

PP licensing in nominalizations

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1. Introduction

In this paper we compare the distribution of PPs introducing external arguments in nominalizations with PPs introducing external arguments in the verbal domain. We show that several mismatches exist between the behavior of PPs in nominalizations and PPs in the verbal domain. This leads us to suggest that while PPs in the verbal domain are licensed by functional structure alone, within the nominal domain, PPs can also be licensed via an interplay of the encyclopaedic meaning of the root involved and the properties of the preposition itself. This second mechanism kicks in in the absence of functional structure.

1.1 The Licensing of PPs in the Verbal Domain

In languages like English (and German) virtually any transitive verb can form a passive, where the *by*-phrase re-introduces absorbed external arguments instantiating all different thematic roles (Jaeggli 1986, Baker, Johnson & Roberts 1989, Fox & Grodzinsky 1998, Collins 2005 among others).

- (1) a. John destroyed the book *(agent)*
a'. The book was destroyed by John
b. The storm destroyed the window *(causer)*
b'. The window was destroyed by the storm
c. All the students fear that professor *(experiencer)*
c'. That professor is feared by all students
d. John received the package *(recipient)*
d'. The package was received by John

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Under the Voice Hypothesis, put forth in Kratzer (1994), the functional projection of Voice is responsible for the introduction of external arguments. The same head introduces a DP in the active and licenses a PP in the passive Voice.

Recently we argued that causer PPs are special in that they can appear in the absence of Voice. This is the case with anticausatives across languages (Alexiadou, Anagnostopoulou & Schäfer (AAS) 2006):

- (2) The window broke from the storm / *from John (causer / *agent)

Specifically, we took this as evidence that (anti-)causatives are decomposed as follows:¹

- (3) a. Active/Passive: [Voice [vCAUS [Root + Theme]]] b. Anticausative: [vCAUS [Root + Theme]]

Agentivity and causation are syntactically represented in terms of distinct functional heads. CAUS is taken to introduce a *causal relation* between a causing event (the implicit argument of CAUS) and the resultant state denoted by the Root + Theme complex. Voice introduces the external argument. Causatives and anticausatives both have a CAUS head but differ in that only the former have Voice. On this view, the causative alternation is a Voice-alternation.

On our analysis, the licensing of PPs works as follows: *vCaus* licenses causer PPs in anticausatives, while *Voice* licenses agent PPs and causer PPs in passives.²

1.2 VP within Nominalizations

Current syntactic theories of nominalization assume that the structure of derived nominals contains a nominal head, *n*, that takes a VP (of variable size) as its complement (Alexiadou 2001, Borer 1993, 2003, Fu, Roeper & Borer 2001, Borsley & Kornfilt 2000, van Hout & Roeper 1998 to mention a few). If correct, such analyses raise the question as to how PPs introducing different thematic roles behave in the nominal domain.

- (4) [n [(Voice) [vP ...]]]

In addition, several authors argued that nominalization is akin to passivization in that it absorbs the external argument (Grimshaw 1990). Again, if this is the case, we would expect nominalizations to behave like verbal passives (Alexiadou 2001, Borer 1993, 2003, Sichel 2007). This then predicts that PPs realising external arguments in nominalizations strictly mimic the behavior of the verbal domain.

¹ Note that CAUS could also simply be seen as an eventive *v* of the type proposed in Marantz (2005). In this case the causative semantics would not be directly encoded on any verbal head but would result from the combination of an activity *v* and its stative complement (see Ramchand 2006 for related ideas).

² In fact the distribution and licensing of PPs is a bit more complex than stated in the text. Causer PPs introduced by *by* are licensed by Voice, while those licensed by *vCAUS* are introduced by *from*.

