

Restrictions on reflexive and anti-causative readings in nominalizations and participles

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Abstract

This article discusses the absence of reflexive or self-caused readings in certain types of participles and de-verbal nominalizations, like *the hanging of the suicidal patient* and *The suicidal patient was hanged yesterday*. I argue that the “anti-reflexive” reading is not triggered by the presence of a subject PRO or pro, but rather by the absence of reflexive marking, i.e. overt marking that functions to recode lexically specified co-reference relations between the arguments of a predicate. I argue that the verb-phrase needs to be decomposed into at least two subparts/subevents and that each sub-event carries information about the participants involved in it (as in e.g. Pustejovsky 1995 and Ramchand 2008b). More specifically, arguments receive their thematic information from indices on verbal heads that introduces sub-events. Event-denoting nominalizations and participles in general inherit the event structure from the verb, i.e. the indices present in the verbal roots. I further argue that simple reflexives can be verbal heads, that are inserted as a last resort when there is a mismatch between the lexically stored information of a verb and the structure generated in the syntax. This article focuses on data from Swedish, but comparisons will be made with English.

1. Introducing the phenomena

Baker et al. (1989) point out that reflexive, or self-acting/self-caused readings are unavailable in eventive passives, as illustrated below for English:

- (1) a. The children are being dressed. \neq The children are dressing themselves.
- b. The climbers are being secured with a rope. \neq The climbers were securing themselves.

Rather, the passive sentences in (1) seem to mean something like:

- (2) a. Someone is dressing the children.
- b. Someone is securing the climbers with a rope.

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This is one of the main reasons why Baker et al. (1989) chose to analyze the passive morpheme as an incorporated external argument. The reflexive reading should be unavailable since it would not be possible to move a co-indexed argument over the incorporated external argument (which should induce a Strong Crossover effect and/or violate principle B or C of Chomsky 1981).

Kratzer (forthcoming) notes that reflexive/self-caused interpretations are equally unavailable in eventive nominalizations:

- (3) a. The hanging of the suicidal patient forced the hospital to check their security routines.
 b. The article praised the expeditious securing of the climbers.

The interpretation of the nominalizations in (3) is given in (4):

- (4) a. the hanging of the suicidal patient = someone hanged the suicidal patient (\neq the suicidal patient hanged himself)
 b. the expeditious securing of the climbers = someone secured the climbers (\neq the climbers secured themselves)

The main purpose of this article is to show that the obligatory non-reflexive interpretation in eventive passives and even-denoting nominals is not triggered by a syntactically present external argument. Rather, information about the transitivity/arity of each verb is given in its lexical entry, and this information is equally present in true verbs as in participles and event-denoting de-verbal nouns. Reflexive-marking functions to alter the arity of the verb. The absence of a reflexive interpretation in eventive passives and event-denoting de-verbal nominalizations thus follows from the absence of reflexive elements in the passives and nominalizations.

This article focuses on Swedish, where the facts seem to mirror the English data presented above. However, Swedish uses reflexive elements to a higher degree than English for both typical anti-causative verbs (i.e. verbs like *open* and *spread*) and reflexive verbs (e.g. obligatorily with verbs like *wash* and *dress*), which makes Swedish a better language for this type of study. The result of this study extends to English and other languages with less use of reflexives (see section 5 for ways of dealing with cross-linguistic variation).¹

In Swedish, for many predicates, a reflexive interpretation is never available when the verb surfaces as a passive participle, not even in typical “adjectival” contexts. Most obviously, the reflexive reading is out in eventive passives:²

¹In this article I will have nothing to say about languages that use identical morphology for encoding both passives and reflexives/anti-causatives, e.g. Greek (see e.g. Alexiadou and Anagnostopoulou 2004) and Albanian (see e.g. Kallulli 2007).

²List of abbreviations: DEF = definite, INF = infinitive, INIT = initiation, NOM = nominalizing suffix, PART = (passive) participle, PAST = past tense, PL = plural, POSS = possessive, PRES = present tense, PROC = process, REFL = reflexive, RES = result, SUPER

- (5) Han blev hängd.
he BLI.PAST *hang*.PART
 ‘He was hanged.’

The copula used in (5), *bli*, triggers event-denoting readings in almost all contexts, i.e., *bli* followed by a passive participle has the same event-implications as a simple tensed verb (see e.g. Lundquist 2008 for discussion). In these contexts, just as in English, no reflexive interpretation is available. As shown in (6) and (7), no reflexive/self-caused interpretation is available either when the stative copula *vara* (‘be’) is used, or when the participle is used attributively either, i.e. neither (6) nor (7), can be used in a suicide-context:

- (6) Han är hängd nu.
He VARA.PRES *hang*.PART *now*
 ‘He is hanged now/ He has been hanged now.’
- (7) den hängda mannen
the *hang*.PART.DEF *man*.DEF
 ‘the hanged man’

However, certain verbs have corresponding participles that lack event implications, i.e., participles that only denote a state, see Kratzer (2000), Embick (2004) and Lundquist (2008) on so called target state participles, or stative participles³. When the stative participles appear in typical “adjectival” contexts, a self-caused interpretation is possible:⁴

- (8) a. Han är fortfarande fastkedjad vid staketet.
he is still stuck.chain.PART *at fence*.DEF
 ‘He is still chained to the fence.’

= superlative, SUP = supine, TRANS = transitive, UNACC = unaccusative.

³I will use the term *stative participle* in this paper. Note however that this term does not refer to participles formed from stative verbs, like *the hated man*, which tends to behave like eventive participles.

⁴In this paper, I will use the adverb *fortfarande* (‘still’) to diagnose stativity in participles. See Kratzer (2000) for discussion on this diagnostics. *Still* can in general only be used with predicates that do not imply a change of state (states, activities and imperfectives/progressives in general). Note however that *still* can be used with change of state predicates yielding a slightly different reading, as in e.g. *They still incarcerated him, and we’ll never forgive them for that, even though they let him go right away*. Here *still* does not modify an ongoing process (as in *They are still incarcerating radical thinkers*) or a result (as in *He is still incarcerated*, i.e., still in jail). *Still* with change of state predicates rather seems to function as a meta-comment, and this use will not be taken into account in this article. *Still* modifying progressives and generics will not be discussed either. *Fortfarande* ‘still’ will only be used as a diagnostics for detecting event-entailments in passive participles. I will call the participles that are not compatible with *fortfarande* ‘eventive’ or ‘event-implicating’ participles. This group includes those participles that are called resultative or resultant state participles by Embick (2004) and Kratzer (2000). Crucial to the argument in this article is that these participles contain a syntactically present event-predicate.

- b. den fastkedjade mannen
 the stuck.chain.PART man
 ‘the chained man’

The person in (8) might very well have chained himself to the fence – the sentence (8a) and the DP (8b) above simply give no information about who did the chaining. Note that the adverb *fortfarande* ‘still’ in (8a) forces a stative reading of the participle. Note further that this adverb is incompatible with the participles formed from a verb like *hänga* ‘hang’ (see Lundquist 2008 and section 6 of this paper for discussion of verbs that fail to form stative participles):

- (9) Han är (*fortfarande) hängd.
 *he VARA.PRES (*still) hanged*
 ‘He is still hanged.’

