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Item Type	article;article
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Download date	2024-12-04 08:39:33
Link to Item	<a href="https://hdl.handle.net/20.500.14394/36936">https://hdl.handle.net/20.500.14394/36936</a>

## Remarks on the Syntax of Process Nominals: An Ergative Pattern in Nominative-Accusative Languages<sup>1</sup>

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### 1. Goals

This paper has two goals. The first one is to propose a structural account for the differences between process (event) and result nominals which capitalizes on the possibility of embedding lexical roots (cf. Marantz 1997) under different functional projections. I argue that while result nominals are inserted directly under nominal projections, process nominals include a set of verbal functional projections (cf. Borer 1993, van Hout & Roeper 1998 among others for related views). Specifically, the structure of process nominals includes (i) an Aspect Phrase (AspP) and (ii) a 'deficient' light v/Voice phrase (vP/VoiceP) i.e. a vP of the type that does not license an external argument. The presence of AspP explains the aspectual properties that these nominals have been argued to possess (cf. Grimshaw 1990). The presence of vP accounts for the eventive reading of these nominals.

The second goal is to link the structure proposed for process nominals and their case patterns in nominative-accusative (N/A) languages to the structural and case patterns found in ergative (E) languages. Crucially, I attempt to unify both patterns as reflexes of an '*unaccusative*' system (cf. Bok-Bennema 1991, Nash 1996 for E languages).

### 2. Process<sup>2</sup> vs. Result Nominals

The general question of the relationship between nouns and verbs has occupied a central place in theoretical investigation since Chomsky (1970). Although it is generally agreed that nouns differ from verbs in that they cannot assign case, the extent

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<sup>1</sup> I would like to thank the audience at NELS 29 for their comments. Special thanks are due to Elena Anagnostopoulou, Mark Baker, David Embick, Heidi Harley, Eric Haeberli, Alec Marantz, and Melina Stavrou for discussions and suggestions.

<sup>2</sup> With the term process nominals, I refer to Grimshaw's *complex event* nominals.

and character of similarities and differences with respect to argument structure and theta-theory is still an open issue.

In recent years, however, there is a certain amount of consensus that nouns do not behave uniformly with respect to argument structure. Some are systematically like verbs in their argument taking capacities, while others are quite different and in fact take no arguments at all. Several researchers acknowledge a distinction between process and result nouns (cf. Grimshaw 1990, Lebeaux 1986, Roeper 1987, Zubizarreta 1987 and references therein). The former express a process, while the latter simply name a result, i.e. the output of an event. According to Grimshaw, since process nominals have an event structure analysis, they have an argument structure and take arguments, much like their verbal counterparts. In fact process nominals take internal arguments obligatorily, while this is not the case with result nominals. This contrast is illustrated below in (1):

- |     |    |                                 |                |
|-----|----|---------------------------------|----------------|
| (1) | a. | The examination of the papers   | <i>Process</i> |
|     | b. | the exam (*of the students)     | <i>Result</i>  |
|     | c. | The teacher examined the papers |                |

A large set of differences between process and result nominals have been documented (cf. Grimshaw 1990). Here I discuss three of these differences which I deal with extensively in the paper. A first difference concerns the aspectual behavior of the two kinds of nominals. The two classes differ critically in their ability to license aspectual modifiers like *in an hour*, *for six weeks*. Process nominals admit the same aspectual modifiers as their verbal counterparts, while result nouns do not permit such modifiers (cf. Vendler 1967):

- |     |    |  |                |
|-----|----|--|----------------|
| (2) | a. | the examination of the papers in three hours     | <i>Process</i> |
|     | b. | *the exam for three hours                        | <i>Result</i>  |
|     | c. | The teacher examined the papers in only two days |                |

Moreover, it has been pointed out that process but not result nominals can be modified by certain types of adverbs e.g. manner adverbs (cf. Alexiadou 1997, Alexiadou & Stavrou 1998, Borer 1993, Hazout 1995, van Hout & Roeper 1998 among others) much like their verbal counterparts. This is illustrated below with an example from Greek:

- |     |   |  |                  |            |
|-----|---|--|------------------|------------|
| (3) | i | katagrafi                                    | ton stihion      | prosektika |
|     |   | the writing-down                             | the evidence-gen | carefully  |
|     |   | 'The writing down of the evidence carefully' |                  |            |

Furthermore, *by* phrases always denote agents with process nominals, while they appear in non-argumental contexts with result nouns.