The question we are concerned with here is to what extent these expectations are borne out. As we will see, the behavior of external arguments in nominalizations does not mimic the behavior of the verbal domain. We argue that the differences can be explained in terms of the view that "passive meaning" is not passive in the sense of a process suppressing the external argument. Rather "passive meaning" emerges as a by-product of the absence of certain portions of structure. This is the case in a decomposition approach towards argument alternations, as proposed by Kratzer (1994) for adjectival passives, (see Marantz 1997 and many others). The specific implementation we propose here characterizes the properties of nominalizations in terms of the decomposition argued for in AAS (2006) (cf. (3) above).

2. Mismatches between the Distribution of PPs in Passives and Corresponding Nominalizations

In this section we provide factual evidence from different languages which casts doubts on the view that nominalization is akin to passivization. As in our (2006) publication we discussed English, German and Greek change-of-state verbs, here we investigate the nominalization patterns in these three languages in turn.

2.1 English

As Harley & Noyer (2000) discuss in detail, a class of roots that participate in the (anti-) causative alternation allow an external causer interpretation for the Spec,DP argument in a transitive nominalisation as well as the internal, spontaneous interpretation in the intransitive nominalisation. Note that in the absence of a by-phrase, the nominal in (5e) is ambiguous between two interpretations, the passive and the spontaneous, anticausative one (see also Sichel 2007). In the verbal domain the passive is clearly distinct from the anticausative structure.

- (5) a. Wealth accumulated
- b. the wealth's accumulation
- c. John accumulated wealth
- d. John's accumulation of wealth
- e. the accumulation of wealth (by John)
- f. the accumulation of dust

They also note that a root's behaviour may be conditioned by the particular theme which is inserted (5f). Our real-world knowledge tells us that there are some things, like dust, which are much more likely to accumulate spontaneously than to be accumulated on purpose by some external causer. When we choose such a theme, *accumulate* has the spontaneous reading. In this respect, nominalisations of so called variable behavior verbs like 'accumulate', 'unify' etc. combine the behavior of both nominalisations of non-alternating verbs (*destroy*), and of nominalizations of verbs like *grow*, which lack a transitive variant:

- (6) a. the destruction of the vase (by John/by the wind)
 b. John's destruction of the vase
 c. the growth of tomatoes
 d. *John's growth of tomatoes

Second, as has already been discussed in the literature, the PPs in the nominalization cannot realise all thematic roles, unlike the verbal passive (Hornstein 1977, Rappaport 1983, Jaeggli 1986, Grimshaw 1990, Fox & Grodzinsky 1998 and others):

- (7) a. the imprisonment of refugees by the government (agent)
 b. the destruction of the city by lightning (causer)
 c. the fear of Harry (*by John) (*experiencer)
 d. the respect for Mary (*by John) (*experiencer)
 e. the receipt of the package (*by John) (*recipient)

The reasoning of section 1.1 suggests that in (7a-b) VoiceP is present, as the agent/causer PPs are licit. On the other hand, (7c-e) suggest that Voice is absent as the recipient/experiencer PP is out. Note here that the nominalization in (7e) is eventive and is interpreted as passive in the absence of a *by* phrase.

- (8) The receipt of the package takes place at the agreed date of departure and is carried out by your local transport officer together with radiation protection

2.2 German

The behavior of German nominalizations further strengthens the view that nominalization is not completely identical to passivization. This is so for the following reasons. First, in German we find a different type of mismatch between verbal passives and nominalized infinitives. Second, German shows a mismatch between two types of nominalizations, nominalized infinitives and *ung*-nominals. These mismatches become obvious, if we look at nominalizations of alternating verbs, more specifically nominalizations of verbs forming anticausatives marked with the reflexive pronoun '*sich*'.

The verbal domain is as in English: the active licenses agent and causer DPs (9a), the passive agent and causer PPs (9b) and the anticausative only causer PPs (9c):

- (9) a. Hans / der Wind öffnete die Tür
 Hans / the air opened the door
 b. Die Tür wurde von Peter / durch einen Windstoss geöffnet
 the door was by Peter / through a gust-of-wind opened
 The door was opened by Peter/by a gust of wind
 c. Die Tür öffnete **sich** durch einen Windstoß / *von Peter
 the door opened REFL through a gust-of-wind / by Peter
 The door opened from a gust of wind/*by Peter

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In German verbal passives, agents are introduced by preposition ‘*von*’ and causers by preposition ‘*durch*’. In the nominalization, however, only ‘*durch*’ is licit, as ‘*von*’ shifts to the function of a genitive/possessor marker.