Note further that the self-caused/reflexive reading is impossible with the eventive copula *bli*, even if the participle has a stative reading in other contexts:

- (10) Han blev fastkedjad vid staketet.
 he BLI.PAST stuck.chained at gate.DEF
 ‘He was (being) chained to the gate.’

The difference between (8a) and (10) is striking – the former is straightforwardly felicitous in a context when someone has chained themselves to the fence, while the latter simply is not. In short, self-caused/reflexive readings are only licit when no event-entailments are present. Many verbs, like *hänga* ‘hang’, cannot form participles that lack event entailments, and can therefore never have a reflexive interpretation, not even in typical adjectival contexts (e.g., as prenominal attributes). The ‘eventive’ copula *bli* selects for eventive participles in most contexts, and hence the string BLI - PARTICIPLE is not compatible with a reflexive interpretation (see Lundquist 2008 for discussion on the selectional restrictions on *bli*).

For nominalizations, the same effect obtains: nominalizations based on transitive verbs are only compatible with reflexive/self-caused interpretations once no event entailments are present. Take the nominalizations formed from the verb *hänga* (‘hang’): for whatever reason this verb has only an event-denoting nominalization. The nominalization in (11) can only have a transitive reading, i.e., a reading that is incompatible with a suicide interpretation (even in contexts when a suicide interpretation would be pragmatically more felicitous):

- (11) hängningen av den självmordsbenägna patienten
 hang.NOM.DEF of the suicidal patient.DEF
 ‘the hanging of the suicidal patient’

Just as with the passive participle formed from *hännga*, no self-caused reading is available.⁵ As shown in (12), the transitive reading is not triggered by the presence of a DP in what might be considered a direct object position (i.e., the *of*-phrase), since the reflexive interpretation is highly marked even when no arguments are syntactically present:

- (12) a. ??Hängning är en av de vanligaste formerna av
hang.NOM is one of the common.SUPER form.PL.DEF of
själv mord.
suicide
 ‘Hanging is one of the most common forms of suicide.’
 b. Hängning är en av de vanligaste
hang.NOM is one of the common.SUPER
avrättningsmetoderna.
execution.method.PL.DEF
 ‘Hanging is one of the most common methods of execution.’

In (12a), only a reflexive interpretation would be plausible, given that a suicide necessarily is self-caused. A self-caused reading is however not accessible from the nominalization, and therefore, the sentence is infelicitous. In a transitive/non-reflexive context as in (12b), the argument-less nominalization works fine. It should be pointed out here that the class of event-entailing nominalizations that gives rise to obligatorily non-reflexive interpretations is not identical to what Grimshaw (1990) calls Complex Event Nominalizations. It seems that many simple event nominals also fall into this class.

Just as for participles, certain nominalizations lack event-entailments. Whereas non-eventive participles denote a state, non-eventive nominalizations tend to denote an object that is the result of an event (see discussion in e.g. Grimshaw 1990). When nominalizations denote a result object, a reflexive reading is again possible:

- (13) En tidig Beatles-inspelning hittades på vinden
an early beatles-in.play.NING found.PAST.PASS on attic.DEF
 ‘An early Beatles recording was found in the attic.’

The Beatles recording in (13) might very well have been recorded by the Beatles themselves, though, of course, someone else might have recorded

⁵There are some correlations between the availability of stative readings in nominalizations and participles. However verb-class is also important, as it turns out that many unaccusative verbs have stative participles, but no “stative” nominalizations (see section 6 four more discussion on this issue). This fact mirrors the generalizations made by Hale and Keyser (see e.g. Hale and Keyser 2002) regarding noun-based and adjective-based verbs, only here we are dealing with overtly derived nouns (i.e. nominalizations) and adjectives (i.e., participles). I abstract away from these patterns here. The most important point is that the reflexive interpretations are systematically correlated with the possibility of stative interpretations, and absent with the eventive ones.

them.

The topic of this paper has been discussed before (see e.g. Baker et al. 1989, Kratzer 1996 and Kratzer forthcoming). The kind of data presented above has lead previous researchers to conclude that a subject/external argument is *syntactically* present in both passive participles and (eventive) nominalizations, either in the form of a pro, PRO or as an impersonal pronoun (but see especially Pesetsky 1995 for a discussion of the problems with such an approach). Either Principle B or Principle C of the binding theory of Chomsky (1981) would presumably rule out the reflexive interpretations in these cases. (The exact technical explanation will be skipped here). We should therefore be able to explain the absence of reflexive interpretations in (13) and (12) using the same toolbox, as schematized in (14)- (15):

- (14) a. They/one/someone_i secured the climbers_{*i,j}.
 b. PRO_i to secure the climbers_{*i,j} was a good idea.
- (15) a. the (*pro*/PRO_i) securing of the climbers_{j,*i}.
 b. The climbers_i were being *pro*/PRO_{j,*i} secured.

To account for the availability of the “reflexive” interpretation of the stative participles, a lexicalist solution has been proposed by e.g. Baker et al. (1989). According to such a solution, stative participles are formed in the lexicon, before any arguments are present, while eventive participles are formed in the syntax, presumably after argument structure has been added. During the last 20 or so years, many analyses have been proposed to deal with basically all types of nominalizations and participles in the syntax, in the spirit of Abney (1987). According to analyses following this trend, the participle/nominalizing morphology is merged in the syntax – before the external argument has been introduced in the stative cases, but after in the event-denoting cases (see e.g. Embick (2004) for an analysis of different types of participles). My analysis will be in spirit of the Abneyian/syntactic solution, but I will argue against the presence of an external argument/subject in event-denoting nominalizations and event-implicating participles.

The claims I want to make in this paper are the following:

1. There is no evidence for a subject PRO/pro or a syntactically present impersonal pronoun in passive participles and event-denoting nominalizations.
2. Co-reference relations between arguments are specified the lexical entries of verbs. The information about co-reference is still present when the verb surfaces as an eventive participle or nominalization. The absence of a reflexive interpretation thus follows from the information stored in the verb.
3. A decomposed verb phrase, as in Ramchand (2008b), combined with a specific set of rules governing lexical insertion, as in Caha (2009),

can handle the differences between eventive and stative passives, and event-denoting and stative nominalizations.

I will further argue that anaphoric elements like *sig* can be part of the decomposed verbal functional sequence in the syntax, with the function of changing the co-reference relation between the arguments of the verb.

1.1. Structure of the paper

In the next section I will show that there are no good arguments for the presence of a PRO or pro external argument in most types of nominalization or in participles. Most importantly, there is no difference between eventive and stative/result participles/nominalizations with respect to the syntactic presence or absence of PRO or pro. In section 3 I lay out the theoretical assumptions about verbal syntax and semantics that are needed for handling the data and generalizations discussed in this paper. In section 4, the (un)availability of reflexive readings in different types of participles and nominalizations is derived from the assumptions in section 3. Section 5 gives a brief outlook of the implications my analysis has for the theory of anaphors in general. Section 6 discusses limits on the formation of stative participles and nominalizations. Section 7 concludes the paper.

