Direct participation effects in derived nominals[*]

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1. Introduction

Previous literature has noted that the realization of external arguments in derived nominals is often restricted by comparison to the verbal domain (see Grimshaw 1990, Pesetsky 1995, Marantz 1997, Harley & Noyer 2000, Sichel 2010, 2011). In the English examples below, causers or natural forces are ruled out (1b), although the corresponding verbal forms allow them (1a). Human agents, on the other hand, are good in both verbal and nominal contexts (1a, c).

(1) a. **The war/the teacher** separated Jim and Tammy Fay
     b. #The separation of Jim and Tammy Fay **by the war**
     c. The separation of Jim and Tammy Fay **by the teacher**

Although this was initially described as an *agent exclusivity effect*, Sichel (2010, 2011) argues that the restriction is actually in terms of *direct participation*: verbal forms allow both direct and indirect participants as external arguments, but derived nominals only allow direct participants, that is, the external argument has to be co-temporal and co-spatial with the unfolding of the event. While human agents can easily be construed as direct participants, causers often cannot. Crucially, however, causers sometimes do qualify as direct participants and show up as external arguments of nominals (cf. Folli & Harley's (2008) *teleological capability*). Following Sichel, we call this the *direct participation effect*.

In this paper, we show that Sichel's (2011) proposal, by which this restriction is related to the size of events that fit into derived nominals, encounters serious problems and cannot account for the whole spectrum of restrictions that we find with external arguments cross-linguistically. To present here one argument, not only don't we find the effect in all nominalizations across languages, but we sometimes even find it in the verbal/sentential domain, which in Sichel's account would amount to claiming that in some languages the same event is simple in one verbal construction and complex in another one.

The paper is organized as follows. In Section 2 we discuss the direct participation effect in English. Section 3 presents the lexical-semantic account based on event complexity proposed in Sichel (2010, 2011). In Section 4 we discuss some aspects of English nominalizations that make Sichel's account

problematic. In Section 5, we provide a cross-linguistic landscape of the distribution of the direct participation effect. We show that one has to differentiate between a direct participation effect and an agent exclusivity effect. Next, we show that neither of the two effects is strongly correlated to the nominal vs. verbal contrast: on the one hand, we find languages where the syntactically least verbal nominalization does not show any such restriction on the external argument and, on the other hand, we find languages where even verbal/sentential constructions such as passive and active clauses show a restriction. In section 6, we conclude and sketch the lines of a proposal that we think could account for this variation.

2. Direct and indirect participants in English nominals

English nominalizations are known to be morpho-syntactically deficient by comparison to their verbal sources. For instance, they do not allow ECM, double objects, and particle shift (Kayne 1984, Abney 1987), that is, constructions that have been argued to require a VP shell structure (Larson 1988, Harley & Noyer 1998). As the examples (2-5) show, the effects hold for both derived nominals and *ing-of* gerunds, but not for verbal gerunds.

(2)   a. *John's belief / believing of [Bill to be Caesar]   ECM
        b. John's believing [Bill to be Caesar]

(3)   a. *John's gift / rental /giving (of) Mary of a Fiat   *Double objects*
        b. John's giving / renting Mary a fiat

(4)   a. *John's persuasion/persuading of Mary [PRO to stay] *Object Control*
        b. John's persuading Mary [PRO to stay]

(5)   a. *John's explanation (away) of the problem (away)   *Particle-Shift*
        b. John's explaining (away) of the problem *(away)
        c. John's explaining (away) the problem (away)

However, the restriction on external arguments that we investigate here cannot be related to these morpho-syntactic deficiencies. While these deficiencies hold for both derived nominals and *ing-of* gerunds, only the former restrict their external arguments; *ing-of* (as well as verbal) gerunds allow the same set of external arguments as their verbal base form (6a-c).