Ung-nominals of alternating verbs never combine with the reflexive pronoun and they behave thematically similar to English *-ation* nominals; they license both agent and causer PPs:

- (10) a. die **Öffnung** der Tür durch Peter (agent)
the open-ung the-gen door through Peter
The opening of the door by Peter
b. die **Öffnung** der Tür durch den Wind (causer)
the open-ung the-gen door through the wind
The opening of the door by the wind

To the extent that psych verbs undergo *-ung* nominalization in German, the PP can introduce experiencers, unlike English (11). Similarly, a recipient PP is licit, unlike English (12).³

- (11) die **Bewunderung** des Künstlers durch das Publikum (experiencer)
the admiration the artist-gen through the public
The admiration of the artist by the public
- (12) der **Empfang** des Pakets durch Hans (recipient)
the receipt the package-gen through Hans
The receipt of the package by Hans

Thus, *ung*-nominals (and zero derived nominals (12)) seem to behave as verbal passives; they show full productivity as far as the licensing of PPs is concerned.

Nominalized infinitives of alternating verbs show an interesting deviation. They have a passive variant (A) as well as an anticausative one (B), the latter being morphologically marked by the reflexive pronoun ‘*sich*’. The nominalized passive differs from the verbal passive in that it can only license agent PPs. Let us consider the properties of the two patterns in some detail:

A. The passive pattern: this pattern lacks reflexive morphology (13); the internal argument bears genitive and an agent but no causer can be introduced via a ‘*durch*’ PP.

- (13) a. das **Öffnen** der Türen durch Peter (agent)
the open-en the-gen doors through Peter
The opening of the doors by Peter

³ *-ung* nominalizations in German are not possible with all verb classes, see Rossdeutscher (2007). The generalization is that only those verbs that have a resultant state can form an *-ung* nominalization.

- b. ?*das Öffnen der Türen durch den Wind (*causer)
 the open-en the-gen doors through the wind

B. The anticausative pattern: in (14) reflexive morphology is present; the internal argument bears genitive and a causer but no agent can be introduced via a ‘*durch*’ PP.

- (14) a. ?*das **sich** Öffnen der Türen durch Peter (*agent)
 the REFL open-en the-gen doors through Peter

- b. (?)das **sich** Öffnen der Türen durch den Wind (causer)
 the REFL open-en the-gen doors through the wind

The ‘*sich*’ pattern (anticausative) behaves as its verbal counterpart. The ‘non-*sich*’ pattern (passive), unlike its verbal counterpart, excludes causer PPs and only licenses agent PPs. This restriction is also found in the verbal passive of languages such as Greek (as well as Hebrew; see Doron 2003, Alexiadou & Doron 2007). We illustrate this on the basis of Greek passives below.

2.3 Greek

2.3.1 Verbal Passives in Greek

We exemplify the restrictions on the Greek passive on the basis of de-adjectival verbs. This class of verbs gives us a clear contrast between the passive and the anticausative pattern: the former bears non-active morphology, while the latter shows active morphology. Interestingly, only causer PPs are licit in the anticausative, while only agent PPs are licit in the passive.

- (15) a. To pukamiso katharise me to plisimo / apo mono tu / *apo to Jani
 the shirt cleaned-Act with the washing/ by itself / by the John
 The shirt cleaned with the washing/by itself/*by John
 b. To pukamiso katharistike apo to Jani / *me to plisimo
 the shirt cleaned-Nact by the John / with the washing
 The shirt was cleaned by John/*with the washing

In AAS (2006) we proposed that different features of Voice are used to form passives across languages. We concentrate here on the difference [\pm agentive] (agent vs. causer):

		agentivity	syntactic realisation
<i>Structure-feature combinations of Voice</i>	1	+	specifier
	2	-	specifier
	3	+	implicit
	4	-	implicit ⁴

⁴ We use the term implicit argument here without making any claims concerning its representation in the syntax.