2. Against PRO/pro in nominalizations and participles

As will be shown in section 2.1, there are quite clear indications that there is no syntactically present subject/external argument in the types of nominalizations that do not contain an accusative marked internal argument (i.e., in derived nominals or mixed nominalizations, in the terminology of Chomsky 1970). However, for passive (past) participles, it is harder to prove either the absence or the presence of an external argument on syntactic or semantic grounds, as will be shown in section 2.2. Most facts however point to the conclusion that there is no external argument present in passive participles either. This will force us to find a way of explaining the anti-reflexive readings in passives and nominalizations that is not based on the binding theory of Chomsky (1981).

2.1. Arguments against PRO in nominalizations

The presence or absence of PRO in nominalizations has been discussed previously in the generative literature in e.g. Abney (1987) and Alexiadou (2001), and the general conclusion has been that no external argument is present in nominalizations - not taking *ACC-ing* and *GEN-ing* into consideration. (Abney is not completely clear when it comes to the presence/absence of external arguments in mixed nominalizations (i.e., *-ing of*-nominalizations)). Below, I will compare nominalizations with control infinitives in Swedish, and show that whereas control infinitives always have

a PRO in the subject position, nominalizations do not. I will look at two different contexts where this is apparent.

2.1.1. No obligatory control in subject infinitives

The following two examples show that the implicit subject in an infinitival clause is necessarily controlled by the experiencer object in the matrix clause:

- (16) a. Att $PRO_{i,*j}$ ständigt läsa skräplitteratur gör mig_i
 To $PRO_{i,j}$ constantly read.INF crap-literature does me_i
 galen.
crazy
 ‘It drives me crazy to constantly read crap literature.’
- b. Att $PRO_{i,*j}$ ständigt festa gör mig_i galen.
 To $PRO_{i,*j}$ constantly party.INF does me_i crazy
 ‘It drives me crazy to party constantly.’

In nominalizations however, the interpretation of the implicit external argument is much more free. Here the main clause object is not necessarily interpreted as co-referential with the implied external argument of the nominalization:

- (17) a. [Detta ständiga läsande av skräplitteratur] gör mig galen.
 This constant read.NOM of crap.literature does me crazy
 ‘This constant reading of crap-literature drives me crazy’
- b. [Det ständiga festande] gör mig galen.
 The constant party.NOM does me crazy
 ‘The constant partying drives me crazy’

The reader in (17a) and the “party-goer” in (17b) might be some arbitrary person, or a specific person, whose constant partying is just driving you crazy.

The following pair, which contains a weather-verb with a dummy subject, also shows that no explicit controller is needed in nominalizations:

- (18) a. Det ständiga snöandet gör mig galen.
 The constant snow.NOM.DEF does me crazy
 ‘The constant snowing drives me crazy.’
- b. *Att ständigt snöa gör mig galen.
 To constantly snow.INF does me crazy
 ‘*To constantly snow drives me crazy.’

The experiencer object in (18b) is not a potential controller of the subject position in the infinitive, and a PRO-*arb* interpretation would not be felicitous. No suitable controller is present, which causes the sentence to be

ungrammatical.⁶ In (18a) however, no control relation needs to be established, and the absence of a potential controller is unproblematic.

In short, there is no need for a syntactically present controller of the implied external argument in nominalizations, which I take to indicate that there simply is no position that needs to be controlled in the nominalization.

2.1.2. Controller in Object Control Infinitives

The point that was made above for infinitives and nominalizations in subject positions can also be made for infinitives and nominalizations in complement position. As discussed in Rizzi (1986), many languages require an overt controller in object control infinitives, as shown below for Swedish:

- (19) a. De vill förbjuda ?*(folk) att sprida rasistisk
they want forbid.INF ?(people) to spread.INF racist*
propaganda.
propaganda
‘They want to forbid people from spreading racist propaganda.’
- b. De tillåter ?*(folk) att använda kondom i särskilda
They allow ?(people) to use.INF condom in certain*
fall.
cases
‘They allow people to use a condoms in certain cases.’
- c. De gör allt för att förhindra *(folk) att
*They do everything for to hinder.INF *(someone) to*
föra in kärnvapen i Mellersta Östern.
bring.INF in nuclear-weapons in the Middle East
‘They do everything to prevent people from bringing in nuclear
weapons to the Middle east.’

The infinitive can be replaced with an event-denoting nominalization. In this case, no overt controller is needed:

- (20) a. De vill förbjuda spridandet av rasistisk
They want forbid.INF spread.NOM.DEF of racist
propaganda.
propaganda
‘They want to ban the spreading of racist propaganda.’
- b. De tillåter användandet av kondom i särskilda fall.
They allow use.NOM.DEF of condoms in certain cases
‘They allow the use of condoms in certain cases.’

⁶Note that dummy subjects of weather verbs can control the subject of an infinitival clause containing another weather verb, e.g. *Efter att ha snöat i fem dagar började det plötsligt att regna* (‘After having snowed for five days, it suddenly started to rain’).

- c. De gör allt för att förhindra införandet av
They do everything for to hinder.INF in.bring.NOM.DEF of
 kärnvapen i Mellersta Östern.
nuclear weapons in the Middle East
 ‘They do everything they can to prevent the bringing in of
 nuclear arms in the Middle East.’

Again, I take the absence of an overt controller as an indication that there is no position within the nominalization that needs to be controlled.

2.1.3. Against pro

In last section I showed that there is no element in nominalizations that requires a syntactically present controller. It might, however, still be possible for nominalizations to contain a null pronominal element that does not need to be controlled, i.e. *pro*. However, there is an important piece of data that indicates that this is not the case either. If the external arguments in nominalizations were *pros*, we would expect that these would be able to license reflexives in the complements of nominalized verbs. However, as shown below, this is not the case.

- (21) a. De vill förbjuda *(folk) att sprida sina
*They want forbid.INF *(people) to spread.INF REFL.POSS.PL*
 egna åsikter.
own opinions
 ‘They want to forbid people to spread their own opinions.’
 b. (*)De vill förbjuda spridandet av sina
They want forbid.INF spread.NOM.DEF of REFL.POSS.PL
 egna åsikter.
own opinions
 ‘They want to forbid the spreading of their own opinions.’

(21b) is ungrammatical in the reading where the reflexive possessor is bound by the external argument of the nominalization, and marginal when the reflexive possessor is bound by the matrix subject. In the corresponding passive sentence, where control from the demoted subject would be infelicitous, the possessive anaphor in the complement of the nominalization is also bad:⁷

⁷It should be noted that reflexive pronouns can marginally be found in the complement of nominalizations, even when no antecedent is syntactically present:

- (i) Det ständiga hyllandet av sig själva på sina egna
the constant celebrate.NOM.DEF of REFL self.PL on REFL.POSS.PL own
 ledarsidor – det är det som stör mig mest.
editorial.pages – it is it that bothers me most
 ‘The constant celebrating of themselves on their own editorial pages, that is what
 bothers me the most.’

- (22) Spridandet av *?sina egna åsikter
spread.NOM.DEF of REFL.POSS.PL own opinions
 förbjöds av regeringen.
forbid.PAST.PASS by government.DEF
 ‘The spreading of one’s own opinions was banned by the government.’

