THE VERBAL PROPERTIES OF PSYCH NOMINALIZATIONS IN ENGLISH

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Abstract. The paper examines the verbal properties of psych nominalizations with a process reading in English. We start from recent research on the verbal character of non-psych transitive nominalizations (Fu, Roeper and Borer 2001) and we argue that psych nominalizations derived from agentive uses of Object Experiencer verbs allow the occurrence of adverbial phrases and the *do so* anaphor in their structure, and therefore contain a vP-node.

This paper investigates the verbal properties of psych nominalizations with a process reading in English. These properties correlate with the traditional distinction between event/ process and result nominals.

Recent accounts of the verbal character of nominalizations have brought to light a type of evidence, which has not been discussed previously - the occurrence of adverbial phrases and the distribution of the *do so* anaphor in nominalizations.

Our proposal is that psych nominals derived from agentive uses of Object Experiencer verbs can have a process reading and that their nominalized structure contains a vP.

The paper is organized as follows: first we give an overview of the research on the verbal character of nominalizations with a verbal base in English, then we examine the verbal properties of a special class of nominals, those derived from psych verbs, to see to what extent they behave like the non-psych nominals.

1. Theoretical background

The presence of adverbs in a nominal construction is a reasonably reliable indicator of verbal structure. Adverbs in the argument structure nominals are reported in Greek by Alexiadou (1999), in English by Fu, Roeper and Borer (2001) and in Hebrew by Borer (1999) who shows that they co-occur with adjectives and determiners.

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1.1. The distribution of adverbs

Fu, Roeper and Borer (2001) believe that there is empirical evidence that crucially supports the syntactic approach to nominalizations. This evidence is connected to the distribution of adverbs and *do so* in English process nominals and proves that these nominals involve a syntactic VP projection headed by the stem verb. They compare the argument-structure nominal (hence abbreviated as AS-nominals) *description* (1a) with its near synonym underived nominals *version* or *story* (1b):

1)

a. His description of the accident unbiasedly did not help him.
b. *His version/ story of the accident unbiasedly did not help him.
(His unbiased version of the accident)

A particularly interesting contrast is the one between an AS-nominal and an underived event nominal (a simple event nominal, in Grimshaw's (1990) terms). The impossiblity of adverbs with other simple event nominals is illustrated in Borer's (1999:15) examples (84) given below:

2)

His transformation into a werewolf so rapidly was unnerving.
*His metamorphosis into a werewolf so rapidly was unnerving.
*The race to the mountains deliberately…
*His trip to Hawaii secretly…

If adverbs are one of the prime indicators of verbal structure, it must be concluded that there is verbal structure within AS-nominals. No such structure is present for the underived nouns *version* and *story* in (1b). The relative acceptability of (2) can be compared with the ungrammaticality of:

3)

*His explanation of the problem fortunately to the tenants did not cause a riot.
*His removal of the evidence presumably promised a lengthy trial.

The position of adverbs in English, as well as the position of aspectual modifiers can serve as an argument for constituent structure within AS-nominals. Thus consider the possible positions of adverbs in (4a) and aspectual modifiers in (4b) within AS-nominals:

4)

a. His removal of the evidence deliberately (resulted in obscuring the case).
b. The enemy's destruction of the city from early spring to late fall

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c. The arrival of the trains promptly at the station
d. The arrival of the trains at the station promptly

The distribution of adverbs is distinct from that of adjectives, including those with equivalent interpretation:

5)

His deliberate removal of the evidence (resulted in obscuring the case).
The prompt arrival of the trains at the station

Adjectives and adverbs have complementary syntactic positions. Typically, it is assumed that adjectives are either adjuncts or alternatively, they occupy specialized functional specifiers (cf. Valois, 1991).

Similar structural assumptions are made for the structure of adverbs which are either adjoined or occupy a specialized functional specifier (cf. Cinque 1998). Adverbs are typically divided into two major groups: sentential adverbs and VP adverbs. While the former presumably merge with some sentence-level node, the latter are typically assumed to merge considerably lower. Sentential adverbs cannot occur in AS-nominals. It is precisely the availability of VP adverbs and the non-availability of sentential adverbs in AS-nominals that suggest that they must have some verbal structure. Any account for the impossibility of sentential adverbs must be based on the assumption that they are barred in AS-nominals due to the absence of the relevant licensing structure (IP, TP, CP, ..).