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For some reason, 4 is absent from Greek, the result being that the passive in these languages is strictly agentive.

2.3.2 Nominalizations in Greek

Turning now to Greek nominalizations, we observe further mismatches between the active and the passive. Note that the same preposition that introduces agents and causers in the verbal domain, ‘*apo*’ (from), is also used in the nominal domain.

First, we find passive nominals of verbs that **lack** a verbal passive: the example in (16) only has an anticausative but not a passive interpretation, as the licensing of PPs shows. The corresponding nominalization, surprisingly allows both agent and causer PPs, introduced by ‘*apo*’ (17):⁵

(16) To dasos kaike apo ti zesti / *apo to Jani (*anticausative/*passive*)
the forest burnt-Nact from the heat / *by the John
The forest got burnt from the heat/*by John

(17) to kapsimo tu dasus apo ton Jani / apo ti zesti
the burning the forest-gen by the John / from the heat
The burning of the forest by John/from the heat

A similar phenomenon is illustrated with nominalizations of de-adjectival verbs: these can also license both agent and causer PPs (18). The licensing of the causer PP is not surprising; the licensing of the agent PP, however, is not expected. Recall that corresponding verbs license an agent PP but no causer in the passive (15b). Second, nominalizations with experiencer/recipient PPs are OK, unlike their English counterparts (19).

(18) to anigma tis portas apo ton aera / apo to Jani (*causer / agent*)
the opening the door by the wind / by the John

(19) a. i paralavi tu paketu apo to Jani (*recipient*)
the receipt the package-gen by the John
The receipt of the package by John

b. i latria tu Theu apo tus anthropus (*experiencer*)
the admiration the God-gen by the people
The admiration of God by the people

2.4 Interim Summary

Summarizing, the distribution of PPs in the nominal domain shows a number of mismatches compared to that in the verbal domain.

⁵ We have not systematically examined the distribution of ‘*me*’ (with) in Greek nominalizations.

In the verbal domain, (i) anticausatives license causer PPs across languages. (ii) Verbal passive licenses agents across languages; in some languages the passive does not license causer PPs (Greek, Hebrew, etc.). (iii) Recipient/Experiencer/other external arguments are licensed as PPs in the passive across languages.

In the nominal domain, (i) English nominalizations allow only agent and causer PPs. In contrast to the English passive, other theta roles are out. (ii) German nominalized infinitives behave like Greek/Hebrew verbal passives in that they do not license causer PPs. On the other hand, German *ung*-nominalizations show full productivity in that they license all kind of theta roles in a PP like English and German verbal passives. (iii) Greek nominalizations seem to be less restrictive than the verbal passive in that they do license causer PPs. In addition they license experiencers and recipients, unlike English.

3. Towards an Explanation

3.1 English Nominalizations

To begin with, in English all types of external theta roles can appear in the prenominal possessor position, no matter whether they can appear in the by-phrase or not.

- | | | |
|---------|---|-------------------------|
| (20) a. | the destruction of the coral reef system (by the tsunami) | (<i>causer</i>) |
| a'. | the tsunami's destruction of the coral reef system | (<i>causer</i>) |
| b. | the destruction of the vase (by John) | (<i>agent</i>) |
| b'. | John's destruction of the vase | (<i>agent</i>) |
| c. | the accumulation of wealth (by John) | (<i>agent</i>) |
| c'. | John's accumulation of wealth | (<i>agent</i>) |
| d'. | the fear of Harry (*by John) | (* <i>experiencer</i>) |
| d'. | John's fear of Harry | (<i>experiencer</i>) |
| e. | the receipt of the package (*by John) | (* <i>recipient</i>) |
| e'. | John's receipt of the package | (<i>recipient</i>) |