(6)   a. **The boss/The inflation** shrinks his salary
        b. ?the shrinking of his salary **by the inflation/by the boss**
        c. #the shrinkage of his salary **by the inflation/by the boss**

The data in (1) and (6) might suggest that nominalizations do not allow (non-agentive) causers as external arguments, but Sichel (2010, 2011) shows that the relevant constraint does not amount to a strict agent exclusivity effect. This is

illustrated by the data in (7-9) (see Sichel's work for more examples), where the accomplishment verbs underlying the nominalizations allow both agents and (direct) causers as external arguments. While clear-cut agents are indeed always possible in derived nominalizations (e.g. 9d-e), natural forces are sometimes good (7b-c) and sometimes bad (8b-c, 9b-c). We follow Sichel in using the #-sign to express that the choice of an external argument makes the nominalization deviant. As the examples show, pre-nominal genitives and *by*-phrases exhibit the same thematic restriction. However, we will focus below on the distribution of *by*-phrases, as the other languages we will discuss don't permit transitive nominals with pre-nominal genitives for independent reasons.

(7)   a. The hurricane destroyed our crops
        b. The hurricane's destruction of our crops
        c. The destruction of our crops by the hurricane

(8)   a. The hurricane justified the abrupt evacuation of the people
        b. #The hurricane's justification of the abrupt evacuation of the people
        c. #The justification of the evacuation of the people by the hurricane
        d. The authorities justified the abrupt evacuation of the people
        e. The authorities' justification of the abrupt evacuation of the people
        f. The justification of the evacuation of the people by the authorities

(9)   a. The results / the expert verified the initial diagnosis
        b. #The results' verification of the initial diagnosis
        c. #The verification of the initial diagnosis by the results
        d. The expert's verification of the initial diagnosis
        e. The verification of the initial diagnosis by the expert

Sichel observes that non-human causers are compatible with derived nominals only if they can be construed as direct participants, i.e. forces which directly bring about the event. This is the case in (7), where the hurricane is the force that *directly* brings about the destruction of the city, but not in (8) and (9). Although in (8) the hurricane is understood as a participant in justifying the evacuation and as such can occur as the subject of the verb 'justify', it is not a direct participant, because the act of justification always involves a human as its most direct participant. Similarly, in (9) the results represent a participant in the process of verification, but such a process implies an agent as its most direct participant.

Direct participation seems to depend on both the specific event denoted by the nominal and some property inherent to the entity denoted by the external argument (*teleological capability*, Folli & Harley 2008). A hurricane's inherent force allows it to be understood as a direct participant in a destruction event, but a hurricane has no (mental) inherent property which can make it a direct participant in a justification event. Human agents, on the other hand, typically qualify as direct participants due to their inherent properties intentionality and volition.

3. An explanation in terms of event complexity

To account for the difference between nominalizations and *ing-of* gerunds concerning the direct participation effect, Sichel (2010, 2011) proposes the following: derived nominals of accomplishment verbs do not inherit the event structure of their source verb. While accomplishments are complex events (Grimshaw 1990), their derived nominals denote simple events and, as such, require direct participation of the external argument which must be co-temporal and in some sense co-spatial with the unfolding event (see below). *Ing-of* gerunds denote the same complex events as their underlying accomplishment verbs and as a consequence do not require co-temporal direct participants.

The restriction to direct participation for the external argument is derived from a general restriction to simple events. In order to participate in the simple event denoted by the nominalization, the event associated with the external argument (the causing event) has to identify with the simple event. The following restrictions hold on event identification:

(10) **Conditions on event identification**
      (Levin & Rappaport Hovav 1999, 2002, Rappaport Hovav & Levin 2001)
      I. The sub-events must have the same location and are necessarily
          temporally dependent.
      II. One sub-event must have a property that serves to measure out that
          sub-event in time; this property is predicated of an entity that is
          necessarily a participant in both sub-events. This ensures temporal
          dependence.

These restrictions were originally formulated to account for the difference between bare XP resultatives and lexical causatives (as well as NP-XP resultatives). Bare XP resultatives as in (11) denote simple events in that the activity described by the verb is co-temporal with progress towards the achievement of the result and the sole argument is shared by both sub-events. These simple events derive from the identification of the verbal process with the coming about of the result expressed by the XP following the verb. English lexical causatives as in (12), on the other hand, denote complex events, since the two sub-eventualities (process and result) can be temporally distinct.

