\text{cleaning}(e) \wedge \text{Agent}(e, x_{Arb}) \wedge \text{Theme}(e, \llbracket \text{new ovens} \rrbracket) \right]$
 $\left[\text{easy}(e, x_{Arb}) \right]$

The form *nikuy* ‘clean’ in (i) is a nominal form, suggesting that (i) is formed by inserting the (already arbitrarily saturated) nominal form into a copular sentence, instead of applying arbitrary saturation to generate a middle verb form, as in the French example (23).

(26) Cross-linguistic distinctions governed by the Lex-Syn parameter:

	<i>value</i> =Lexicon	<i>Value</i> =Syntax
Limited set	Yes	No
ECM	No	Yes
Lack of transitive alternate	Possible	Impossible
Unique idioms	Possible	Impossible
Independent semantic drift	Possible	Impossible

Terms:

- a. Limited set: Whether reflexivization and reciprocalization are fully productive, or can apply only to a limited set of predicates.
- b. ECM: Whether reflexivization and reciprocalization can apply to ECM predicates (relating arguments of two separate predicates).
- c. Lack of a transitive alternate: Whether specific languages can have reflexive and/or reciprocal verbs that lack a transitive alternate.
- d. Unique idioms: Whether there are phrasal idioms involving reflexive and/or reciprocal verbs, which do not apply to their transitive alternate.
- e. Independent semantic drift: Whether semantic drift can apply to a reflexive or a reciprocal without applying to the meaning of the verb from which it was derived.

To understand how these distinctions follow from the setting of the parameter, consider the consequences of the different locus of operation for reflexivization/reciprocalization in different languages.

Productivity is not in principle impossible for lexical operations. It is important to note that the sets of (lexical) reciprocals and reflexives are rather coherent cross-linguistically. The exact definition of the sets is not yet understood. It may turn out that specific properties of the lexicon determine the definition of these sets. However, even if the sets are to some extent language specific, it seems theoretically convenient that these idiosyncrasies fall in the domain of the lexicon. It has often been argued independently of the question of reciprocalization or reflexivization that irregularities are confined to the lexicon, which contains lists that have to be acquired anyway, whereas the syntactic component is a productive engine

“uncontaminated” by idiosyncrasies. The difference in productivity (26a) between the lexical and syntactic setting of the Lex-Syn parameter corresponds to this view of the two components. Crucially, additional evidence points in the same direction.

There is no syntactic structure in the lexicon; assuming otherwise amounts to “duplication” of syntactic mechanisms in a second grammatical locus. Hence, there is no possible relation between distinct predicates; they are unrelated entries on a list. Lexical operations are therefore restricted to operate on a single predicate and its θ -grid. A syntactic operation, on the other hand, can affect the θ -roles of two distinct predicates, provided the syntax has placed them in a sufficiently local configuration. Thus, syntactic reflexivization and reciprocalization can apply to ECM predicates, whereas their lexical counterparts cannot (26b).

It has often been suggested in the literature that the lexicon includes entries that are “frozen” (e.g., Chierchia 2004). By frozen entries, we mean entries that exist in the lexicon but cannot be inserted into the syntax, and hence are not part of the actual “vocabulary” of a given language.⁹ If frozen entries are available in the lexicon, they can feed lexical operations, but will not be able to feed syntactic operations. Thus, a frozen transitive verb will be able to feed lexical reflexivization and/or lexical reciprocalization, giving rise to a reflexive/reciprocal lacking an apparent transitive alternate. Conversely, a frozen transitive verb cannot feed the syntactic counterparts of these operations, as they obviously require their input to be present in the syntax in the first place. Thus, syntactic reflexives/reciprocals do not lack a transitive alternate (26c).

The distribution of phrasal idioms, with respect to the types of verbs in question, can be accounted for under the assumption that a phrasal idiom can only be lexicalized (i.e., listed in the lexicon) if its matrix predicate exists in the lexicon (see Horvath & Siloni to appear). Obviously, a verb that is the output of a syntactic operation does not exist as an entry in the lexicon. Therefore, it can only participate in idioms that are available for its transitive alternate – the lexical entry that serves as input for the syntactic reflexivization or reciprocalization operation (26d).