As already mentioned, under the Voice hypothesis, (Kratzer 1994, Marantz 1997) and subsequent work, external arguments are introduced by *Voice*. *-(at)ion* nominals have been argued to lack Voice and therefore they never have an external argument.⁶ In other words, only when the nominalization structure includes Voice, as in the verbal gerund (*John's destroying the city*), the external argument is realized obligatorily. When the nominalization lacks Voice, then the external argument can be realized as a possessor. As known, the interpretation the processor is rather free and it is mainly dependent on the concept expressed by the possessee (see Grimshaw 1990, Williams 1985, Marantz 1997, Harley & Noyer 2000, Alexiadou 2001). In the case of object nouns that lack argument structure, the possessor can be interpreted as the **author** or the **owner** (21).

- (21) John's book
a book that John wrote; a book that John lent to me

⁶ It follows from this that they cannot assign accusative Case to their internal argument, as opposed to the gerund, which contains Voice, has an external argument and can assign accusative.

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In the case of *destruction*, the possessor can be interpreted as an *agent/causer*, based on our encyclopaedic knowledge about *destroy*. In the case of *fear*, the possessor can be interpreted as an *experiencer*, based on our encyclopaedic knowledge about *fear*. In the case of *receipt*, it is interpreted as a recipient and so on and so forth.⁷

Now if *-ation* nominals lack Voice, *by*-phrases with such nominals cannot be licensed by Voice. One could argue that in this case the *by*-phrases are also licensed by encyclopaedic knowledge about the nominal, similar to the prenominal possessors. But if this is so, then why is the interpretation of the *by*-phrase restricted? This is clearly not the case with prenominal possessors.

We propose that this restriction on the *by*-phrase in the nominal domain is related to the properties of the preposition itself, as discussed in Fox & Grodzinsky (1998). These authors point out that the nominal *by*-phrase can only be interpreted as an *agent* or *creator*. Importantly, it does so in the absence of passive morphology/argument structure:

- (22) a. a book by John
b. CK1 by Calvin Klein

Thus we have the following distribution of licensors: in English passives, external arguments are licensed by Voice. In English nominalizations, Voice is absent. In the absence of Voice, the *by*-phrase assigns the thematic role of Actor (building on Fox & Grodzinsky 1998), if this is compatible with the root semantics.

This predicts first that English nominalizations should be, like adjectival passives, compatible with reflexive action (Rossdeutscher 2007, cf. Kratzer 1994). Kratzer (1994) building on Baker, Johnson & Roberts (1989), points out that adjectival passives differ from verbal passives, in that the former are compatible with reflexive action, while the latter are not. She concludes that an external argument must be present in the former but not in the latter. And whenever an external argument is missing, this is interpreted as ‘being at a stage in the syntactic derivation, where it is not there yet’. Applying the same test in nominalization, we get the results in (23): the example is compatible with reflexive action.

⁷ The question that arises concerns the ungrammaticality of (6d) (**John's growth of tomatoes*). Marantz (1997) argued that GROW is an internally caused root. Harley & Noyer (2000: 16) further discuss certain interpretational differences between GROW and DESTROY. “Growing is an activity which must be internally caused; in *John grows tomatoes*, John is merely facilitating the growth of tomatoes which occurs spontaneously. Destruction, on the other hand, must be externally caused; things do not destroy spontaneously. In *The insects destroyed the crops*, the insects are acting directly to bring about a result that would not occur by itself. Roots like DESTROY require a direct causer to initiate the event in question. If, as Marantz suggests, the interpretation of arguments in the specifier of D is left open, defaulting, perhaps, to something like ‘possession’ but able to take on shades of meaning according to the encyclopaedic content of the complement of D, the possible interpretations of the specifier of D can be argued to fall out purely from the nature of the roots DESTROY and GROW, rather than from some structural or featural aspect of these roots.”