(11) a. Carey ran/waltzed out of the room
      b. The clothes steamed dry
      c. The kettle boiled dry

(12) a. Casey's piano playing woke the baby
      b. Terry shocked Sandy by deciding to run for office
      c. The widow murdered the old man by putting poison in his soup

The difference between nominalizations and *ing-of* gerunds could be understood in a similar way, just that this time the causing event associated with the external argument and the (allegedly) simple event denoted by the nominalization have to identify. The two events have to be co-temporal and the argument shared by these sub-events is the external argument. The good and bad nominalizations in (7-9) above, she argues, can be understood in the same way as the contrasts in (13a-c): The agent subject *the teacher* in (13a) can be understood as a direct participant which takes part in the causing sub-event and in the event of separation; the two events are co-temporal and can identify. The event expressed by the causer subject *the war* in (13b), on the other hand, is understood as a non-co-temporal cause of the separation process and event identification fails. In (13c), on the other hand, the same causer subject is understood as co-temporal with the destabilization process.

(13) a. The separation of Jim and Tammy Fay by the teacher
     b #The separation of Jim and Tammy Fay by the war
     c. The de-stabilization of the economy by the war

Sichel concludes that the relation between the event associated with the external argument and the event denoted by the derived nominal is subject to the condition in (14a) and its corollary in (14b):

(14) a. If a simple event includes an external argument, the participation of the argument is co-temporal with the initiation of the event.
     b. Corollary: when the participation of the external argument is not co-temporal the event is a complex event.

4. Problems for an account in terms of event complexity

Sichel does not offer an explicit syntax-event structure mapping and phrases her account in the framework of Rappaport Hovav & Levin (1999). From this perspective, unlike their verbal source, derived nominals of accomplishment verbs have a simple event structure, e.g. [x ACT $_{<MANNER>}$]. By contrast, *ing-of* gerunds maintain the complex event structure of the verb, e.g. [[x ACT] CAUSE [BECOME [y *<RES-STATE>*]]]. In syntactic accounts of event structure such as e.g. Ramchand (2008) and Harley (2011), the former have the structure of activities, i.e. lack a Result State component and simply contain a Process/v head, while the latter contain such a component [v + ResultP], as in ((15a) vs. (15b)):

(15) a. [ProcessP/vP]
     b. [ProcessP/vP [ResultP]]

However, the morpho-syntactic composition of English nominals does not seem to match the semantic interpretation attributed to them in most of the cases.

Following Harley (2011), e.g. *justify* in (8) contains the verbalizing affix *-ify*. This combines with the verbal root that realizes a semi-compositional result head (16).