1.2. The VP anaphor do so

It is known that *do so* is a VP, or an extended projection including a VP which may include adjuncts. One of the more interesting aspects of the occurrences of *do so* is that they clearly are not themselves AS-nominals: it is a gerund (itself a VP or part of a VP extended projection, such as *having done so*, or *to do so*):

6)

His destruction of the documents this morning was preceded by Bill's doing so.
His removal of the garbage in the morning and Sam's doing so in the afternoon was surprising.

Being a VP anaphor *do so* can only take an antecedent which is of the same type, this means that the nominal phrase licensing it has a VP structure. Furthermore,

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result nominals (abbreviated as R-nominals) and simple event nominals cannot co-occur with *do so*:

7)

*The version of the accident and my doing so surprised no one.
*John's collection and my doing so…

Note that the R-nominal *collection* is a simple event nominal. Most strikingly, consider the ungrammaticality of (8), which refers to an event, in which both arguments are provided, but an AS-nominal derivation is not available and neither is *do so*:

8)

* John's self-destruction took many years, but my doing so took only several months.

The following examples are given as independent evidence showing that *self-V-tion* is not an AS-nominal:

9)

* The country's self-destruction in seven years was upsetting.
* This country's constant self-destruction is getting on my nerves.
* The prisoner's self-mutilation in order to fool the guards did not succeed.

In contrast the equivalent construction with an internal argument in postnominal position is all right and displays all the properties of AS-nominals: it allows aspectual adverbs (10a), agent-oriented modifiers (10b) and subject-control in purpose infinitival clauses (10c):

10)

a. The country's destruction of itself in seven years was upsetting.
b. The country's constant destruction of itself is getting on my nerves.
c. The prisoner's mutilation of himself in order to fool the guards did not succeed.

Process nominals present evidence for the existence of a verbal domain, which allows for the occurrence of adverbs and of the VP-anaphor *do so*. We will look for similar evidence related to process psych nominals in English.

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2. Psych nominalizations

According to Marantz (1997), whenever a root denotes an externally caused event, the specifier of D can be interpreted as an external causer (agent). The genitive DPs in nominals are not true external arguments but rather quasi-possessors semantically licensed by the root that has an external cause as part of its lexical entailments.

In the case of psych predicates the external causer is recoverable from psych roots such as √*intimidate*, √*entertain*, √*perturb*, i.e. an Agent is understood to deliberately cause an emotion in the Experiencer. Testing agentivity is not possible with all psych nominals because most of them do not take an Agent in subject position. But with some of them, i.e. with nominals related to agentive ObjExp verbs, the presence of agent-oriented modifiers like *deliberate/intentional* forces an agentive reading of the possessive subject.

The presence of an Agent in the subject position is also indicated by the control properties. Infinitival clauses of purpose attached to the psych nominalization are acceptable although not frequently used:

11)

The policeman's intimidation of the prisoner (in order) to make him confess made the headlines.
The performer's entertainment of the soldiers (in order) to raise their morale was welcome.
The leaders' perturbation of the unions to persuade them to go onstrike grabbed the headlines.

In these examples the possessive Subject of the nominalization controls the reference of the subject of the infinitive, which proves that the Subject of the nominalization bears the theta-role of Agent and the nominal has a process interpretation. The same agentive interpretation is preserved when the psych nominal occurs without an overt possessive Subject:

12)

The intimidation of the prisoner to make him confess made the headlines.
The entertainment of the soldiers to raise their morale was unexpected.

In subjectless nominalizations the Experiencer argument cannot appear in the subject/ Possessor position when there is a control clause; the controlling PRO Agent blocks this movement:

13)

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*The prisoner's intimidation to make him confess made the headlines.
*The soldiers' entertainment to raise their morale was unexpected.

Such nominalizations bear a close resemblance to their underlying VPs. They have an Agent which is projected into the possessor position and which serves as a controller to a lower PRO. If the possessor position is filled by the Experiencer than control is blocked.

2.1. Adverbial modification

The types of VP-adverbs that are acceptable within process nominals are: manner adverbs, aspectual adverbs, temporal and place adverbs.