(23) the enrollment of the students (agent = / ≠ theme)⁸

A second prediction is that other prepositions, not similarly restricted, could in principle introduce Non-Actor external arguments. This prediction is confirmed. The preposition ‘of’ is typically used to introduce internal arguments. But in (24) ‘of’ can introduce experiencers.

(24) the fear of John

3.2 German Nominalizations

As already mentioned, the passive pattern of the infinitival *-en* nominalizations in German behaves like the Greek verbal passive: it only licenses agent PPs. This suggests that while in the verbal passive, the thematic role of the external argument can be both + and -agentive, the latter specification is out in the nominal domain. In structural terms, German infinitival nominals contain VoiceP, when passive, but lack VoiceP, when anticausative.

Recall, however, that *-ung* nominalizations, never combine with a reflexive but allow both agent and causer PPs (10). Does (10a) suggest that the nominalization contains VoiceP? We argue that this is not the case. In fact, *-ung* nominalizations are much like *-ation* nominals in English, that is they lack Voice. Evidence for this comes from the test introduced above, namely compatibility of the construction with reflexive action. While infinitival *-en* nominals, like verbal passives, are incompatible with reflexive action, *-ung* nominals, like adjectival passives, are compatible with such action (Rossdeutscher 2007, cf. Kratzer 1994):

- | | | |
|---------|---|--|
| (25) a. | Das Kind wurde gekämmt
the child was combed | (agent ≠ theme)
(verbal passive) |
| b. | Das Kind war gekämmt
the child was combed | (agent = / ≠ theme)
(adjectival passive) |
| (26) a. | das Anmelden der Gäste
the announcing the.gen guests
The announcing of the guests | (agent ≠ theme)
(nominalized infinitive) |
| b. | die Ameldung der Gäste
the announcement the.gen guests
the announcement of the guests | (agent = / ≠ theme)
(<i>-ung</i> nominalization) |

We thus conclude that in the absence of Voice conceptual licensing jumps in as in English *-ation* nominals. However, the German preposition ‘*durch*’ seems not to be restricted to actors but is compatible with other theta-roles, too (cf. (11/12) above).

⁸ Data courtesy of Thomas McFadden.

3.3 Greek Nominalizations

Recall that the Greek passive is restricted, while the nominalization is not. In order to capture this, a first idea that comes to mind is to claim that Greek nominalization is like the English nominalization. But this cannot be on the right track, as there is evidence that it contains Voice.

First of all, Greek nominalizations license adverbs that are Voice related. Initiator manner adverbs such as *carefully* are licit in the DP domain (Alexiadou 2001; they are also licit within certain adjectival participles, see Alexiadou & Anagnostopoulou 2007):

- (27) i katastrofi ton egrafon toso prosektika
the destruction the documents-gen that carefully
The destruction of the documents that carefully

Second, nominalizations of de-adjectival verbs can license agent PPs. Since in the case of these roots, the agent must be structurally licensed, as nothing from the semantics of the root could license it, it must be licensed by Voice. The preposition ‘*apo*’ differs from ‘*by*’ in that it is not strictly associated with the Actor role:

- (28) to adiasma tu kutiu apo tin katharistria
the emptying the box-gen by the cleaner-fem
The emptying of the box by the cleaning lady

Third, the genitive DP is interpreted only as an internal argument (Alexiadou 2001). Thus (29) is not compatible with reflexive interpretation:

- (29) i anagelia ton kalesmenon (agent≠theme)
the announcing the guests-gen
The announcing of the guests

A second alternative is that Greek nominals derived from alternating verbs are structurally ambiguous between the passive and anticausative form. We believe that it correctly captures the Greek facts. Evidence for this view comes from the following domains. First, we saw above that these nominals can have Voice. However, they do not need to contain Voice. Nominalizations of internally caused verbs which never license an agent PP/VoiceP (31) are possible (30):

- (30) to sapisma ton filon apo tin igrasia / *apo ton kipuro
the rotting the leaves-gen from the humidity / by the gardener
The rotting of the leaves from the humidity/*by the gardener