(16)
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          vP
         /  \
        /    \
       v     ResultP
      ify     just
```
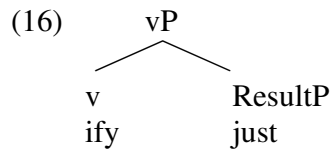
Similar observations hold for many of the other verbs discussed in Sichel's work (e.g., *unify*, *separate*, *verify*, *destabilize*, *devastate*), which according to this view always host complex events.

Furthermore, derived nominals permit *re*-prefixation as shown in (17). Crucially, however, it has been argued in the literature that *re-* only has a restitutive interpretation which means that it attaches to accomplishments, and requires a result state (Wechsler 1990, Marantz 2009).

(17) a. The re-verification of the diagnosis
      b. A re-justification of former notations

Finally, while Sichel clearly shows that the causing event associated with the external argument has to identify with the process event denoted by the derived nominal, she does not show how the two sub-events denoted by the underlying accomplishment verb (process and result) identify in derived nominals. Sichel's proposal suggests that, independently of the choice of the external argument, the event denoted by an accomplishment verb substantially differs from the event denoted by the nominal derived from that accomplishment. Accomplishments are made up of two sub-events, a process-event and an unfolding result. Crucially, these two sub-events are not necessarily co-temporal and, therefore, cannot be identified. Levin & Rappaport (1999: 32) show this with the following example, where "by putting arsenic in his coffee" modifies the process sub-event contributed by *murder*. As they note, in (18) "the putting of arsenic in the coffee certainly does not extend to the point of death, and the dying does not start when arsenic is put in the coffee", so the two sub-events do not identify.

(18) The widow murdered the old man by putting arsenic in his coffee

The proposal that derived nominals can only contain simple events, i.e., events where the process and the result are co-temporal and thus undergo event identification, suggests that examples like (18) cannot be transformed into derived nominals. This is obviously disconfirmed by (19): for the nominal *assassination*

the process and the result do not have to be co-temporal, just like in its verbal source *assassinate*, the closest synonym of *murder* that forms a derived nominal.[2]

(19) a. John assassinated the president by putting arsenic in his coffee
      b. The assassination of the president by putting arsenic in his coffee

In conclusion, while direct participation indeed plays a role in the realization of the external argument in derived nominals and can be captured by assuming that the event associated with the external argument has to identify with the event expressed by the verb, it cannot be that the aspectual event decomposition of a verb shifts from an accomplishment to a process in the derived nominal. The next section presents a more detailed study of the cross-linguistic distribution of the direct participation effect, which turns out to be too diverse to be captured by a general theoretical principle like Sichel's account in terms of event complexity.

5. Nominalizations and verbal Voice across languages

5.1 The direct participation effect in nominals
While the morpho-syntactic restrictions on nominalizations in (2-5) and the direct participation effect found with *-ation* nominals cannot have the very same explanation, on Sichel's account both effects seem to be connected to the intuition that nominalizations are less verbal than the verbs they are derived from. One way to look at this is to say that the nominalizations contain less verbal projections than their base verbs. Some of the missing projections would then be responsible for the morpho-syntactic restrictions in (2-5), see Harley & Noyer (1998), and other missing projections might be responsible for the direct participation effect.

However, it turns out that this general idea is not supported if we look at a larger set of languages. To this end, we systematically investigate direct participation effects in five further languages from different families: German, Greek, Romanian, Spanish and French.

Nominalizations in Greek (20), German (21) and French (22) do not show the direct participation effect. Recall that the corresponding examples are out with English *verification* in (9).

(20) I epivevosi tis arhikis diagnosis **apo/me ta apotelesmata** tis eksetasis
      'The verification of the initial diagnosis by the results of the test'

(21) Die Bestätigung der Diagnose **durch die Ergebnisse** des Tests
      'The confirmation of the diagnosis by the results of the test'

(22) La vérification du diagnostic initial **par les résultats** du test

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[2] The verb *murder* only forms a zero-derived nominal which, according to Grimshaw (1990), does not realize argument structure.

'The verification of the initial diagnosis by the results of the test'