Finally, semantic drift requires lexicalization of meaning. To be more explicit, this means listing the entry and its idiosyncratic meaning in the lexicon. If a verb is formed in the syntax,

⁹ See Horvath and Siloni (to appear) for the claim that a lexical entry is frozen if one of its θ -roles is inert, that is, inaccessible outside the lexicon. Section 5 resumes the claim that entries may have an inert θ -role.

it is unavailable as an entry in the lexicon, and such listing of idiosyncratic meaning is impossible (26e).¹⁰

3.2. Reflexive and Reciprocal Nominals – An Account

When one considers the data on nominalizations (presented in §2) in light of the Lex-Syn parameter (§3.1), the following generalizations emerge:

(27) a. Hebrew, Russian, Hungarian:

- Reflexivization and reciprocalization apply in the lexicon
- Reflexive and reciprocal nominals exist

b. Romance, Serbian:

- Reflexivization and reciprocalization apply in the syntax
- Reflexive and reciprocal nominals do not exist

Assuming nominalization is a lexical operation, following Siloni 1997) (see also Bierwisch (this volume); for a different view on nominalizations, see Alexiadou (this volume), Harley (this volume), and Roeper and van Hout (this volume)), the above generalizations immediately follow. In languages where reflexivization and reciprocalization apply in the lexicon (Hebrew, Russian, Hungarian), the lexicon obviously contains reflexive and reciprocal entries, which can in turn serve as input for the operation of nominalization. The order of morphemes in agglutinative languages, such as Hungarian, suggests that reflexivization or reciprocalization (as the case may be) indeed precede nominalization (see example (2), above).

In languages where reflexivization and reciprocalization apply in the syntax (Romance, Serbian), the lexicon will not contain reflexive and reciprocal entries, which are the necessary input for nominalization forming reflexive and reciprocal nominals, respectively (but see §4).

¹⁰ Primary results of work conducted in the framework of the Israel Foundation for Science Project (grant 44/05) reveal coherent and statistically extremely significant cross-linguistic split among lexically vs. syntactically formed predicates with regard to distinctions (26c-e), as expected by the Lex-Syn parameter. Note that the claim regarding (26c-e) is statistical; isolated instances can, of course, be listed in the lexicon even in languages forming their reflexives/reciprocals in the syntax. Such languages, however, are not expected to have more than isolated instances, if at all, unlike languages forming these predicates in the lexicon.

3.3. Lexicon vs. Syntax: Further evidence

3.3.1. Decausativization

Along with Reinhart (2002) and Reinhart and Siloni (2005), we assume that unaccusatives and subject-Experiencer verbs are derived by the operation of decausativization, which reduces the external CAUSE role altogether (a CAUSE role is a role underspecified for animacy and can therefore be realized as animate-Agentive or not). Consider the following example, involving *break*:

- (28) a. *break*: <CAUSE> <THEME>
b. [John]/[the wind]/[a hammer] broke the vase.
c. John broke the vase with a hammer.
- (29) a. Decausativization: *break*: <CAUSE> <THEME> \rightarrow *break*: <THEME>
b. The vase broke.
c. $\lambda e \left[\text{breaking}(e) \wedge \text{Theme}(e, \llbracket \text{the vase} \rrbracket) \right]$
d. * The vase broke with a hammer.