- (31) a. Ta fila sapisan apo tin igrasia / *apo ton kipuro
the leaves rotted from the humidity / by the gardener
The leaves rotted from the humidity/*by the gardener

- b. *I igrasia / *o kipuros sapise ta fila
 the humidity / the gardener rotted the leaves
 The humidity/the gardener rotted the leaves

Second, modification by adjectives/adverbs like spontaneous(ly)/sudden(ly) gives us distinct interpretations: spontaneous(ly) gives a passive interpretation (32a), while sudden(ly) is ambiguous between a passive and an anticausative one (32b). As expected, with internally caused roots only the anticausative interpretation is observed (32c):

- (32) a. to (afhormito) anigma tis portas (afhormita)
 the spontaneous opening the door-gen spontaneously
 The spontaneous opening of the door/the door of the door spontaneously
 b. to (ksafniko) anigma tis portas (ksafnika)
 the sudden opening the door-gen suddenly
 The sudden opening of the door/the opening of the door suddenly
 c. to (ksafniko) sapisma ton filon (ksafnika)
 the sudden rotting the leaves-gen suddenly
 the sudden rotting of the leaves/the rotting of the leaves suddenly

We propose that the nominals in (32a) involve the structure in (33a). The nominal in (32c) corresponds to the structure in (33b). The nominals that are ambiguous between a passive and an anticausative interpretation allow for both structures:

- (33) a. Passive: [n ... [Voice [vCAUS...]]] b. Anticausative: [n ... [vCAUS ...]]]

In German, these patterns are morphologically distinct in the nominalized infinitive (34). In the absence of ‘*sich*’, the adjective ‘*spontan*’ (spontaneous) modifies an implicit agent's action; in the presence of ‘*sich*’, it modifies the unfolding of the inchoative event.⁹

- (34) a. das spontane Öffnen der Türen
 the spontaneous open-en the-gen doors
 The spontaneous opening of the doors
 b. das spontane **sich** Öffnen der Türen
 the spontaneous REFL open-en the-gen doors
 the spontaneous REFL opening of the doors

Recall that there are Greek verbs that do not form a passive, e.g. *break* and *burn*. However, the corresponding passive nominalizations can be formed, as is diagnosed by the presence of the agent PP and the adjective *spontaneous* in (35):

- (35) to afhormito spasimo ton piaton apo to Jani
 the spontaneous breaking the dishes-gen by the John

⁹ The corresponding *-ung* nominalization is ambiguous, as expected.

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The spontaneous breaking of the dishes by John

At present, we do not have a clear understanding of the gaps (lack of productivity) in the verbal passive. Nevertheless, in the nominal domain the formation of a passive is possible. All we can conclude for now is that the gap is dependent on the morpho-syntactic context in which the root appears. It seems that what is special is the verbal passive, not the nominalization.

Finally, what about the contrast between English and Greek nominalizations concerning goal/recipient PPs, cf. (7) vs. (19)? This contrast is expected if Greek nominalizations have a Voice projection introducing external theta roles that are sentient in Dowty's (1991) terms (besides the causer). English nominalizations do not contain Voice, and, as we saw, the English *by*-phrase is semantically restricted.

4. Conclusions

We argued for two different ways of introducing PPs relating to external arguments in the nominal domain. These PPs are primarily licensed by the presence of a certain functional structure. In the absence of such functional structure, PPs can be licensed via an interplay of the encyclopaedic meaning of the root involved and the properties of the preposition itself.

Our analysis raises two questions which we leave open for further research. The first one is why the second licensing option is only possible in the nominal domain. In other words, why is the anticausative in (36) ungrammatical?

(36) *The vase broke by John

The second question is why we have 'agent exclusivity' in the passives of some languages (Greek/Hebrew) and in some constructions (German *-en* nominalizations, also Hebrew nominalizations, Sichel 2007). Further research into the morpho-syntactic properties of these constructions will shed light on these issues.

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