One might argue that not all nominalizations are restricted to host simple events. It could be that the nominalizations in (20)-(22), just as English *ing-of* gerunds, are big enough to host complex events. However, this does not seem to be the case at least for the German and French data in (21) and (22), which involve the smallest nominalizations available in these languages. That is, both languages have a further, more verbal nominalization more akin to the English *ing-of* gerunds (see Alexiadou *et al.* 2011). In fact, only Greek differs from the other languages in this paradigm as it seems to only have one nominalization type, and in principle this could be more like *ing-of* gerunds (Alexiadou 2001, 2009). To conclude, the direct participation effect is not related to the reduced verbal structure in the smallest nominalization in a language.

The smallest available nominalizations in Romanian (23) and Spanish (24), on the other hand, do show the *direct participation effect*.

(23)   Justificarea măsurilor dure **de către Boc/#ratingul scăzut al SUA**
        'The justification of the tough measures by Boc/#the downgraded
        rating of the USA'

(24)   La verificación de los diagnósticos **por el   experto/#por los resultados**
        'The verification of the diagnosis by the expert/#by the results'

In Romanian, the preposition *de către* can only introduce agents/direct participants in nominalizations, i.e., the restriction is similar to that of the English *by*-phrase: the hurricane, as a direct participant, is ok in (25a, b), but alcohol is an indirect participant in (25c, d) and, as a result, is excluded from the nominal.

(25)   a. **Uraganul** puternic a distrus recolta
            'The strong hurricane destryoed the crops'
        b. Distrugerea recoltei **de către uraganul**   puternic
            'The destruction of the crops by the strong hurricane'
        c. **Alcoolul** a distrus-o pe Amy Winehouse
            'Alcohol destroyed Amy Winehouse'
        d. #Distrugerea lui Amy Winehouse **de către alcool**
            'The destruction of Amy Winehouse by alcohol'

In Spanish derived nominals (Picallo 1991, 1999, Varela 2011), *por* is also restricted to agents and direct participants in nominalizations: in (26c, d), *el huracán* is a direct participant, which is not the case in (26b).

(26)   a. **El huracán** justificó la evacuación de los habitantes
            'The hurricane justified the evacuation of the inhabitants'
        b. #La justificación de la evacuación de los habitantes **por el huracán**

'The justification of the evacuation of the inhabitants by the hurricane'
c. **El huracán**   destruyó   nuestros cultivos
'The hurricane destroyed our crops'
d. La destrucción de nuestros cultivos **por el huracán**
'The destruction of our crops by the hurricane'

While derived nominals in Romanian and Spanish behave like their English counterparts, both languages differ from English in important respects. On the one hand, the Romanian supine, the nominalization that is more similar to English *ing-of* gerunds (Cornilescu 2001, Iordăchioaia 2008, Alexiadou *et al.* 2011) also shows the direct participation effect, unlike in English:

(27) a. **#Distrusul** frecvent al unor vedete cunoscute **de către alcool**
'The frequent destruction of various well-known stars by alcohol
b. **Distrusul** frecvent al recoltei **de către urganele** din această zonă
'The frequent destruction of the crops by the hurricanes in this area'

The situation in Spanish also differs from English. While, as we have seen, Spanish derived nominals restrict their external arguments to direct participants, the verbal infinitive (the nominalization with the most verbal properties, Picallo 1991, Alexiadou *et al.* 2011) restricts its external argument to human agents. Thus, while the less verbal nominalization shows a direct participant effect, the more verbal one exhibits the stronger effect of *agent exclusivity*:

(28) a. El justificar **las autoridades** la evacuación
'The authorities' justifying the evacuation'
b. El destruir **los soldados** la ciudad
'The soldiers' destroying the city'
c. #El justificar **el huracán** la evacuación
'The hurricane's justifying the evacuation'
d. #El destruir **el huracán** el puente
'The hurricane's destroying the bridge'

An agent exclusivity effect can also be found in German, again with the nominalization that inherits more verbal structure: while the *-ung* nominalization does not restrict its external argument in (21), the nominalized infinitive only allows agents (Alexiadou et al. 2009).

(29) a. Um ein Zerstören der Stadt **durch die Soldaten** zu verhindern
'To prevent a destruction of the city by the soldiers'
b. ?# Um ein Zerstören der Stadt **durch den Sturm** zu verhindern
'To prevent a destruction of the city by the storm'

Finally, an agent exclusivity effect has actually also been observed in a specific subclass of English nominalizations, namely nominalizations derived from object experiencer verbs. While these verbs allow both agents and causers as external arguments, only agents are acceptable in the nominalization (see Grimshaw 1990, Pesetsky 1995, Doron 2003, Alexiadou & Iordăchioaia to appear):