Deverbal psych nominals with a full argument structure can take manner adverbs:

14)

The guest publicly humiliated the ambassador.
The guest's humiliation of the ambassador publicly was unexpected.

In contrast non-derived ones (*fury, rage, indignation, rapture,* etc.) in (15) and nominals with a partially realised argument structure, i.e. result nominals as in (16) cannot be modified by adverbs of manner:

15)

*The guest's fury/ rage publicly upset the hosts.

16)

*The guest's humiliation publicly was unexpected.
*The ambassador's humiliation publicly was unexpected.

When modifiers appear postnominally, they are adverbs as in (17a) below, but when modifiers appear pronominally, they are adjectives as in (17b):

17)

a. The lawyer intimidated the witness cunningly.
the lawyer's intimidation of the witness cunningly

The guest humiliated the ambassador publicly.
the guest's humiliation of the ambassador publicly

b.*his cunningly intimidation of the witness
the cunning intimidation of the witness

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*his publicly humiliation of the ambassador
his public humiliation of the ambassador

Adverbs that carry object-orientation are licensed postnominally in (18a), but not as prenominal adjectives in (18b):

18)

a. The entertainment of the soldiers individually
The intimidation of the prisoners separately
The vexation of the MPs individually

b. *the individual entertainment of the soldiers
*the separate intimidation of the prisoners
*the individual vexation of the prisoners

Rarely can adverbs precede the complements of the noun as in (19a). It seems that only adverbs which appear in positions following the complements can be modified by intensifiers like *very*:

19)

a. ? The lawyer's intimidation very cunningly of the witness
b. ? The lawyer's intimidation of the witness very cunningly

The distribution of adverbs evaluating emotional states: *cruelly*, *insensitively*, *bitterly*, *disagreeably*, *painfully*, *sadly*, *shamelessly*, etc. indicates verb movement over VP-adjoining adverbs in nominalizations:

20)

The lawyer intimidated the witness so insensitively.

The intimidation of the witness so insensitively
The intimidation so insensitively of the witness.

Adjectives and adverbs may co-occur in nominalizations and they can swap positions freely:

21)

The public humiliation of the ambassador deliberately
The deliberate humiliation of the ambassador publicly

The presence of adverbs and adjectives in the same process nominal suggests that process nominals must be analysed as containing both a nominal and a verbal structure.

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Time and place adverbs may co-occur in process psych nominalizations just as they do in the clausal paraphrases:

22)

The intimidation of the protesters earlier in the street…
The perturbation of the unions last week in the lower Rhine valley…
The entertainment of the soldiers at the officers' club every evening…

In contrast, temporal modifiers in the possessive phrase (*yesterday's, today's, last week's*) do not co-occur with process psych nominals but only with non-argument-taking nominals because these phrases do not convey information about any argument position in the argument structure of the verbal base:

23)

The failure of their attempt was yesterday's disappointment.
The result of the competition was last week's surprise.

The presence of temporal adverbs in a process psych nominalization is an indication of VP structure.

Process psych nominals admit the same aspectual modifiers *in an hour, for two hours* as their verbal counterparts, a property mentioned by Grimshaw (1990: 58) for transitive nominalizations:

24)

They entertained the audience for two hours.
The entertainment of the audience for two hours proved to be a difficult job.
The new income policy perturbed the unions for three months.
The perturbation of the unions for three months brought them on the verge of an open conflict with the government.

Since these three classes of adverbs signal the presence of a VP, it can be concluded that there is a verbal structure within process nominals. No such structure is present in the underived nouns and in the result nominals.

However, while VP-adverbs are allowed in nominalizations, speaker-oriented or sentential adverbs such as *presumably, unfortunately, probably* are not, as shown in (25a). Nominals allow only the occurrence of the adjectives corresponding to the sentential adverbs, as illustrated in (25b):

25)

a. The guards presumably intimidated the journalists.
The intimidation of the journalists presumably was to be blamed.

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The guest unfortunately humiliated the ambassador.
*The humiliation of the ambassador unfortunately made them regret being there.

The performer probably entertained the guests.
*The entertainment of the guests probably could not alter his plans.

b. The presumable intimidation of the journalists was to be blamed.
The unfortunate humiliation of the ambassador made them regret being there.
The probable entertainment of the guests could not alter his plans.