- |     |    |  |                |
|-----|----|--|----------------|
| (4) | a. | the destruction of the city by the enemy | <i>Process</i> |
|     | b. | a picture by a painter                   | <i>Result</i>  |

To capture these differences structurally, some recent proposals have entertained the idea that process nominals involve an internal structure which is different from that of result nominals. Specifically, several researchers have argued that at least a VP<sup>3</sup> is

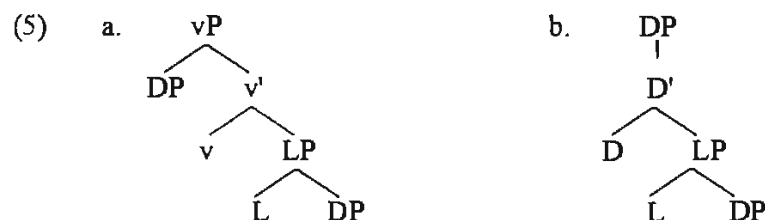
<sup>3</sup> On the other hand, Grimshaw (1990), Siloni (1997), Szabolcsi (1994) among others argue that event nominals do not contain verbal projections, taking the distinction between event and result nominals to be

present within process nominals, while result nominals are simple nouns inserted under nominal functional layers (cf. Alexiadou & Stavrou 1998, Borer 1993, van Hout & Roeper 1998 among others). This view heavily relies on facts such as the ones presented in (3). Under the standard assumption that adverbs modify VPs and not NPs, the presence of adverbs inside nominals is problematic. Adverbial modification is consistent only with a VP structure. If nominalizations are not syntactically derived from VPs, the presence of adverbs inside these constructions cannot be accounted for.

In this paper I present evidence for the view that certain functional layers, standardly associated with VPs, are present within process nominals, taking as a point of departure a view on argument structure recently developed within the framework of Distributed Morphology, according to which category labels such as V and N are irrelevant. I argue that process nominals are like verbal clauses in that they include an Aspect and a Voice Phrase, but differ from verbal clauses in that they do not include a Tense Phrase. Before I outline my proposal, I present my basic assumptions.

### 3. Nouns and Verbs in Distributed Morphology

Building on Chomsky (1970), Marantz (1997) proposes that syntactic categories like verb *destroy*, noun *destruction* are not syntactic primitives. Rather, there is a single abstract *Root* (cf. Pesetsky 1995), call it L(lexical)P, which may appear in different syntactic contexts (see also Picallo 1991, van Riemsdijk 1983 for related views). When the roots are placed in a verbal environment (v), they become verbs (5a); when they are placed in a nominal environment (D), the result is a nominalization (5b). In other words, nominalization is seen as the *Spell-Out* of a category neutral projection in a nominal environment.



However, the differences between the two types of nominals described in section 2, are not explained if one were to adopt (5b). Specifically, two crucial differences remain unaccounted for: (a) the aspectual properties of process nominals and (b) the presence of certain kinds of adverbial modification. To account for these properties, certain projections standardly associated with verbal clauses are needed.

The proposal I flesh out in section 4 is that (6) below is an accurate structural representation of process nominals.<sup>4</sup> On the other hand, I maintain that something like (5b) represents the internal structure of result nominals and I will not pursue this matter any further here.<sup>5</sup> (6) differs from (5b) in that it contains a vP (Chomsky 1995), or

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part of the lexical information a deverbal noun can have. The set of facts to be discussed in section 4 cannot be readily captured under a lexicalist approach. For extensive argumentation against such an approach see Alexiadou & Stavrou (1998), Fu et. al. (1998), van Hout & Roeper (1998), Picallo (1991) among others.

<sup>4</sup> (6) owes much to Embick's (1998) analysis of Latin perfect participles.

<sup>5</sup> Note that (5b) makes it possible for result nominals to have complements. In fact result nominals may include complements, as well as possessors. Consider the Catalan example in (i) from Picallo (1991). (i)

VoiceP (Kratzer 1994) or EventP (Travis 1991, Harley 1995) on top of LP, as well as an AspectP (cf. also Embick 1998, van Hout & Roeper 1998), but no other higher functional layers of the type found in verbal clauses, i.e. Tense (contra van Hout & Roeper 1998). Functional projections located higher than Aspect are of the type associated with nominal clauses, e.g. Number Phrase (cf. Ritter 1991).

- (6) [DP [D° the] [FP/(NumbP) F° [AspP Asp° [vP v [LP √DESTROY the city]]]]]

In the next section I present empirical support for (6) on the basis of facts taken primarily from Greek.

#### 4. Motivating the Structure

While adverbial modification is generally possible with process nominals but not with result ones, as illustrated for Greek in (7), there are a number of restrictions in the distribution of adverbs that point to a pattern that is syntactically conditioned.