(30) **Mary/the event** annoyed/amused/embarrased the kids

(31) **#The event**'s annoyance/amusement/embarrassment of the kids

(32) ?**Mary's** deliberate annoyance/amusement/embarrassment of the kids

This cross-linguistic discussion shows that nominals sometimes, but not always, restrict their external argument compared to their verbal base. This restriction comes in two variants, either as a direct participant effect or as an agent exclusivity effect. Furthermore, the two restrictions are in no obvious way correlated with the number of verbal properties of the nominalization.

5.2 The direct participation effect in active and passive Voice
We already saw above that the idea that the external argument is restricted because the construction cannot host complex enough events cannot be right when we look at various patterns of nominalizations. A further challenge for this idea is the observation that we find restrictions on the type of external argument even in the verbal/sentential domain.

In Romanian, the verbal passive shows a direct participant effect if the external argument is introduced by the preposition *de către*. Since the simple preposition *de* can also introduce indirect participants (see (33)-(34)), it seems that the lexical semantics of *de către*, which is the only device to introduce external arguments in the nominal domain, is responsible for this restriction also in (23), (25), (27).

(33) a. Alcoolul a distrus-o pe Amy Winehouse
          'Alcohol destroyed Amy Winehouse'
      b. Amy Winehouse a fost distrusă **de/#de către** alcool
          'Amy Winehouse was destroyed by alcohol'

(34) a. Uraganul a distrus recolta
          'The hurricane destroyed the crops'
      b. Recolta a fost distrusă **de/de către** uragan
          'The crops were destroyed by the hurricane'

The Spanish eventive passive always shows a direct participant effect, as shown by the following active-passive pairs:

(35) a. **El huracán** justificó la evacuación de los habitantes

'The hurricane justified the evacuation of the inhabitants'
b. #La evacuación de los habitantes fue justificada **por el huracán**
'The evacuation of the inhabitants was justified by the hurricane'

(36) a. **El huracán** destruyó nuestros cultivos
'The hurricane destroyed our crops'
b. Nuestros cultivos fueron destruidos **por el huracán**
'Our crops were destroyed by the hurricane'

Since the Spanish passive uses only one preposition, the question arises whether we should relate this effect to the passive itself or whether we should derive it from a restriction on the preposition as we proposed for Romanian *de către*. It seems that the former solution is correct as the very same preposition can introduce also indirect participants in other constructions. This is the case with anticausative and inchoative verbs in (37), where *por* clearly introduces indirect participants. See also Alexiadou *et al.* 2006.

(37) a. La puerta se abrió **por** el viento.
'The door opened through/from the wind'
b. La madera se pudrió **por** la lluvia.
'The wood rotted through/from the rain'

Note that in Romanian the preposition *de către* is not allowed in anticausatives and instead either simple *de* or the complex preposition *de la* is used to introduce causers. Thus *de către* seems to be lexically restricted to direct participants:

(38) a. Uşa s-a deschis **de (la)/#de către** vânt.
'The door opened from/#by the wind'
b. Lemnul a putrezit **de ??(la)/#de către** ploaie
'The wood rotted from/#by the rain'

Finally, the Greek passive has been reported to show the stronger restriction, i.e., the agent exclusivity effect (Alexiadou *et al.* 2006). We exemplify this with 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, and the latter has active morphology (see Alexiadou *et al.* 2009). Only causer PPs are licit in the anticausative (39a), and only agent PPs are licit in the passive:

(39) a. O Janis/To plisimo katharise to pukamiso
'John/the washing cleaned the shirt'
b. To pukamiso katharis**e me** to plisimo/**apo** mono tu/#**apo** to Jani
'The shirt cleaned with the washing/by itself/#by John'
c. To pukamiso katharist**ike apo** to Jani/#**me** to plisimo
'The shirt was cleaned by John/#with the washing'

Recall in this connection that the Greek nominalization in (20) is not restricted at all. As Alexiadou *et al.* (2009) observe, we also find passive nominals of verbs that lack a verbal passive: (40) 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*' (52):

(40) To dasos ka**ike apo ti zesti/#apo** to Jani
      'The forest burnt from the heat/#by John'

(41) Tokapsimo tu dasos **apo ton Jani/apo ti zesti**
      'The burning of the forest by John/from the heat'

A direct participant effect has also been reported (though under a different characterization) for Hebrew (Doron 2003).[3] While the subject of an active clause in the simple template can be either direct or indirect participant (42), the subject of an active clause in the intensive template needs to be a direct participant (43). This often looks like an agent exclusivity effect as in the examples below:

(42) ha-menahel/macavo ha-bri'uti   **patar** et dani me-ha-'avoda
      'The director/the state of his health excused Dani from the job'

(43) ha-menahel/#macavo ha-bri'uti **piter** et dani me-ha-'avoda
      'The director/#the state of his health fired Dani from the job'

For Hebrew the decisive notion is not agentivity or animacy. In both sentences in (44), the subject is inanimate. The simple verb *produce* in (44a) has a reading where the protein is the trigger for antibodies being produced (an indirect participant in our terms). The intensive template verb in (44b) can only be interpreted such that the protein actually participates in the production process itself (a direct participant).

(44) a. ha-xelbon **yacar** ba-guf nogdanim
          'The protein produced antibodies in the body.'
      b. ha-xelbon **yicer** ba-guf nogdanim
          'The protein manufactured antibodies in the body.'

To conclude, both the direct participant effect and the agent exclusivity effect are not restricted to the nominal domain, they can also be found in the verbal/sentential domain, both in active as well as passive clauses.

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[3]Tatevosov (2012) provides data from Tatar and Russian active clauses, which look like a direct participant effect. In these languages some accomplishments, which are characterized by specific morphological marking, allows only direct but not indirect participants as their subjects.

6. Conclusions and theoretical implications

In this paper we have shown that there are in fact two restrictions with respect to external arguments: agent exclusivity and direct participation, which are cross-linguistically available in nominal, but also verbal constructions.

We argued that an account based on event complexity like Sichel's (2010, 2011) which claims that nominals only host simple events makes wrong predictions. In the verbal domain, in particular, to support this analysis, one would have to argue that passivization in Spanish and Greek involves a shift in the event structure of the predicate, namely, an accomplishment should become a simple event under passivization, a point that is hard to provide evidence for. The same would have to be assumed for the Hebrew intensive template in the active voice.

Moreover, an account based on the structural deficiency of nominalizations, which contain less verbal structure than their corresponding verbal bases, would fail to explain the fact that in some languages the more verbal nominalization is more restricted than the less verbal one (e.g., German nominalized infinitives vs. *-ung* nominals, or Spanish infinitival nominalization vs. derived nominals), that sometimes verbal forms themselves are more restricted than the nominalizations (see, e.g., Greek passives vs. nominals), and that some verbal forms are more restricted than others. Finally, the Romanian data show that if a language possesses a lexically restricted preposition, the effect will arise independently of the type of construction: the effect is observed both in the verbal passive as well as in the nominalizations that use this preposition.

The only correlation that can thus be established is that specific constructions across languages either show or do not show the effect, and this is subject to parametrization, that is, it will not be the same construction across languages that will display the effect. A syntactic account along these lines would need to posit a syntactic layer that appears both in passive voice and nominalizations, and exhibits selectional restrictions with respect to the external argument that is introduced by the immediate v layer. Alexiadou *et al.* (to appear) take this head to be a kind of Voice head, which in the verbal domain introduces passive, while in the nominal domain it usually introduces the nominalizing suffix (see also Bruening to appear). The v head must be specified as introducing an agent, a direct participant or an indirect participant. In these terms, the Spanish passive requires a v that introduces direct participants, while the Greek passive imposes an agent restriction on v. The Romanian passive is underspecified and thus compatible with a v that introduces an indirect participant, which means it will also be fine with the more specific external arguments: direct participants and agents. But Greek passives will exclude both direct and indirect participants, while the Spanish ones will forbid indirect participants, but allow agents. Similar restrictions can be formulated on nominalizations: e.g., the English *-tion* requires a v with direct participants, while *ing-of* selects a v with indirect participants. This correlation is reminiscent of and formalizes Grimshaw's (1990) intuition that nominalization is often similar to passivization. For the technical details of such an account, the reader is referred to Alexiadou *et al.* (to appear).

References

Abney, S. 1987. *The English Noun Phrase in its Sentential Aspect*. Ph. D. dissertation, MIT.

Alexiadou, A. 2001. *Fuctional Structure in Nominals*. Amsterdam: John Benjamins.