The fact that sentential adverbs are not allowed in the structure of nominalizations is indicative of the absence of a full sentential structure within nominals.

To conclude, the absence of the sentential adverbs vs. the presence of VP/aspect, manner, place and time adverbs and the possibility of generating prenominal adjectives suggest that only part of the VP extended projection is projected, barring specifically TP (or IP).

2.2. The DO SO-test.

A second test suggested in Fu, Roeper and Borer (2001) works well with process psych nominals. The auxiliary *do so* is a substitute of VP. In a clausal structure *do so* needs a VP antecedent. If evidence is brought that *do so* is able to occur in a nominalization, than this will indicate that the nominal contains a VP projection, as well:

26)

a. The inspector' s intimidation of the prisoner was preceded by the policeman's doing so.

The leader's perturbation of the unions last week and the government's doing so this week was unexpected.

The comedian's entertainment of the soldiers and then the singer's doing so marked a change of spirit.

b. The inspector's intimidation of the prisoner was preceded by the policeman's doing so too.

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The leader's perturbation of the unions last week and
the government's doing so too this week was unexpected.

Not only can *doing so* take a process nominal as its antecedent, but more importantly it cannot take an underived noun (27a) or a derived result noun as its antecedent (27b) :

27)

a. *The man's rage against the criminal and the policeman's doing so made the headlines.
b. *The comedian's entertainment and the singer's doing so marked a change of spirit.

While *do so* is a VP constituent, *do* is dominated by the Tense node, outside VP. *Do* cannot appear in nominalised forms:

28)

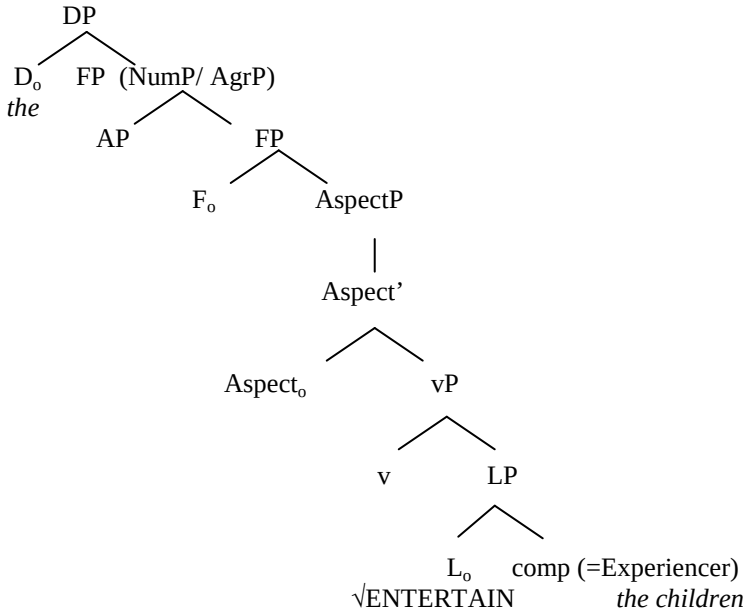
*The inspector's intimidation of the prisoner was preceded by the policeman's doing too.
*The leader's perturbation of the unions last week and the government's doing too this week was unexpected.

Given that *do so* is dominated by VP and *do* is dominated by T, the impossibility to nominalize the latter supports the conclusion that the nominalized constituent does not contain TP (IP). The distribution of *do so* is identical to that of adverbs: it occurs with VPs and in process nominals derived from verbs, but nowhere else.

The structure of process psych nominals. It has been shown that adverbial modification is allowed in process psych nominals but not in result or underived psych nominals. Furthermore a process psych nominal, just like a transitive nominal, can function as an antecedent for the VP anaphor *do so*. The evidence presented so far argues for the presence of an AspP and a vP inside process psych nominals as well, which thus qualify for a syntactic representation in terms of Alexiadou (1999). The relevant structure adopted for process psych nominals is:

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29)



Effectively, a process psych nominal is a root that appears below Aspect and takes an Experiencer complement.

3. Conclusions

In this paper we have turned out attention to the verbal properties of process psych nominals in English. Evidence has been brought from the distribution of adverbs and the presence of the verbal anaphor *do so* that these psych nominals can have a process interpretation and as such they contain a VP-node.

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