- (7) i eksetasi /\*to diagonisma tu Jani epi mia ora  
 the examination/\* the exam the John-gen for one hour  
 'The examination/\*the exam of John for an hour'

It is not the case that all types of adverbs are acceptable in process nominals (cf. Alexiadou 1997, Alexiadou & Stavrou 1998, Borer 1993, Fu & al. 1998, Hazout 1995, van Hout & Roper 1998). As examples (8) and (9) show, the type of adverbs that are licit within these constructions are manner adverbs and aspectual adverbs, but no sentence adverbs:

- (8) \*i katastrofi ton stihion pithanos/ilikrina  
 the destruction the evidence-gen probably/frankly  
 'The destruction of the evidence probably/frankly'  
 (9) i katastrofi ton egrafon toso prosektika/kathimerina  
 the destruction the-documents-gen so carefully/daily  
 'The destruction of the documents so carefully/daily'

Recent work on the syntax of adverbs has put forth the hypothesis that adverbial phrases are related to distinct functional projections (cf. Alexiadou 1997, Cinque in press). This hypothesis runs in parallel with research on the type and content of functional projections which constitute the clausal architecture. It crucially builds on the transparent semantic

includes a result nominal, as only results obtained from activities can have the property of being inconsistent:

- (i) la demostracio d'en Joan del teorema de Pitagres es inconsistent  
 the proof of Joan of the theorem of Pythagoras is inconsistent

From the point of view of (5b) and (6), the difference between process and result nominals is that the former contain functional layers standardly associated with verbs, while the latter lack such layers. From this point of view, the difference between the two types of nominals relates mostly to the aspectual and event properties. In section 6 I discuss facts that relate to the obligatoriness of an internal argument within process nominals. Crucially, (5b) enables us to capture facts such as the ones in (i), which are not straightforwardly accounted for under an analysis which posits a VP, and hence the presence of complements within process nominals only (Borer 1993 and others). Such facts are not straightforwardly accounted for under a lexicalist view either, which relies on the distinction between arguments and complements (Grimshaw 1990 and others) in order to deal with them.

relation that can be observed crosslinguistically between projections and adverbs. According to this hypothesis, aspectual adverbs are linked to an Aspect phrase, while manner adverbs arguably bear a tight relation to Voice Phrase.<sup>6</sup> On this view, the presence of such adverbs signals the presence of certain 'low' verbal projections within process nominals.

Interestingly, nominals in certain languages have a morphological reflex of the inclusion of such categories. As far as Voice is concerned, note that Turkish action nominals may inflect for voice in the same way as finite verbs. Compare the sentence in (10a) to the process nominal in (10b): both contain the passive morpheme *-il-* (cf. Comrie 1976). Also certain Greek process nominals include the infix *-m-*, which seems to be related to non-active voice morphology in Greek, as illustrated in (11), (11a) being a passive participle:

- |      |    |   |    |  |
|------|----|---|----|--|
| (10) | a. | Mektub yaz <i>-il-</i> <i>-di</i><br>letter write pass past<br>'The letter was written' | b. | mektub-un yaz <i>-il-</i> <i>-ma-si</i><br>letter-gen write-pass vn its<br>'the writing of the letter' |
| (11) | a. | diavas- <i>m-en</i> -os<br>read- passive:msc  | b. | diavas- <i>m-a</i><br>read-passive:neut  |

Turning to Aspect, first note that it has been observed that English process nominals can refer to different types of events, both telic and atelic (cf. van Hout & Roeper 1998, Siegel 1997):<sup>7</sup>

- |      |    |  |                            |
|------|----|--|----------------------------|
| (12) | a. | the destruction of the memo takes place at this office | <i>Atelic</i>              |
|      | b. | the destruction of the memo took place at noon         | <i>Telic Point in time</i> |
|      | c. | the destruction of the memo took an hour               | <i>Telic Durative</i>      |

Similar facts hold also for Greek. Telicity/Durativity (in combination with the distinction Perfective vs. Imperfective (cf. Anagnostopoulou, Iatridou & Izvorski 1998)) is taken to be linked with an *Aspect* projection in the recent work of several scholars.

The above facts can be seen as providing semantic evidence for postulating an Aspect Phrase within process nominals. Now these semantic distinctions have a direct morphological reflex in several languages, particularly in those that show an opposition between the Perfective and the Imperfective. For instance, in Polish this opposition is also found in process nominals, as illustrated in (13) (from Schoorlemmer 1995).

- |      |    |   |
|------|----|---|
| (13) | a. | ocenienie studentow przez nauczycieli nastapilo szybko<br>evaluation- <b>pf</b> the students-gen by teachers occurred quickly |
|      | b. | ocenianie studentow przez nauczycieli<br>evaluation- <b>imp</b> students-gen by teachers                                      |

On the other hand, Greek process nominals seem to be related to the perfective stem of their verbal counterpart (cf. 14), while Russian ones seem to be linked to the imperfective stem, though in certain limited cases there are pairs in which an aspectual opposition is visible (cf. Schoorlemmer 1995):

<sup>6</sup> In the sense that the possibility of a predicate to license a manner adverb is related to its voice features (see Alexiadou 1997, Cinque in press for discussion and references).