The entry in (28) is the transitive entry for *break*, which has both CAUSE and THEME roles. When an Agent (e.g., *John*) is realized, an Instrument modifier is licensed (28c), in concert with the Instrument Generalization, which states that an Instrument is licensed only if an explicit or implicit Agent is available (Reinhart & Siloni 2005). When decausativization applies, the CAUSE argument is completely eliminated, as schematized in the semantic representation (29c) of the unaccusative in (29b). The absence of the external θ -role, even at the level of interpretation, is evinced by the incompatibility of an Instrument modifier (29d). If an implicit CAUSE were present in the semantics, an Instrument would be possible, as a CAUSE role allows for Agent interpretation. Compare this with the verbal passive in (30), in which the CAUSE role, though absent from syntax, is present at the level of interpretation (30a) (because of saturation having applied to it; see §2.4.2), thus licensing an Instrument modifier (30b):

- (30) a. The vase was broken.
b. $\lambda e. \exists x \left[\text{breaking}(e) \wedge \text{Cause}(e, x) \wedge \text{Theme}(e, \llbracket \text{the vase} \rrbracket) \right]$
c. The vase was broken with a hammer.

Subject-Experiencers are derived from object-Experiencers by the same operation, namely decausativization: the CAUSE role of an object-Experiencer verb is reduced, giving rise to the subject-Experiencer verb.^{11,12}

Recall now that unaccusative and subject-Experiencer nominals are possible in all the sampled languages (see §2.2). If the proposal we advance is on the right track, then decausativization in these languages ought to be a lexical operation, as nominalization can apply only to existing lexical entries.

Indeed, it seems that decausativization applies in the lexicon cross-linguistically. Decausative verbs do not exhibit the type of cross-linguistic variation attested by reflexive and reciprocal verbs (§3.1). In all the sampled languages, they may lack a transitive alternate, may appear in phrasal idioms that are not available for their transitive counterparts, and can undergo semantic drift independently of their transitive alternate, on a par with reflexives and reciprocals in languages that perform reflexivization and reciprocalization in the lexicon (§3.1). Thus, for example, in Hebrew, the unaccusative *naval* ‘wilted’ has a frozen transitive alternate (does not have a transitive alternate in the vocabulary), the phrasal idiom *nafla haxlata* ‘fell decision’ (“a decision has been made”) is not shared by its transitive alternate, and the unaccusative *hitkapel* ‘folded’ has a drifted meaning ‘retracted’, which its transitive counterpart does not have.

¹¹ As argued by Reinhart (2001, 2002), the fact that subject-Experiencers are not unaccusative (i.e., their EXPERIENCER argument is mapped externally) is a result of the mapping instructions given to EXPERIENCER roles at the Lexicon-Syntax interface being different than those given, for example, to THEME roles.

¹² With Reinhart (2002), we believe that the operation of decausativization is distinct from the operation that adds an external θ -role to unergatives and transitive verbs (i), namely causativization:

- (i) a. The soldiers marched to the mess hall.
- b. The sergeant marched the soldiers to the mess hall.

An approach that collapses the two alternations into one cannot explain, for example, why the transitive alternate of unaccusatives (and subject-Experiencers) selects a CAUSE role as its external argument, whereas causativization (in our sample) adds an AGENT to its unergative/transitive input. To see this distinction, compare the incompatibility of causativized verbs with an inanimate subject (ii), versus the compatibility of the transitive alternates of unaccusatives (such as *break*) with inanimate subjects (iii):

- (i) * Their hunger marched the soldiers to the mess hall.
- (ii) a. [John]/[the storm]/[the branch] broke the window.
- b. The window broke.

We do not deal with causative nominals in this paper.

The reason why decausativization must be lexical may lie in the Lexicon Interface Guideline (31), which bans manipulations of θ -grids in the syntactic component.

(31) The Lexicon Interface Guideline: (Siloni 2002)

The syntactic component cannot manipulate θ -grids; elimination, modification, or addition of θ -roles is illicit in the syntax.

Dimitriadis (2004) suggests deriving a similar insight from the basic properties of the semantic representation: operations in the syntax apply to syntactic structure, which is already associated with event-semantic representations. Operations eliminating an argument from the semantic representation or manipulating its content are logically illicit. In the lexicon, such operations apply to actual predicates and their θ -grid, and not to event-semantic representations (which are built based on syntactic structure). Hence, decausativization is licit.