Alexiadou, A. 2009. On the role of syntactic locality in morphological processes: the case of (Greek) derived nominals. In *Quantification, Definiteness and Nominalization*, ed. by A. Giannakidou & M. Rathert, 253-280. Oxford: Oxford University Press.

Alexiadou, A., E. Anagnostopoulou & F. Schäfer. 2006. The properties of anticausatives cross-linguistically. In *Phases of Interpretation*, ed. by M. Frascarelli, 187-212. Berlin: Mouton de Gruyter.

Alexiadou, A., E. Anagnostopoulou & F. Schäfer. 2009. PP licensing in nominalizations. *Proceedings of NELS* 38, ed. by A. Schardl, M. Walkow & M. Abdurrahman, 39-52. University of Massachusetts at Amherst: GLSA.

Alexiadou, A., M. Cano, G. Iordăchioaia, F. Martin & F. Schäfer. to appear. 'Direct participation' and 'agent exclusivity' effects in derived nominals and beyond. In *Categorization and Category Change in Morphology*, ed. by G. Iordăchioaia, I. Roy & K. Takamine. Cambridge Scholars Publishing.

Alexiadou, A. & E. Doron. 2012. The syntactic construction of two non-active Voices: passive and middle. *Journal of Linguistics* 48:1. 1-34.

Alexiadou, A. & G. Iordăchioaia. to appear. Psych nominalizations with causers. *Proceedings of NELS 42*. University of Massachusetts at Amherst: GLSA.

Alexiadou, A, G. Iordăchioaia & F. Schäfer. 2011. Scaling the variation in Romance and Germanic nominalizations. In *The Noun Phrase in Romance and Germanic*, ed. by P. Sleeman & H. Peridon, 25-40. Amsterdam: John Benjamins.

Alexiadou, A. & F. Schäfer. 2006. Instrument subjects are agents or causers. In *Proceedings of WCCFL* 25, ed. by D. Baumer, D. Montero & M. Scanlon, 40-48. Somerville, MA: Cascadilla Proceedings Project.

Bruening, B. to appear. By-Phrases in Passives and Nominals. *Syntax*.

Cornilescu, A. 2001. Romanian nominalizations: Case and aspectual structure. *Journal of Linguistics* 37:3. 467–501.

Doron, E. 2003. Agency and voice: the semantics of the Semitic templates. *Natural Language Semantics* 11. 1-67.

Folli, R. & H. Harley. 2008. Teleology and animacy in external arguments. *Lingua* 118.2. 190-202.

Grimshaw, J. 1990. *Argument Structure*. Cambridge: MIT Press.

Harley, H. 2011. An alternative to deficiency approaches to the manner-alternation parameter. *Workshop on verbal elasticity*, Barcelona, Oct. 2011.

Harley, H. & R. Noyer. 1998. Mixed nominalizations, object shift and short verb movement in English. In *Proceedings of NELS* 28, ed. by K. Kusumoto & P. Tamanji, 143-157. University of Massachusetts at Amherst: GLSA.

Harley, H. & R. Noyer. 2000. Licensing in the non-lexicalist lexicon. In *The Lexicon/Encyclopedia Interface*, ed. by B. Peeters, 349-374. Amsterdam: Elsevier Press.

Iordăchioaia, G. 2008. External argument PPs in Romanian nominalizations. In *Working Papers of the SFB 732*, ed. by F. Schäfer, 1, 71-84.

Kayne, R. 1984. *Connectedness and Binary Branching*. Dordrecht: Foris.

Larson, R. 1988. On the Double Object Construction. *Linguistic Inquiry* 19: 335-391.

Levin, B. and M. Rappaport Hovav. 1999. Two Structures for Compositionally Derived Events. *Proceedings of SALT 9,* 199-223. Ithaca, NY: Cornell Linguistics Circle Publications.

Levin, B. & M. Rappaport Hovav 2002. The semantic determinants of argument expression: A view from the English resultative construction. In *The Syntax of Time*, ed. by J. Guéron & J. Lecarme. Cambridge, MA: MIT Press.

Marantz, A. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In *University of Pennsylvania Working Papers in Linguistics*, ed. by A. Dimitriadis, L. Siegel, C. Surek-Clark & A. Williams, 4.2, 201-225. Philadelphia.

Marantz, A. 2009. Roots, re- and affected agents: can roots pull the agent under little v? Paper presented at *Roots II*, Stuttgart.

Picallo, C. 1991. Nominals and Nominalizations in Catalan. *Probus* 3: 279-316.

Picallo, C. 1999. La estructura del sintagma nominal: Las nominalizaciones y otros sustantivos con complementos argumentales. In *Gramática descriptiva de la lengua española*, ed. by I. Bosque & V. Demonte. 363-393. Madrid: Espasa.

Pesetsky, D. 1995. *Zero Syntax: Experiencers and Cascades*. Cambridge: MIT Press.

Rapport-Hovav, M. & B. Levin. 2001. An event structure account of English resultatives. *Language* 77: 766-797.

Sichel, I. 2010. Event Structure Constraints in Nominalization. In *The Syntax of Nominalizations across Languages and Frameworks*, ed. by A. Alexiadou & M. Rathert, 151-190. Berlin: Mouton.

Sichel, I. 2011. Nominalization, causativization, and category-free syntax. Paper presented at *Roots III*, Jerusalem.

Tatevosov, S. 2012. Decomposing event structure: evidence from denominal verbs in Tartar. Paper presented at *WAFL 8*, University of Stuttgart.

Varela, S. 2011. La interacción de las nominalizaciones con la voz, el aspecto y la dimensión temporal. In *La expresión de tiempo, espacio y relacionesespacio-temporales en la formación de palabras*, ed. by R. Almela Pérez, E. Bernal & C. Sinner. Munich: Peniope.

Wechsler, S. 1990. Accomplishments and the Prefix re-. In *Proceedings of the NELS 19*, ed. by J. Carter & R. M. Dechaine, 419-434. University of Massachusetts at Amherst: GLSA.