<sup>7</sup> English *-tion* and *-ing* nominalizations differ in their aspectual properties. The former entail a perfective event, the latter an imperfective. See Siegel (1997) for discussion.

- (14) a. to diava-s-m-a            tu vivliu    me prosohi b.    diava-s-a  
 the read-perf-passive-neut the book-gen with care    read-perf-1sg  
 'the reading of the book carefully'                            'I read'

Now a structural representation such as the one depicted in (5b) above cannot offer an explanation for the eventive readings, the different aspectual readings of process nominals, the presence of aspectual and voice morphology within nouns or the restrictions on the type adverbial modification discussed in this section. On the other hand, (6) readily accounts for these facts. First of all, the presence of vP/VoiceP inside process nominals is necessary as this contributes to the event interpretation of the nominal, while LP contributes information related to the resultant state of the predicate. Second, it is this head that actually includes the *Manner* feature responsible for the licensing of manner adverbs, in agreement with the recent proposals about the syntax of adverbs mentioned above. Third, the presence of voice morphemes within process nominals is suggestive of an inclusion of a VoiceP. The presence of AspP accounts for the fact that process nominals receive both bound and unbound readings, and that aspectual modifiers/adverbs are licensed within such nominals. Moreover, the morphological evidence seen above also argues in favor of the presence of such a projection inside process nominals.

Note that this proposal also accounts for the general distribution of adjectives and adverbs within process nominals. Within the set of assumptions outlined in section 3, adjectives and adverbs are phrases unspecified for syntactic category. When they are inserted in a verbal environment, i.e. when they are linked with functional projections such as Aspect and Voice they are spelled-out as adverbs; when they are inserted in a nominal environment, i.e. when they are linked with Number they are spelled-out as adjectives.

If this view is correct, then vP and AspP are functional projections which can combine further with both T and D (or Number if this a projection included within nominals universally cf. Ritter 1991), but not with both in the same extended projection. Effectively, a process nominal is a root that appears below Aspect and v in (6), but does not combine with Tense. In other words, process nominals are similar to non-tensed clauses.

The following facts suggest that indeed T is not present within process nominals (contra van Hout & Roeper 1998). First of all, it has been observed that there are no expletives within DPs (cf. Kayne 1984, Stowell 1981, and (15) below). On the assumption that expletives merge with TP, a non-thematic position, in order to eliminate T's EPP feature (cf. Chomsky 1995), their absence from DP contexts suggests that there are no phenomena sensitive to the EPP similar to the ones found in verbal clauses.<sup>8</sup>

- (15) \*there's arrival

Moreover, DPs contrast with verbal clauses in that no Raising takes place within the former (cf. (16); see Grimshaw 1990, Kayne 1984, de Wit 1997 among others). On the view that Raising involves DP movement from a lower Spec,TP to a higher one (cf. Chomsky 1995), we can account for the ungrammaticality of (16), if TP is not present in the higher clause:

<sup>8</sup> Abney (1987) has argued, on the basis of examples like (15), that Spec,DP is a thematic position in English.

- (16) \*Mary's appearance to have left

Furthermore, recall that no 'high' adverbs are present within process nominals, i.e. adverbs of the type that could attach to TP or to projections higher than TP (modals, certain temporals and so on). Finally, no verbal agreement morphemes are present inside process nominals. Agreement is nominal, something to be expected on the view that the AGR node that combines in the morphological component with D/Number is of a different type than the one combining with T.<sup>9</sup>

## 5. Morphological Nouns

I have been assuming that there are no categories such as verbs and nouns as such. Nevertheless, it is the case that *destruction* is a morphological noun, while *destroy* is a morphological verb. Following Halle and Marantz (1993), Embick (1998) and Harley & Noyer (1998), I assume that *destroy* is changed to *destruction* in the nominal context in a post-syntactic Readjustment component, as illustrated in (17) for Greek:

- (17) *katastrefo* -> *katastrofi*/ in the environment of D

The Readjustment Component performs a variety of functions including the partial modification of the phonological forms of stems.<sup>10</sup>

In the next section I show that process nominals are ergative constructions.