Further, in clauses where we see violations of Principle B or Principle C, the corresponding nominalizations show no such violations. This can be seen in the following minimal sentence, where a non-reflexive possessor in a locative phrase is co-referential with the implicit external argument:

- (23) Under framförandet av det kontroversiella låtmaterialet i
during perform.NOM.DEF of the controversial song.material in
 artistens/hans/?*sin egen hemstad bröt det ut
artistDEF.POSS/his/REFL.POSS own hometown broke it out
 kravaller.
riots
 ‘During the performance of the controversial song-material in the artist’s/his own hometown, riots broke out.’

Assume a context where a controversial folk-singer is touring the country, he is not getting much response elsewhere, but when he reaches his hometown a riot breaks out during his performance. The co-reference between the implied external argument of the nominalization (i.e. the folk-singer) and both the R-expression (‘artisten’) and the possessive pronoun (‘hans’) possessor is unproblematic, while the anaphor is not fully felicitous. In a corresponding finite clause, an anaphor would be the best alternative, and the R-expression would be strongly ungrammatical. The pronominal form would be marked:⁸

I will take this to be an instance of non-syntactic binding, and I will not in this paper discuss this phenomena (note also that there are quite a lot of Swedes who would find (i) ungrammatical). What is important here is that the reflexive (or the two reflexives) in the complement could not be bound by a pro/PRO occupying the external position of the verb in the nominalization. We can find evidence for this in the following piece of data, where a reflexive occurs in the complement of *picture*-noun, and no binder is present:

- (ii) De utmanande bilderna på sig själva på sina egna hemsidor – det är det som stör mig mest.
 ‘The daring pictures of themselves on their own webpages – that is what bothers me the most.’

Why binding is not possible in (21b) is a separate issue (the most probable explanation is the presence of a strong logophoric center in form of the subject of the matrix clause in (21b), which is absent in (ii)). The important point here is that the availability of what seem to be unbound reflexives is not conditioned by eventive nominalizations (and the presumed subject contained in them).

⁸When the possessor is inside the direct object, we get the same effect, though the judgement here is more shaky:

- (24) När han_i framförde det kontroversiella låtmaterialet i
when he performed the controversial song.material in
 artistens_{*i,j}/hans_{??i/j}sin egen hemstad bröt det ut
artist.DEF.POSS/his/REFL.POSS own hometown broke it out
 kravaller.
riots
 ‘When he performed the controversial song-material in the artist’s/
 his own hometown, riots broke out.’

If a pro external argument were present in nominalizations, we would expect the same restrictions on pronouns and R-expressions in nominalizations and full clauses. The difference hence suggests that no pro is present in nominalizations.

2.2. PRO or pro in Passive participles?

It is harder to argue against (or even for) the presence of an external argument in passive participles. One of the main arguments for having a pro/PRO in passives is the fact that the demoted external argument seems to be able to control a PRO in an infinitival purpose or rationale clause in the complement of the passive participle (25a). This is not possible with clearly agent-less unaccusative verbs, as in (25b) (see discussion in Landau 2000 and references therein):

- (25) a. The ship was sunk (to PRO collect the insurance).
 b. *The ship sank (to PRO collect the insurance).

However, as been pointed out by Williams (1985) and Lasnik (1988), control into purpose/rationale clauses is also seen in contexts where either there is no passivized verb in the matrix clause (26a) (from Williams 1985), or where the controller is not the same as the demoted external argument as in (26b) (Lasnik 1988):

- (26) a. The thermostat is on low [PRO to save money].
 b. The boat was sunk by the torpedo_i [PRO_j to prove a point].

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- (i) Under framförandet av en av Dylans/hans/artistens största hits
during perform.NOM.DEF of one of Dylan’s/his/artist. DEF.POSS greatest hits
 buade fansen.
booed fans.DEF
 ‘During the performance/performing of one of Dylan’s/his/the artist’s greatest hits, the fans booed.’

Dylan might very well be the performer in the example above. It does sound slightly clumsy when the name Dylan appears in the possessive, but not ungrammatical, I think. There is at any rate a sharp difference between the nominalized version and a full clause (*när Dylan_i framförde en av Dylans_{*i,j}/hans_{*i,j}/artistens_{*i,j} största hits...* ‘When Dylan performed one of Dylan’s/his/the artist’s greatest hits...’).

Further, as been shown by Lasnik (1988), there are also cases where implicit control is straightforwardly ungrammatical, as in (27):

- (27) *The ship was sunk to become a hero.

Finally, the ungrammaticality in (25b) above is presumably not triggered by the absence of a controller for the PRO in the infinitival clause, but rather by the absence of an intent behind the event in the main clause. This can be shown by using finite purpose clauses, where there is no control involved (see Lundquist 2010 for ways of encoding intentions behind events):⁹

- (28) a. The ship was sunk so that we could collect the insurance.
 b. ??The ship sank so that we could collect the insurance.

I will conclude that control into purpose clauses is not a safe test for (or against) the presence of external argument in passive participles. Turning to binding, there seem to be indications that no external argument is present (at least no external argument that has the properties of either pro or PRO.) If an external argument were present in passives, we would expect it to be able to bind a reflexive possessive pronouns inside a PP. This is however not the case, as can be seen in the following pair:

- (29) a. Han åt upp hela tårten på sin födelsedag.
he ate up whole cake on REFL.POSS birthday
 ‘He ate the whole cake on his birthday.’
 b. *Hela tårten blev uppäten på sin födelsedag.
whole cake.DEF was up.eaten on REFL birthday
 int. ‘The whole cake was eaten up on his birthday.’ (i.e., he ate the whole cake on his birthday)

It is however not quite clear what this tells us, given that reflexives are usually bound by syntactic subjects anyway, or at least something highly “topical”. However, even in impersonal passives, no binding from the demoted external argument is possible (with the caveat that Swedish does not easily allow the participial passive in impersonal passives):¹⁰

⁹As pointed out by an anonymous reviewer, another potential test for the presence of external arguments is the presence of agent oriented adverbs, like *intentionally* or *reluctantly*. These adverbs are marginally accepted in verbal passives in Swedish, preferably in the morphological *-s*-passive. I take intentionality to be encoded in the verb itself, just like agentivity. The reviewer further points out that secondary predicates could be another test. The data here is more tricky, and although sentences like *breakfast was always eaten nude at the commune* are marginally acceptable in English (though not in Swedish), most adjectival secondary predicates are not, like e.g. **the game was played shoeless* (from Landau 2010) (see Landau 2010 for discussion).

¹⁰Note that some languages do allow reflexive elements in impersonal passives. This is seen in German and Icelandic (see Schäfer 2010 for a general discussion, Sigurðsson 1989 for Icelandic and also Áfarli 1992 for a discussion of reflexive impersonal passives in Norwegian). As noted by Schäfer (2010), reflexives in impersonal passives are not bound by the demoted external argument. This can be seen in the mismatch in person between

- (30) ?På den tiden blev det dansat en hel del på
on that time BLI.PAST *it dance.PART a whole lot on*
*deras/*sina födelsedagar*
their/REFL.PL birthdays
 int. ‘In those days, people danced a lot on their own birthdays’

It should be noted that pronominal possessor is not easily interpreted as co-referential with the demoted external argument in Swedish. This is the case for both pronouns and full DP’s in the complements of passive participles. However, given the right context, what would be violations of Principle B and Principle C in an active clause, gives rise to no violations in passive clauses, just as in eventive nominalizations. This is shown in (31), where a DP possessor is co-referential with the demoted agent of the passive participle:¹¹

- (31) a. Johan måste ha blivit mördad i mördarens
John must have BLI.SUP *murdered i murderer*DEF.POSS
eget hus.
own house
 ‘John must have been murdered in the murderer’s own house.’
 b. Han_i mördade Johan i mördarens_{*i,j}/sitt_i eget
*he murdered John in murderer*DEF.POSS/REFL.POSS *own*
hus.
house
 ‘*He_i murdered John in the murderer’s_i own house.’