3.3.2. Passivization

Verbal passives always have a transitive alternate¹³, may not appear in phrasal idioms that are not applicable to their transitive counterpart, and cannot undergo semantic drift independently of their transitive counterpart. Based on these and other factors, Horvath & Siloni to appear conclude that verbal passives are formed in the syntax, and hence are not present in the lexicon.

As evinced by the data in §2.3, a passive verb cannot feed nominalization. This is expected if verbal passives are outputs of a syntactic operation, and nominalization is restricted to the lexical component.

However, “subject-less” event nominals can be formed from two-place (or higher-valence) verbs by means of arbitrary saturation, as shown in (24), repeated below:

(32) a. yecirat ha-bor (Hebrew)

creation the-hole

‘The creation of the hole.’

b. $\lambda e.\exists x_{Arb} \left[creation(e) \wedge Agent(e, x_{Arb}) \wedge Theme(e, \llbracket the\ hole \rrbracket) \right]$

¹³ Hillel Taub-Tabib (personal communication) notes that the only exception to this generalization that is mentioned in the literature is the ECM passive *rumored* (‘John was rumored to be sent to London’), which does not have a transitive alternate. The exception proves the rule. As mentioned in note 10, isolated instances, such as *rumored*, can be listed in the lexicon separately.

As noted in §2.4, this process systematically differs from regular passive formation, in that it only supports an interpretation in which the missing (i.e., syntactically unrealized) argument is [+human].

4. Czech: An Alternative Path of Derivation

Unlike Romance and Serbian, Czech allows reflexive and reciprocal event nominals (33a-b) – despite the fact that the properties of its reflexive and reciprocal verbs clearly show that they are formed in the syntax (Hron 2005):

- (33) a. Petrovo umytí se za pět minut situaci nezachránilo. (Czech)
Peter.GEN washing SE in five minutes situation NEG.rescued
‘Peter’s washing in five minutes did not rescue the situation.’
- b. Nepřetržité hádání se jejich dětí jim zkazilo celou dovolenou.
constant quarreling SE their children.GEN them ruined whole vacation
‘Constant quarreling of their children ruined the whole vacation for them.’

The problem is why Czech, unlike the other languages that form reflexives and reciprocals in the syntax, allows reflexive and reciprocal nominals.

Hron (2005) examines two possible solutions. First, that contra Siloni (1997), nominalization can apply in the syntax in Czech (though not in Romance or Serbian). Since the output of Czech reflexivization and reciprocalization is obviously available in the syntax, this would facilitate the formation of reflexive and reciprocal nominals.

Alternatively, Czech reflexive and reciprocal nominals are formed by reflexivization or reciprocalization of two-place nominals (and not by nominalization of reflexive/reciprocal verbs).

Showing that Czech reflexive/reciprocal nominals cannot be argued to be formed by syntactic nominalization of the corresponding reflexive/reciprocal, Hron (2005) suggests that they are derived by reflexivization/reciprocalization of the corresponding transitive nominal. He further shows that, as is expected from the setting of the Lex-Syn parameter, reflexivization/reciprocalization of nominals in Czech is a syntactic operation, just like reflexivization/reciprocalization of verbs: it is productive and possible with ECM nominals.

Two problems remain. First, what prevents this derivational path (reflexivization or reciprocalization of nominals) in Romance and Serbian? Second, if arity operations (e.g., reflexivization and reciprocalization) can apply to nouns in the syntax in Czech, why does

Czech have no passive nominals, which would be formed by passivization of nouns in the syntax?