## 6. Process Nominals in N/A Languages are Ergative Constructions

It has been observed that in a number of N/A languages, process nominals are either 'passive' or derived from unaccusative predicates, but that they cannot be derived from transitive or unergative ones (cf. for Romance Bottari 1992, Picallo 1991, Zubizarreta 1987; for Greek Alexiadou & Stavrou 1998, Markantonatou 1992). As shown in (18), in Greek aspectual modification is possible with a passive nominal<sup>11</sup> (cf. 18a) and an unaccusative one (18b), but not with an unergative one (18c). In (18a) the agent is an adjunct preceded by a preposition:

- (18) a. *i katastrofi tis polis apo tus varvarus mesa se tris meres*  
 the destruction the city-gen by the barbarians within three days  
 'The destruction of the city by the barbarians within three days'  
 b. *i sinehis ptosi ton timon anisihi tus pandes*  
 the constant fall the prices-gen worries everybody-acc  
 'The constant fall of the prices worries everybody'

<sup>9</sup> Following Embick (1998), I assume that the presence of Agreement is storable as a property of roots in syntactic environments. On this view, the presence of verbal vs. nominal agreement is reduced to the properties of the functional head to which a particular AGR node is attached. Adopting the view that there are no AGR projections (Chomsky 1995), the presence of person/number vs. gender/case morphology is the result of attaching a bundle of phi-features, i.e. an AGR node, to the respective functional category, T or D, at the morphological component. In other words, AGR assignment crucially makes reference to the specific head involved.

<sup>10</sup> L may enter into a local relation with D if it is located under F<sup>0</sup>, which it reaches either via head to head movement or via Merger.

<sup>11</sup> In my discussion here I abstract away from the problems posed by English passive nominalizations, e.g. *the city's destruction*. I assume though that these are process nominals (contra Grimshaw 1990).



- c. \*to kolimpi tu Jani epi mia ora  
 the swimming the-John-gen for one hour  
 'John's swimming for an hour'

The agent PP has the same form as the one we find with verbal passives. This is illustrated below with an example from Greek (cf. (19) to (18a)).

- (19) i poli katastrafike apo tus varvarus  
 the city-nom destroyed-nact-3sg from the barbarians-acc  
 'The city was destroyed by the barbarians'

An interesting pattern arises with Greek nominals related to certain unaccusative verbs which participate in the causative/inchoative alternation and can form verbal passives, like the verb *alazo* 'change'. These give either intransitive or 'passive' nominals. Sometimes the nominal shows distinct forms for the 'passive' and the intransitive construction (cf. (20) vs. (21)), the passive one containing the infix *-m-*. But, sometimes a 'passive' nominal is possible, although the corresponding alternating verb does not passivize (cf. 22). Similar facts are reported for Hebrew (cf. Hazout 1990, Siloni 1997) and Russian (cf. Schoorlemmer 1998):

- (20) to alag-**m-a** ton ruhon (apo to Jani)  
 the change-pass-nom:neut the clothes-gen (from the John)  
 'the change of the clothes by John'
- (21) i alagi tis katastasis (\*apo to Jani)  
 the change-nom:fem the situation-gen (from John)  
 'The change of the situation (\*by John)'
- (22) a. o Janis halarose tis vides  
 'John loosened the screws'
- b. i vides halarosan  
 the screws loosened
- c. \*i vides **halarothikan**  
 the screws were loosened
- d. to **halaroma** tis vidas (apo to Jani)  
 the loosening the screw-gen (from the John)  
 'The loosening of the screw by John'

While omitting the PP-agent in (18a) is possible, omission of the object while retaining the subject in genitive is not compatible with maintaining a process interpretation. The single genitive DP within process nominals cannot be interpreted as being an Agent, it can only be interpreted as bearing the Theme theta-role, as is the case with the single DP within verbal passives and unaccusatives. This is illustrated in (23-24) for Greek. In (23) 'the police' cannot be understood as performing the action of capturing. On the other hand, in (24), where the nominal is pluralized and hence has only the result interpretation (cf. Grimshaw 1990), 'the capture' can be understood as belonging to the police, i.e. 'the police' have a possessor interpretation, as expected.

- (23) i silipsi tis astinomias  
 the capture the police-gen  
 'The capture of the police'
- (24) i silipsis tis astinomias  
 the captures the police-gen  
 'The police's captures'

The 'passive' or 'unaccusative' character of process nominals brings them close to E languages, at least as these have been treated by some researchers. For instance, Hale (1970) has argued that E languages involve purely passive structures, while Bok-Bennema (1991), and Nash (1995) argue for an unaccusative analysis of E languages.