Taken together, the arguments against pro/PRO in passives seem to be stronger than the arguments for pro/PRO.

One final point is worth making, concerning the correlation between (passive) participial morphology and underlying external arguments. In Baker et al. (1989), it was argued that the participial morphology itself was the phonological realization of an external argument. As argued in Lundquist (2008), passive participles in attributive position are “verbal participles” (i.e., they have the same event entailments as participles in

the reflexive and the argument in the agent-phrase in (i) (example from Schäfer 2010):

- (i) Nur von uns wird sich/*uns hier täglich gewaschen
 only by us is REFL/us.ACC here daily washed

Reflexives in passives hence do not constitute an argument for a syntactically present external argument.

¹¹Another example clearly illustrating this point for English is given below:

- (i) a. Van Gogh_i usually painted out in the fields, but this painting was painted
 in his_i/the artist’s_i own garden.
 b. *Van Gogh usually painted out in the fields, but he_i painted this painting in
 the artist’s_i own garden.

passives). Unaccusative verbs form participles that are used attributively, and in these cases, it is clear that the *-ed*-suffix cannot be the realization of a demoted external argument since there was never any external argument there to begin with:

- (32) a. de nyligen(/*fortfarande) anlända männen
the recently(/*still) arrived men
b. de nyligen(/*fortfarande) sjunkna skeppet
the recently(/*still) sunk ship

Note that the adverbial *fortfarande* is not compatible with the participles in (32), which indicated that these participles are eventive. Note further that the participle in (32b) is unambiguously formed from an intransitive verb *sjunka* and not the transitive variant *sänka*.

From now on, I will simply assume that no external argument is syntactically present in passive participles.

2.3. Consequences and extensions

In the subsections above I have argued that no external argument is present in event-denoting nominalizations and event-implicating participles. Yet reflexive interpretations are unavailable. I will argue that the reflexive readings are unavailable for the simple reason that no reflexive morphology is present: if a verbal root is marked in the lexicon as having two non-co-referential arguments, then reflexive morphology is needed to change the co-reference relations.¹² This presupposes that verbs actually carry lexically specified information about argument structure, which I take to be uncontroversial, although it is not commonly assumed in modern constructivist approaches (like Distributed Morphology and Borer 2005).

In addition to nominalizations and passive participles, there are two other cases where reflexive interpretations are unavailable for what seem to be simply the absence of reflexive marking. One case is in the context of object drop. If an internal argument can be dropped, no reflexive reading is available. This is shown in the following example:

- (33) a. Han är i badrummet och tvättar (kläder).
He is in bathroom.DEF and wash (clothes)
‘He is in the bathroom washing (clothes).’
b. Han är i badrummet och tvättar *(sig).
He is in bathroom.DEF and wash (REFL)
‘He is in the bathroom washing (himself).’

¹²This is basically Condition B of Reinhart and Reuland (1993):

- (i) *Condition B*
A reflexive predicate is reflexive-marked.

In (33a), the object can be dropped. Once it is dropped, it cannot get a reflexive interpretation.

Another related case is present participles. Object drop in present participles is fairly common in Swedish, especially when the participle is used as a prenominal modifier. Here again, no self-caused/reflexive interpretation is available. As will be discussed more later, it does not matter if the participle is formed from a verb that would otherwise receive a typical “reflexive” reading when combined with a reflexive as in (34a-b), or if it is formed from verb that otherwise would receive a typical “anti-causative” interpretation when combined with a reflexive, as in (34c-d) (judgements for the DP’s in (34) concern only the reflexive/anti-causative readings):¹³

- (34) a. Han hängde sig - *den hängande mannen
He hanged himself - *the hanging man (int. ‘the man who is hanging himself’)
- b. Han tvättade sig - *den tvättande mannen
He washed himself - int. the washing man
- c. Dörrarna öppnade sig - *de öppnande dörrarna
The doors opened - int. the opening doors
- d. Mörkret sänkte sig - *det sänkande mörkret
darkness sank.TRANS REFL - *the sinking*.TRANS *darkness*
‘Darkness fell.’ - ‘the falling darkness’

Note that (34a) is grammatical in either the intransitive stative reading (‘the man who is hanging’) or marginally in a transitive habitual reading (‘the man who usually hangs people’), but not in the relevant reflexive reading. (34b) is also grammatical in the transitive reading, but not in the relevant reflexive reading. Note that it would be hard to explain the absence of the reflexive reading in (34b) on pragmatic grounds, given that it is actually fully acceptable in English, where no reflexive internal argument needs to be present (for this verb, and other verbs of grooming). The same goes for (34c) and (34d).¹⁴

Below I will argue that arguments are linked to indices on verbal heads in a verb phrase that is decomposed into several sub-events, and that arguments receive their thematic interpretation from these heads (see Ramchand

¹³In English, this effect is seen as well, but less clearly since English has a lot more zero-derived anti-causative and reflexive verbs than Swedish. For a verb like *enjoy*, which requires a reflexive argument to get a reflexive reading, the effect is clearly seen — *??the enjoying kids* is not felicitous. The behavior of *enjoy* contrasts with the behavior of verbs like *behave*, which only optionally take a reflexive complement (*they behaved (themselves)*): *Only the behaving/*enjoying kids will get an ice cream.*

¹⁴For me, the verb *stänga* ‘close’ requires a reflexive or a passive *-s* when it is used as an inchoative/anti-causative verb. The present participle can therefore not be used intransitively, as in (i) **de stängande dörrarna* (“the closing doors”). Examples like (i) can however be found on the internet, as well as quite a lot of intransitive examples of the active verb – (ii) *dörrarna stänger* (“the doors close”). Presumably, only the speakers who accept (ii) accept (i).

2008b, and also Baker 2003). In nominalizations and participles, the verbal heads are present, but not the arguments. The following sections will discuss the following questions, which will lead to an explicit analysis.

- How can we account for the eventive-stative distinction with respect to the availability of reflexive interpretations?
- What is the function and structural representation of anaphors, and why do they have a restricted distribution in nominalizations and participles?

3. A decomposed verb phrase

In this section I will sketch a system that can derive the effects described above. So far we have said that the absence of the self-caused/reflexive reading in eventive participles and nominalizations is triggered solely by the absence of reflexive marking. This statement is quite vacuous unless we have an explicitly stated theory of verbal syntax and semantics. I will provide this in the following section. We also need a theory that says something about the reflexive interpretations that are available in stative participles/nominalizations. In short, we need a theory that can link argument structure to event structure. We also need a theory of the lexicon-syntax interface that can correctly regulate the amount of lexical information that can be lost as lexical elements get inserted in the syntax.