Let us start with the first problem. Recall first that the reflexive/reciprocal morphology in Romance (and Serbian) is a verbal clitic (*se*) incompatible with nominals, unlike its Czech equivalent. Hence, reflexive/reciprocal nominals morphologically marked (of the Czech type) are blocked. Yet, this in itself cannot explain the unavailability of reflexive/reciprocal nominals in Romance (Serbian): as shown in §2.2, morphological incompatibility of the clitic (*se*) with nominals does not block the formation of unaccusative and subject-Experiencer nominals. So, the question is why it is impossible to derive reflexive/reciprocal nominals with no morphological marking from the corresponding transitive nouns? The reason for that, we believe, lies in the role of the valence-reducing morphology for Case reduction. Reinhart and Sioni (2005) argue that when valence-reducing operations apply in the syntax, the Case-reduction morphology is obligatory, as it reduces the Case of the reduced argument. In the lexicon, the valence-reducing operation itself involves Case reduction. Hence, no special device is needed for Case reduction, and outputs can appear without special morphology. Romance unaccusatives and subject-Experiencer nominals and Russian reflexive/reciprocal nominals, which bear no morphological marking, are possible as they are formed in the lexicon. In the syntax, this is impossible. In Romance (and Serbian), reflexivization and reciprocalization are set to apply in the syntax, hence there can be no morphologically unmarked reflexive and reciprocal nouns.

Turning now to the second problem: Why does Czech lack passive nominals? In Czech, just like in the other languages in our sample, the implicit external argument of event nominals must be [+human]: (34) is impossible, as the implicit role must be a flower (Hron 2005).

(34) * Rozkvetení za jedinou noc nás nadchlo. (Czech)
Blooming in only one night us.fascinated
(Hron 2005)

As discussed in §2.4.2, the formation of such nominals involves arbitrary saturation. Recall that true passivization of a two-place nominal would involve “regular” saturation of the kind involved in the formation of regular verbal passives (see §2.4.2 for discussion of the two types of saturation).

This of course leaves open the question of why saturation in nominals (at least in Hebrew, Russian, Hungarian, and Czech) must be of the arbitrary sort. Let us consider the following possibility: the operation of event nominal formation itself involves marking of the external

role for arbitrary saturation (along lines proposed by Grimshaw 1990, who argues that nominalization always involves “suppression” of the external argument, and Hron 2005). A role that has been marked for arbitrary saturation can subsequently be lexically realized, assigned to a variable, the scope of which is limited to the group of humans, or reduced by decausativization. What it cannot undergo is a different type of saturation (i.e., non-arbitrary). The next section provides some support for this explanation.

5. Arbitrary Saturation and Object-Experiencer Nominals

While subject-Experiencer event nominals seem to be possible cross-linguistically, object-Experiencer verbs do not constitute a uniform class with respect to the formation of event nominals.¹⁴ Some have corresponding nominals (35a), and some do not (35b). This is illustrated below with Hebrew examples. From our preliminary search, it seems that object-Experiencer verbs split this way also in other languages (e.g., Hungarian), but the particular items on each group are not identical across languages.

- (35) a. *hifxid* ‘scare’ – *hafxada*; *ina* ‘toment’ – *inuy*; *gera* ‘stimulate’ – *geruy*; *he’eliv* ‘insult’ – *ha’alava*; *kišef* ‘enchant’ – *kišuf*; *šixne’a* ‘persuade’ – *šixnu’a*, *hišpil* ‘humiliate’ – *hašpala*; *hesit* ‘incite’ – *hasata*
- b. *hiršim* ‘impress’ – **haršama*; *ce’er* ‘sadden’ – **ce’ur*; *hitmiha* ‘puzzle’ – **hatmaha*; *hidhim* ‘amaze’ – **hadhama*; *hamam* ‘shock’ – **himum*; *sime’ax* ‘delight’ – **simu’ax*; *ye’eš* ‘despair’ – **ye’uš*

Landau (2002) brings to light another split in the behavior of object-Experiencer verbs: some allow passivization, and some do not. Interestingly, precisely the same verbs that do not have corresponding event nominals (35b) do not allow passivization either (36b), while the ones that give rise to nominalizations (35a, 36a) allow it:

¹⁴ It has also been argued that the transitive alternates of unaccusative verbs do not give rise to event nominals. However, as shown by Borer (2004), they do have corresponding event nominals (with the exception of *grow/growth*).