Note that in general the agent cannot bear genitive case (cf. (25-26) and Horrocks & Stavrou 1987), i.e. it must be expressed as a PP:

- (25) \*i silipsi tu Jani tis astinomias  
 the capture the John-gen the police-gen  
 (26) \*tis astinomias i silipsi tu Jani

Similarly, in English, the presence of two *of*-phrases is ungrammatical, e.g. *\*the destruction of the city of the barbarians*. In Russian the presence of two genitives is also ruled out (cf. Schoorlemmer 1993, 1995 and references therein). The Agent must bear instrumental Case. A similar pattern is observed across Romance, where the presence of two *de*-phrases is ungrammatical under the process interpretation (cf. Bottari 1992; Picallo 1991, Zubizarreta 1987). This is illustrated below for Catalan but holds for French, Spanish and Italian as well. As (28) shows, the Agent must be a PP:<sup>12</sup>

- (27) \*l'afusellament de l'escamot d'en Ferrer Guardia  
 the execution of the squad of Ferrer Guardia  
 'the squad's execution of Ferrer Guardia'  
 (28) l'afusellament d'en Ferrer Guardia *per part* de l'escamot  
 the execution of Ferrer Guardia on part of the squad

As the above facts show, in nominalizations the following Case pattern is found: Theme arguments of *destruction* type nouns and subject Themes of intransitives-unaccusatives bear *genitive* case, while Agents of *destruction* type nouns are introduced by a preposition. As also noted in Bok-Bennema (1991) and Williams (1987), this pattern is actually strongly reminiscent of an ergative pattern, i.e. of a grammatical pattern in which the subject of an intransitive clause is treated in the same way as the object of a transitive clause, illustrated with Yup'ik examples in (29) and (30) (from Bok-Bennema 1991:2).

- (29) Arnaq yurar-tuq  
 woman-abs dance-ind-3sg  
 'The woman dances'  
 (30) Angutem tangrr-aa arnaq  
 man-erg see-ind, 3sg 3Sg woman-abs  
 'The man sees the woman'

The general pattern of the observed parallelism is summarized in (31) and will be dealt with in the next section.

<sup>12</sup> In footnote 5, we have seen that two *de*-phrases are licit within result nominals. This is impossible for process nominals which are necessarily passive, i.e. in Catalan the Agent is always expressed by an adjunct phrase introduced by *per part*. On the basis of this contrast, Picallo treated the distinction between result and process nominals on a par with the distinction between active and passive clauses. I deal with this issue in detail in Alexiadou (in progress). See Picallo (1991) and Siloni (1997) for references on this issue and further discussion.

(31)	N/A system	E/A system	Nominals in N/A
Agent Argument	NOM	ERG	PP
Theme (Subj of intransitives)	NOM	ABS	GEN
Theme (Obj of transitives)	ACC	ABS	GEN

## 7. Explaining the Parallelism

As discussed in the previous section, process nominals include Theme arguments, but lack DP Agents. That Theme arguments can be included in process nominals comes more or less for free if one assumes that Theme is the theta-role assigned to the DP which necessarily appears as the complement of the lexical root (cf. 6). However, at first sight there is no obvious way to block the presence of a DP Agent.

In the literature it has been argued that DP Agents are introduced by the functional head *v*/Voice (Chomsky 1995, Kratzer 1994), which is situated immediately above the projection containing the internal arguments of the verb. It has also been proposed that there are two types of light *v*s: a transitive/Cause light *v*, and an intransitive/Become one. It is the former only that combines with the external argument (cf. Harley 1995, Marantz 1997 and others). The latter is deficient, and does not combine with an external argument. This is taken to be included in the structure of unaccusatives.

- (32) (i) transitive *v* [+external argument] *v*1 = Cause  
 (ii) intransitive *v* [-external argument] *v*2 = Become/Happen

To account for the fact that process nominals are intransitive, I propose that the type of *v* found in those is the one that does not project an external argument, i.e. the one found in unaccusative structures.<sup>13</sup> This accounts for the intransitivity of process nominals. This also explains why process nominals are derived from unaccusative predicates but not from unergative ones, as the latter necessarily include (32i). On this view, process nominals include the structure depicted in (33), leaving the representation of the Agent PP aside for the moment:<sup>14,15</sup>

- (33) [<sub>AspP</sub> Asp° [<sub>v2P</sub> v2° [<sub>LP</sub> L° Theme]]]

Now in order for this pattern to be closely related to that of ergativity, two things need to be shown: first, that ergative languages have a deficient *v*, and second, that ergative case is not structural but rather lexical/prepositional much like the prepositional

<sup>13</sup> I assume that the *manner* component associated with *v* is active, even though *v* is deficient (contra Hale & Keyser 1993), so it can license manner adverbs.

<sup>14</sup> Russian permits process nominals derived from unaccusative predicates and, as Schoorlemmer points out, also from unergative predicates, i.e. the counterpart of 'her crawling over the floor in course of the whole evening worried me' is grammatical in Russian. From the text's perspective this means that Russian does not distinguish between unergatives and unaccusatives. Hence all nominals have structure (33), as is the case in ergative languages like Georgian, where subjects of both unergatives and unaccusatives surface with absolutive.