In this paper I will build on ideas about the interaction between argument structure and event structure developed in Ramchand (2008b). I will also make use of certain principles that deal with syntax-lexicon interface that have been developed during the last couple of years at the University of Tromsø under the label Nanosyntax (see Caha 2009 and Starke 2009). I will not lay out all of the details of Nanosyntax here, but a couple of details need to be mentioned. Nanosyntax shares a couple of important traits with Distributed Morphology (DM, see Halle and Marantz 1993). Most notably, in both DM and Nanosyntax, both word-syntax (i.e. Morphology) and phrasal syntax are taken to follow basically the same rules, and are therefore taken to be handled by the same module. However, whereas DM assumes all lexical items to be category-neutral, Nanosyntax assumes that lexical items carry a set of features. A lexical item can be inserted if the syntax has generated a representation that matches the feature content of that lexical item. Lexical items are thus inserted after the syntax has generated a representation (i.e., late insertion).

Ramchand (2008b) lays out a system that captures the relations between argument structure and event structure, and that further tries to capture the variability in e.g. valency that certain verbal roots show. According to Ramchand, all verbal roots carry a set of features that encode event structure and argument structure, and these features can be mapped on to a syntactic structure that carries these features. According to her analysis,

the verb phrase can be decomposed into three parts: (1) InitP, denoting a stative initiation subevent that takes as its subject the initiator of the event (INITIATOR); (2) ProcP, denoting a process subevent that takes as its subject the entity that undergoes change (UNDERGOER); and (3) ResP that denotes the result state of an event, taking the holder of the result as its subject (RESULTEE). The verbal roots contain category features that match these subevent heads. The verbal roots further carry indices that indicate whether or not the participants associated with the different subevents are co-indexed. In (35), the lexical specification of four types of verbs are given:

- (35) a. *samla*_{Transitive} ‘collect’: [Init_{*i*} Proc_{*i*}, Res_{*j*}]
 b. *anlända*_{Unacc} ‘arrive’: [Init_{*i*}, Proc_{*i*}, Res_{*i*}]
 c. *skratta*_{Unerg.} ‘laugh’: [Init_{*i*} Proc_{*i*}]
 d. *jaga*_{Trans} ‘chase’: [Init_{*i*}, Proc_{*j*}]

The difference between a transitive verb with an endpoint (35a) and an intransitive verb with an endpoint (35b), is that the participant that is associated with the Result subevent is co-referential with the participant associated with the process and initiation subevent for the intransitive verb, but not for the transitive verb. In other words, for a verb like *anlända* ‘arrive’, the sole argument is both initiating, undergoing and carrying the result of the arriving event. For *samla* ‘collect’, the carrier of the resultant state (i.e., the direct object), is not the same as the initiator (i.e., the subject/agent). For atelic verbs, like (35c) and (35d), we see the same difference between transitive and intransitive verbs, but in this case, no ResP is present (which make them atelic). Note that thematic roles are composite, following this approach, i.e. one and the same DP might receive thematic entailments from more than one head. In this paper I will assume that the verb-phrase is only bipartite. I will get rid of the InitP, and have entries like the ones in (36) and (37) (see Pustejovsky 1995 for the same idea)¹⁵. Below each entry I give the interpretation that the arguments will receive from the indices on the verb:

- (36) a. *Stänga*_{Transitive} (‘close’): [Proc_{*i*}, Res_{*j*}]
 b. The binder of *i* is the argument of a process that leads to a result in which the binder of *j* is the argument, where the nature of the process and the result is given by the lexical content of the verb.
- (37) a. *Försvinna*_{Unacc} (‘disappear’): [Proc_{*i*}, Res_{*i*}]
 b. The binder of *i* is the argument of a process that leads to a result in which the binder of *i* is the argument, where the nature of the process and the result is given by the lexical content of the verb.

¹⁵Information that is related to initiation and intentions behind events I take to be encoded higher up in the structure, presumably above the verb-phrase, see Lundquist (2010) for discussion.

Ramchand further allows lexical items to underassociate, i.e. a lexical item may be inserted when only a subset of the features specified in the lexical item are present in the syntax (see Ramchand 2008a for possible restrictions on underassociation for lexical verbs). In Nanosyntax, the general idea of underassociation has been formalized as the Superset Principle:¹⁶

- *The Superset principle:*
The phonological exponent of a Vocabulary item is inserted into a node if the item matches all or a superset of the grammatical features specified in the node. Insertion does not take place if the Vocabulary item does not contain all of the features present in the node. (from Caha 2007)

When we apply the Superset principle to the verbal lexical entries under discussion, we see that one and the same entry can lexicalize more than one syntactic structure. E.g. *stänga* and *samla* could be inserted in the following contexts (at least):

- (38) a. [Proc_i [Res_j]]
b. [Res_i]

Försvinna could be inserted in the following two contexts (at least):

- (39) a. [Proc_i [Res_i]]
b. [Res_i]

Note that *stänga* and *samla* could not be inserted in the following context, since the feature specification of the lexical items do not match the features of the syntactic structure:

- (40) [Proc_i [Res_i]]

Following the same reasoning, *försvinna* could not be inserted in the following context:

- (41) [Proc_i [Res_j]]

3.1. Unaccusativity and Reflexivity

Being a reflexive predicate simply means that the participants of the subevents are co-referential. There are basically two ways for a predicate to be “reflexive” (i.e., having the participants of the two sub-events being co-referential):

1. Lexically reflexive, i.e. Unaccusative: [Proc_i [Res_i]]

¹⁶The principle was originally worked out by M. Starke, see also Caha (2009) for a slight reformulation of the principle, and the Nanosyntax webpage for updates (<http://nanosyntax.auf.net/blog/>).

2. Reflexive marked (i.e., Transitive base): *sig* – [Proc_{*i*} [Res_{*j*}]]. The reflexive pronoun explicitly marks the co-reference between the two arguments, see below on the insertion of reflexive pronouns.

Note that we now have a theory similar to e.g. Pustejovsky (1995) and Chierchia (2004), where unaccusatives, both reflexive-marked and lexical, have external arguments. Further, for our purposes, there is no point in making any difference between what could be called a reflexive and an anticausative interpretation :

- (42) a. Han hängde sig.
 he hang.PAST REFL
 ‘He hanged himself.’ (‘Reflexive’)
- b. Dörren öppnade sig
 door.DEF open.PAST REFL
 ‘The door opened.’ (‘Unaccusative, anti-causative’)

As noted above, information that might be related to the intentionality of the arguments is presumably located outside the ProcP.

An Anti-reflexive reading will always be forced in the context [Proc_{*i*} [Res_{*j*}]], unless a reflexive marker is present. A reflexive reading will always arise for unaccusative verbs. If the event is simplex (i.e., if it can not be decomposed into further subevents), the distinction between reflexive and anti-reflexive cannot be made, given that only one argument is involved.¹⁷ The structures that will be relevant to the further discussion are the following:

- (43) a. [Proc_{*i*} [Res_{*j*}]] – Non-reflexive (Transitive)
 b. [Proc_{*i*} [Res_{*i*}]] – Reflexive (Unaccusative)
 c. [Res] - Underspecified

4. Deriving the Anti-reflexive readings

Following Abney (1987) I will assume that both nominalizing and participial morphology can attach at different heights in the structure.¹⁸ For this paper, I will only look at nominalizing/participial morphology that attaches either directly on top of Res, or on top of Proc. This will give rise to two types of nominalizations and two types of participles. Note that nominalizing/participial morphology can attach even higher up in the structure in many languages, presumably after a syntactic subject has been merged, giving rise to gerundive nominals and participles that have more verbal traits

¹⁷As will be discussed in 5.5, some simplex predicates probably have more than one argument. As far as I can tell, these arguments necessarily have disjoint referents.