- (36) a. *hufxad* ‘scare.PASV’; *‘una* ‘toment.PASV’; *gura* ‘stimulate.PASV’; *hu’alav* ‘insult.PASV’; *kušaq* ‘enchant.PASV’; *šuxna* ‘persuade.PASV’; *hušpal* ‘humiliate.PASV’; *husat* ‘incite.PASV’
- b. **huršam* ‘impress.PASV’; **cu’ar* ‘sadden.PASV’; **hutma* ‘puzzle.PASV’; **hudham* ‘amaze.PASV’; **humam* ‘shock.PASV’; **sumax* ‘delight.PASV’; **sumax* ‘please.PASV’; **yu’aš* ‘despair.PASV’

Finally, Meltzer (2005) reveals that object-Experiencer verbs split also with regard to Agent interpretation, again partitioning the verbs into exactly the same two groups. This is shown by the addition of Agent-oriented adverbs or purpose clauses, which diagnose Agenthood. While they can be added to sentences involving the verbs in (35a, 36a), they give rise to ungrammaticality if the object-Experiencer verb is one that lacks a corresponding event nominal (35b) and rejects passivization (36b):

- (37) a. Dan hifxid/’ina/... et Dina be-xavana. (Hebrew)
Dan scared/tormented/... ACC Dina in-purpose
 ‘Dan scared/tormented/... Dina on purpose.’
- b. Dan he’eliv/hišpil/... et Dina kedey še-hi ta’azov oto.
Dan insulted/humiliated/... ACC Dina in.order that-she leave.FUT him
 ‘Dan insulted/humiliated/... Dina in order for her to leave him.’
- (38) a. **Dan hiršim/ce’er/hidhim...* et Dina be-xavana.
Dan impressed/saddened/amazed... ACC Dina in-purpose
- b. **Dan hitmi’a/ye’eš/sime’ax/...* et Dina kedey še-hi ta’azov oto.
Dan puzzled/despaired/delighted/... ACC Dina in.order that-she leave.FUT him

Pesetsky (1995) argues that object-Experiencers involve three θ -roles: CAUSE, EXPERIENCER, and SUBJECT-MATTER. Furthermore, they cannot realize their CAUSE and SUBJECT-MATTER roles together in the same derivation. Reinhart (2002) shows that these concepts have three options of realization as verbs: leaving one of the two mutually-exclusive roles unrealized (39a-b, 40a-b), or undergoing decausativization (39c, 40c).

- (39) a. [The doctor]_{CAUSE} worried [the patient]_{EXPERIENCER}.
 b. [His health]_{SUBJECT-MATTER} worried [the patient]_{EXPERIENCER}.
 c. [The patient]_{EXPERIENCER} worried ([about his health]_{SUBJECT-MATTER}).

- (40) a. [Ha-rofe]_{CAUSE} hid'ig [et ha-xole]_{EXPERIENCER}. (Hebrew)
the-doctor worried ACC the-patient
 'The doctor worried the patient.'
- b. [Bri'ut-o]_{SUBJECT-MATTER} hid'iga [et ha-xole]_{EXPERIENCER}.
health-his.GEN worried ACC the-patient
 'His health worried the patient.'
- c. [Ha-xole]_{EXPERIENCER} da'ag ([odot bri'ut-o]_{SUBJECT-MATTER}).
the-patient worried (about health-his.GEN)
 'The patient worried (about his health).'

As evinced by the different morphological form that the verb bears in (40b) and (40c), these are indeed two different verbal entries, despite the fact that the same set of θ -roles is realized in each case. For the different mapping of roles (external vs. internal) in each case, see Reinhart (2002). Note, however, that in a sentence where the EXPERIENCER is mapped internally (39a, for example), a [+human] subject favors the Agentive reading, but can also be interpreted as SUBJECT-MATTER in the appropriate context.