<sup>15</sup> Languages such as English permit transitive nominalizations, e.g. *John's destruction of the city*. For these, I assume, following Harley & Noyer (1998) that the Agent/Possessor is situated in SpecDP, i.e. it is not a type of Agent projected by *v*. Such orders are impossible in languages like Greek. The crosslinguistic distribution of transitive nominalizations seems to correlate with the status of SpecDP (A vs. A'). Thus, SpecDP has been argued to be an A-position in English (Abney 1987), but an A'-one in Greek (Horrocks & Stavrou 1987).

phrase introducing Agents within nominalizations. In fact both of these points have independently been argued for in the literature on E languages.

Thus, ergative Case is analysed as a *by* phrase in Hale (1970), a PP or a KP in Bittner (1994). According to Nash (1996) (see also Mahajan 1993, Woolford 1997 and references therein), ergative is not a structural case parallel to nominative. Rather it is a lexical case, parallel to dative. Moreover, Nash (1996) proposes that ergative languages differ from accusative languages in that the former lack vP, the structural position to host the transitive subject. I re-interpret this here as meaning that E languages include (32ii). Thus, Agents in ergative languages are not thematically projected as specifiers of 'light' v. Bringing Nash's analysis together with my analysis of process nominals, (33) constitutes common 'low' structure for both process nominals and E languages.

Two further related issues need to be dealt with. The first one has to do with the status of the genitive on the Theme argument within process nominals, i.e. whether this is structural or inherent. The second has to do with the status of the *by*-phrase.

In the recent literature (see Kratzer 1994, Chomsky 1995 and others) light v is assumed to perform the two requirements of Burzio's generalization: it introduces the external argument and licenses accusative case. Both in process nominals and E languages, as no external argument is projected, no accusative case can be assigned to the Theme argument.<sup>16</sup> Nash (1996) argues that absolutive is a case related to T, much like nominative. Irrespectively of whether this is the right way for looking at absolutive, given that T is lacking from process nominals, there is no source for nominative Case for the Theme argument in these constructions.

We know that when the lexical roots found in nominalizations appear as verbs they do not assign inherent case. Since inherent case is attached, or must be seen as attached to certain roots, and since there is no category distinction between those categories assigning structural and those assigning inherent case, genitive case is not inherent. Thus, it is structural. On this view, the genitive in nominalizations patterns like absolutive case in E languages in the sense that, like absolutive, it is a structural Case.<sup>17</sup>

Following Marantz (1991), I view structural Case as being part of the clause as a whole, i.e. the morphological spell-out of the Case of specific DPs is dependent on the whole architecture of the clause. In the nominal domain Case is spelled-out as genitive. To make this compatible with checking theory, I propose that genitive, like absolutive, is a mandatory Case in the sense of Harley (1995). On this view, if one Case feature is checked structurally in a clause it is realised as nominative/absolutive in a verbal clause *and genitive in a nominal clause*. In a multiple-Case clause in N/A languages the

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<sup>16</sup> I assume that no PRO is present in Spec,vP (contra van Hout & Roeper 1998). The standard argument in favor of the presence of PRO is the fact that nominals, like passives, allow control into an infinitival purpose clause:

(i) the translation of the book to make it available to a wider readership

However, Lasnik (1988) and Williams (1985) argue that the controller in such cases is the event denoted by the clause or the nominal, rather than an implicit argument of the noun, as proposed in Roeper (1987). I interpret this view as suggesting that the controller in these cases has its source in the type of v included in nominalizations and passives, i.e. the Become/Happen type of v.

<sup>17</sup> In this sense, English *of* is an absolutive marker (Williams 1987).

mandatory Case is assigned in the top functional projection, i.e. T.<sup>18</sup> Case features in a single Case clause can be associated either with the top or with a lower functional projection, depending on how Case interacts with the EPP.<sup>19</sup> Given that both process nominals and ergative 'transitive' clauses are actually single case clauses, and the case features can be associated with a low functional projection, and the EPP does not play a role for nominals, the projection that could come into question in both environments for genitive/absolutive checking is *AspP* (cf. Laka 1993 for E languages).<sup>20</sup>

Turning to the *by*-phrase, it has been observed that the nominal *by* phrase receives a more restricted interpretation than the one found with verbal passives (originally noted in Hornstein 1977; cf. Fox & Grodzinsky (F&G) 1998, Grimshaw 1990 among others). For instance, the object of the *by* phrase cannot be a recipient (cf. (34) vs. (35)). F&G conclude that it can only be the affector, i.e. the entity directly affecting the theme.