¹⁸I take it that the only function of participial morphology is to create an adjective out of a verb, and the only function of nominalizing morphology is to create a noun out of a verb.

(most noticeably, structures where accusative case on internal arguments is licensed, see e.g. Lees 1964, Chomsky 1970 and Abney 1987 for discussion.)

4.1. Two types of nominalizations

In eventive nominalizations, the nominalizing morpheme (Nom) is merged on top of a ProcP, as exemplified below for a transitive verb:

- (44) a. hängningen av Saddam Hussein
hang.NOM.DEF of Saddam Hussein
 ‘the hanging of Saddam Hussein’
 b. häng: [Proc_i [Res_j]]
 c. häng-ning: [Nom [Proc_i [Res_j]]] = “non-reflexive” interpretation

In (44), Proc and Res are not co-indexed, which forces a non-reflexive interpretation. Note that certain verbal structures lack a ResP, and these can of course be nominalized as well. Here the question of whether the interpretation is reflexive or not is moot, given that there is only one argument involved.

- (45) a. [Under vandringen] började jag bli trött.
during hike.NOM.DEF started I become tired
 ‘During the hike, I started to get tired.’
 b. vandr: [Proc]
 c. vandr-ing: [Nom [Proc]]

Further, nominalizations formed from unaccusative verbs will actually be interpreted as ‘reflexive’, i.e., the arguments of the first subevent and the second subevent are necessarily co-referential:

- (46) a. [Artistens plötsliga försvinnande] förvånade
artist.DEF.POSS sudden disappear.NOM surprised
fansen.
fans.DEF.PL
 ‘The artist’s sudden disappearing/disappearance surprised the fans.’
 b. försvinna: [Proc_i [Res_i]]
 c. försvinnande - [Nom [Proc_i [Res_j]]] = “Reflexive” interpretation

In other words, eventive nominalizations can be reflexive, but only when it is encoded in the lexical entry of the underlying verb that it can lexicalize a Proc-Res sequence where the two heads are co-referential.

In result nominalizations, the nominalizing suffix is merged straight on top of a ResP, i.e., they have the simple structure illustrated in (47):

- (47) Nom [Res]

A couple of examples of Result nominalizations are given below:

- (48) a. Det var en stor öppning i väggen.
 ‘There was a big opening in the wall.’
 b. En tidig Beatles-inspelning hittades på vinden.
an early beatles-in.play.NING found.PAST.PASS on attic.DEF
 ‘An early Beatles recording was found in the attic.’
 c. Han har en stor samling av värdefull konst.
 ‘He has a big collection of valuable art.’

Given that we only have one verbal head present in these constructions, we need not worry about co-reference relations. The syntactic/semantic representation says nothing about the nature of the ‘causer’ argument here, given that the ‘causer’ is simply not present in the representation. The result nominalizations are surely accidentally compatible with self-caused/reflexive interpretations, but a reflexive interpretation is never forced since the information about the causer is absent. A reflexive interpretation could only be forced if two heads are co-indexed, and that could never happen in the simplex result nominalizations.

4.2. Two types of passives

Just as for nominalizing morphology, participial morphology can attach either directly on Res, or on Proc. The anti-reflexive interpretation discussed above arises when the participial morphology is merged on top of a [Proc [Res]] sequence, where the two heads are not co-indexed, as in (49) and (50):

- (49) a. Han blev mördad.
 ‘He was murdered.’
 b. mördad: [Part [Proc_i [Res_j]]]
- (50) a. den mördade mannen
 ‘the murdered man’
 b. mördad: [Part [Proc_i [Res_j]]]

Unaccusative verbs can also be the input to eventive participles, and in these cases, we do get a ‘reflexive’ participle, i.e., a participle where the two heads are co-indexed:

- (51) a. de nyligen anlända gästerna
 ‘the recently arrived guests’
 b. anlända: [Proc_i [Res_i]]
 c. anländ : [Part [Proc_i [Res_i]]]

Unergative verbs tend not to form passive participles (or any type of past participle that can be used attributively). This restriction on unergative verbs is discussed in detail in Lundquist (2008).

The stative passives, just like the stative nominalizations, contain only a ResP, which is diagnosed by the compatibility with the adverb *still*:

- (52) a. Dörren är fortfarande stängd.
 ‘The door is still closed.’
 b. stängd: [Part [Res]]
- (53) a. Nyckeln är fortfarande försvunnen.
key.PL.DEF are still disappear.PART.SG
 ‘The key is still missing/lost.’
 b. försvunnen: [Part [Res]]
- (54) a. Johan är fortfarande nedsövd.
 ‘John is still sedated.’
 b. nedsövd: [Part [Res]] (not taking the verb-particle into consideration)

In (52a), we have no information about whether someone has closed the door, the door has closed itself, or if the door has always been closed. In (53), an unaccusative verb is used, but still we have no idea what caused the key to disappear. This kind of information is simply not represented in the stative participles. In (54), a typical transitive verb is used (i.e., a verb which is not usually used reflexively), and from our world knowledge we can guess that someone (or something) has sedated Johan, and he is not himself the causer/sedator. However, the sentence (54) contains no information about who sedated him.¹⁹

¹⁹It has been claimed in the literature that there is a third type of passive participle, called the resultant state participle (see Kratzer 2000) or resultative participle (see Embick 2004). These participles are eventive, in contrast to target state participles, and can, according to Kratzer, receive reflexive interpretations in German. There could simply be a difference between German and Swedish here. The examples Kratzer gives are all verbs of grooming/washing, like *the recently washed kids*. These verbs show slightly special properties in Swedish. Though they cannot receive reflexive interpretations, and resist a target state interpretation when they occur unmodified, they can take the prefix *ny* (‘new’, presumably the prefixal form of the adverb *nyligen* ‘recently’) and receive a reflexive interpretation. Even modification by *still* is possible in that case: *han är fortfarande nykammad* ‘he is still new-combed’. Note that in Swedish, verbs of washing/grooming that behave like straightforward (non-reflexive) unergative verbs like *duscha* (‘shower’) and *bada* (‘bathe’) form participles with the prefix *ny-*: *nyduschad* (lit. ‘new-showered’ – someone that has recently taken a shower). I have no analysis for this group of verbs in either Swedish or German. My German informants however notes that the reflexive reading, while easily accessible for verbs of grooming/washing (ia), is not available for at least some other types of reflexive verbs (ib) (special thanks to Eva Engels for discussing these data with me):

- (i) a. Das Kind ist seit zwei Stunden gekämmt
the kid is since two hours PREF.comb.PART
 ‘The kid has been combed for two hours.’ (reflexive interpretation available)
- b. Der Mann ist seit zwei Stunden erhängt/gehängt
the man is since two hours PREF.hang.PART/PREF.hang.PART
 ‘The man has been hanged for two hours.’ (reflexive interpretation unavailable)

5. The nature of reflexive predicates

The above sketched proposal leaves two important questions unanswered: (1) How is a transitive verb (i.e. $[i, j]$) ever inserted in a reflexive or an unaccusative (i.e. $[i, i]$) structure, and (2) why is it not possible to insert a reflexive pronoun in nominalizations and participles in Swedish? I will start with the first question, and suggest that simple reflexive elements can be inserted in a verbal head, and thereby re-code the lexically specified argument structure of the verb. A short overview of how reflexives in Swedish behave will first be given.