On the basis of French data, Friedemann (2000) argues that verbs such as those in (35b) have a CAUSE role that is inert – namely, inaccessible outside the lexicon – and that this property is what distinguishes them from the verbs in (35a). This explains why they fail Agenthood diagnostics: if their CAUSE role cannot be inserted in the syntax, it is obviously not present in the semantics either. Therefore Agent-oriented modifiers cannot be used, as the verb bears no role that is interpretable as AGENT (recall the CAUSE role is unspecified with regard to animacy and can therefore be realized/interpreted as AGENT or not). Thus, in (38), the subject is a SUBJECT-MATTER argument. Relying on that, Meltzer (2005) argues that verbs such as the ones in (35b) cannot passivize (as shown in (36b)), since the saturation implicated in passivization involves assignment of the saturated θ -role to a variable in the semantics. If the relevant role (here, the CAUSE role) is inaccessible outside the lexicon, it cannot be assigned in the semantics either (for further discussion of the behavior of inert roles, see Horvath & Siloni to appear).

Why do these verbs not give rise to event nominals? Recall that it was suggested in the previous section (§4) that the operation of nominalization implicates marking of the external argument for arbitrary saturation. If this idea is on the right track, then object-Experiencer verbs whose external role is inert are expected to disallow nominalization. An inert role is inaccessible outside the lexicon. However, all the options available to a role marked for arbitrary saturation require that the role be accessible outside the lexical component. For

nominalization to occur, the marked role could either be realized lexically, or assigned in the semantics to the corresponding variable. Both options are banned by the inertness of the role. Hence, these nominalizations are blocked.

As mentioned in the beginning of this section, other languages seem to show the same type of partition, although the particular items on each group seem to vary across languages. Indeed, if the account suggested here is correct, this is the expected state of affairs. We do not expect a cross-linguistic consistency as to whether the external role of a certain lexical entry is inert or not. Inertness of roles is certainly idiosyncratic, but learnable. We do expect, however, object-Experiencer verbs that lack a corresponding event nominal to fail to have an Agent interpretation and disallow passivization, as under the present account, this cluster of properties follows from a single grammatical factor – namely, the inertness of the external role. A preliminary review seems to suggest that this is indeed the case.

6. Conclusion

We have shown that considerable cross-linguistic variation attested in the sets of voices available for event-nominals (§2), is predicted given the Lexicon-Syntax Parameter (Reinhart & Siloni 2005). Given that nominalization applies in the lexicon (Siloni 1997), reflexive and reciprocal event-nominals will be available only if reflexive and reciprocal entries exist themselves in the lexicon (and are thus available to feed nominalization).

Predictably, in languages where it has been independently established that reflexivization and reciprocalization apply in the syntax (Reinhart & Siloni 2005, Siloni to appear), reflexive and reciprocal event-nominals are predictably impossible. In languages where it has been independently established that reflexivization and reciprocalization apply in the lexicon, such event-nominals are possible.

Czech presents an interesting challenge to this account, since it forms reflexive and reciprocal verbs in the syntax, but has reflexive and reciprocal event-nominals. We adopted Hron's (2005) claim that these nominals in Czech are formed by syntactic reflexivization/reciprocalization of two-place nominals (and not by nominalization of reflexive/reciprocal verbs). To explain why this path of derivation is not available in all languages forming their reflexive/reciprocal verbs in the syntax, we relied on Reinhart and Siloni's (2005) claim that syntactic valence-reducing operations require a Case-reducer. In Czech, but not in Romance and Serbian, such a Case-absorbing morpheme that can attach to

nouns is available. Thus, Czech represents a path of derivation which is not available in the other languages in our sample that reflexivize and reciprocalize in the syntax.

Finally, we examined a split within the group of object-Experiencer verbs, concerning the availability of corresponding event nominals. Based on Friedemann's (2000) proposal that some object-Experiencers have an inert external CAUSE role, we propose that the impossibility of corresponding event-nominals for these verbs is the result of failure of their inert role to be marked for arbitrary saturation implicated by the operation of nominalization.

Passive nominals are banned on comparable grounds. Since the external role of event nominals is marked for arbitrary saturation as part of the nominalization operation, it cannot undergo regular passive saturation.

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