- (34) the imprisonment of refugees by the government  
 (35) a. \*the receipt of the package by John  
       b. The package was received by John

It has further been argued that in nominalizations, the *by* phrase does not receive a theta-role via theta-transmission (see F&G 1998 and Lasnik 1988 among others). This conclusion is supported by the fact that predicates that do **not** passivize **can** include *by*-phrases in the corresponding nominal, as discussed above (cf. 22).

It seems that in nominalizations the *by*-phrase behaves like an independent phrase that creates a specific semantic relation depending on the presence of an affected internal theme, i.e. it is marked semantically (and morphologically) for its function. In this respect, the *by*-phrase is parallel to ergative case, which is a lexical/prepositional case (cf. above) as is also suggested in Williams (1987). I propose that lexically marked Agents are part of the same sub-event that affects the internal theme. Following Marantz (1993), such arguments can be structurally represented as belonging to the same lexical

<sup>18</sup> This view differs from the proposal in Bobaljik (1993) and Laka (1993) about the existence of a *Case Parameter* in that it discriminates the 'active' projection for case only when there are multiple structural cases that need to be checked. The Case Parameter is stated as follows:  $C_x$  must be assigned: Depending on which projection is active; (i) Case X = Nominative  $\rightarrow$  AgrS  $\rightarrow$  Nominative System or (ii) Case X = Absolutive  $\rightarrow$  AgrO  $\rightarrow$  Ergative System.

<sup>19</sup> In a N/A system the EPP would force movement of the single argument to T. Then, nominative Case and the EPP are both associated with the same projection and are checked by the same DP.

<sup>20</sup> Alternatively, one could argue that genitive is related with Number (cf. Rouveret 1994). Note that the text's proposal actually suggests that Aspect is a possible case checking position carrying non-accusative case features. This brings the case patterns in E languages close to the DAT-NOM constructions in Icelandic, as is independently argued for in Woolford (1997), and relates to recent analyses of person splits in E languages. Specifically for Icelandic, Harley (1995), and Sigurðsson (1996) argue that the nominative in DAT-NOM constructions is associated with a functional projection lower than T. Moreover, Davis (1998) argues that third person subjects in E languages with person splits, i.e. the ones showing an E case system occupy a position lower than T, namely Aspect. One can unify these proposals by suggesting that both DPs, i.e. the nominative argument in Icelandic and the absolutive subject in E languages are associated with AspectP. In both cases, the EPP is checked by movement of the dative/ergative phrase to the top projection. Nominative Case and EPP are associated with different projections (Aspect and T respectively) and are checked by different phrases (the nominative/absolutive and the dative/ergative respectively).

An issue arises with the genitive within result nominals. As in most of the cases this is a possessor, and hence not an internal Theme, I assume, following Fillmore (1968) among others, that it is actually a PP. The problem the facts in footnote 5 pose is discussed in Alexiadou (in progress).

projection, i.e. specifier and complement of LP. There are two possible configurations in which this relation can be represented, illustrated in (36a&b):<sup>21</sup>

- (36) a. [LP DP [L' L° PP]]                      b. [LP PP [L' L DP]]

(36a) is very close to the proposal in Marantz (1984) that E languages differ from N/A languages in that in the former the projection of the arguments at D-structure is the reverse of that in the latter.<sup>22</sup> (36b), on the other hand, is similar to the structure proposed in Nash (1996) for 'transitive' clauses in E languages, depicted in (37):<sup>23</sup>

- (37) [VP Agent [v V Theme ]]

Both (36a&b) bring 'passive' nominals close to the structures of inalienable possession, partitives or instrumentals (cf. Marantz 1993) and express the intuition that the *affected Theme* and the *affector* are part of the same sub-event. These structures reflect a different relation between the two arguments, as opposed to structures where Agents are introduced by v.<sup>24</sup> In these environments Agents are *effectors/initiators/instruments*, which could perhaps be seen as the mirror image of the notion of *affected theme*. Thus, if this analysis is on the right track, it is only in nominalizations and E languages that agents are real internal arguments.

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<sup>21</sup> In a sense, the structures reflect Williams' (1981) view that nominalization involves internalization of the external argument.

<sup>22</sup> It is also similar to Pesetsky's (1995) representation of the Causer argument.

<sup>23</sup> As pointed out to me by M. Baker, perhaps the right generalization is that the ergative argument is similar to the possessor Agent in English transitive nominalizations, e.g. *John's destruction of the city* (cf. Johns 1992). On this view, ergative Agents and Possessors are real high-external arguments introduced by a functional projection other than v. This might be true for some (constructions in) E languages. However, it seems to me that for some others the analysis proposed in Nash (1996) could still be maintained. This hypothesis is investigated in detail in Alexiadou (in progress).

<sup>24</sup> This perhaps derives the ergative generalization (*No ergative-case on a non-thematic subject* cf. Marantz 1991) without resorting to a morphological explanation.

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