5.1. Reflexive elements in Swedish

As will be shown in the following section, in Swedish, a third-person reflexive *sig* in the complement of a verb is always bound by the syntactic subject of that verb. There is in other words no long-distance binding of simple third person object reflexives (i.e. *sig*). I will show that there are however contexts where long-distance binding of an anaphor is possible in Swedish, as in e.g. possessors inside internal arguments and anaphors inside adjuncts. This fact is in accordance with the claims made by Reinhart and Reuland (1993) and Pollard and Sag (1992) that we need a separate part of the binding theory (or a reformed more general theory) that takes care of co-reference relations between the arguments of a predicate. I will argue that simple reflexives in the complement of a verb are in fact located in a verbal sub-event head, while other reflexives can be located in argument positions. This extends to first and second person reflexives as well (i.e., to the whole series *sig* (third person), *mig* (first person, singular), *dig* (second person, singular), *oss* (first person, plural), and *er* (second person, plural)).

It is easy to see that an anaphor in a direct object position is always bound by the nearest subject – no matter if it is overt or an implicit PRO. This can be seen in object control sentences (55). Observe that it makes no difference here if the reflexive is simplex (*sig*) or complex (*sig själv*):

- (55) a. *Han tvingade mig_i att PRO_i tvätta sig (själv).
he forced me to PRO wash REFL.3RD (self)
 Int. ‘He forced me to wash him.’
- b. Jag tvingade honom_i att PRO_i tvätta sig.
I forced him to PRO wash REFL.3RD
 ‘I forced him to wash himself.’

There is some variation among Swedish speakers with respect to the accept-

In Swedish, the prefix *ny-* will, as far as I’m aware, only trigger the reflexive interpretation with verbs of grooming, indicating that this group cross-linguistically shows special properties. In Lundquist (2008) I acknowledge the fact that there is a third type of passive, i.e., a resultant state passive, but I argue that the resultant state passive, just like the verbal passive, contains a full VP (i.e., a ProcP), and the difference between the two is encoded higher up in the structure (i.e., it is a difference in VP-external aspect).

ability of long-distance reflexives of this type which is worth mentioning. The availability of long-distance anaphors across Scandinavia is being investigated within the ScandDiaSyn-project (Lindstad et al. 2009). Here speakers are given the task of judging the grammaticality of a wide array of sentences using a scale from 1 to 5 (1 being ungrammatical, 5 being completely grammatical). The sentence *han bad mig hjälpa sig* ('He_i asked me to help REFL_i') has been tested on speakers across Scandinavia, and the mean value for the Swedish speakers for this sentence is currently 2.3 (only 19 % of the informants give this sentence 4 or 5, indicating that the majority of Swedish speakers, 81%, find this type of long-distance reflexive marked or completely ungrammatical). In Norwegian this type of long-distance anaphor is more common though. Questions regarding variation will be returned to in section 5.4.

In subject control sentences (56), an anaphor in the complement of the verb is also bound by the PRO-subject of the infinitive (here there is no variation, as far as I am aware):

- (56) a. Han_i lovade mig att PRO_i tvätta sig (själv).
He promised me to PRO wash REFL.3RD (self)
 'He promised me to wash himself.'
- b. *Jag_i lovade honom att PRO_i tvätta sig (själv).
I promised him to PRO wash REFL.3RD (self)
 Int. 'I promised him that I would wash him.'

It is also clear that a non-reflexive object can never give rise to a reflexive reading, as is shown below:

- (57) a. Han_i tvingade honom_j att PRO_j tvätta honom_{i/*j/k}.
He forced him to PRO wash him
 'He forced him to wash him.'
- b. Han_i lovade mig att PRO_i tvätta honom_{*i/j}.
he promised me to PRO wash him
 'He promised me to wash him.'

The data presented in (55a) to (57) are captured in the binding theory as proposed by Reinhart and Reuland (1993):²⁰

²⁰Reinhart and Reuland claim that the difference between the verbs that take simplex reflexives and verbs that take complex reflexives is that verbs that take simplex reflexives are lexically reflexive, while verbs that take complex reflexives are underlyingly transitive verbs. I will remain agnostic to this claim. R&R further make a distinction between semantic predicates and syntactic predicates. "Semantic predicate" refers to the predicate and the argument-structure it is lexically specified to take. In the framework used here, it refers to the lexical specification of the verb, i.e., the heads that the verb can lexicalize, plus the relevant co-reference possibilities of the elements in the specifiers. "Syntactic predicate" refers to the argument/event-structure actually realized in the syntax. R&R argue that their condition B is sensitive to the notion of semantic predicate, based on examples like:

- (58) 1.If a predicate is reflexive marked, it is reflexive. (Reinhart and Reuland’s Condition A)
 2.If a predicate is reflexive, it is reflexive marked. (Reinhart and Reuland’s Condition B)

Note that this is a special restriction on direct objects. Reflexive pronouns in PPs for example need not be bound by the PRO in the controlled infinitival clause, as shown in (59) (observe further that the non-reflexive personal pronoun is equally fine in this context):

- (59) *Hon_i bad mig_j PRO_j stanna hos sig_i/henne_{i,k} över natten.*
she asked me PRO stay at REFL/her over night.DEF
 ‘She asked me to stay with her overnight.’

Also, reflexive possessive pronouns need not necessarily be bound by the (PRO) subject:

- (60) *Han tvingade mig att skriva om sina/hans memoarer.*
he forced me to write again REFL.POSS/his memoirs
 ‘He forced me to re-write his memoirs.’

In the ScanDiaSyn project, long-distance binding of possessive anaphors has also been investigated. The mean value for the sentence *hon bad mig passa sin katt* (‘She_i asked me to look after REFL’s_i cat’) is 3.9 (compared to 2.3 for a simple long-distance reflexive in the complement of a verb), with 68 % of the informants grading it 4 or 5. The data from the ScanDiaSyn data collection thus very clearly shows us that the majority of the Swedish speakers have different restrictions on anaphoric possessors and anaphors in the direct complement of verbs.²¹

- (i) a. Max_i heard a story about him_i.
 b. Max_i told a story about him_{*i}.

The co-reference between the subject and the pronoun is impossible in (ib), but possible in (ia). The explanation behind the difference is that the noun *story* actually has an ‘‘Originator/Author’’-role in its lexical representation. However, this role does not seem to be present in the syntax, according to R&R. This solution is incompatible with my general claims about reflexivity and the syntax-semantics mapping. I would prefer to seek an account of the data in (i) in the different binding properties of arguments with different thematic roles. For example, as can be seen in Swedish, theme arguments, especially inanimate themes, can have a clause-mate co-referential pronoun in contexts where agents would require a reflexive anaphor (see Sundman 1987 for discussion on animacy, thematic roles and binding in Swedish).

²¹55 % of the informants interviewed so far (90 informants, 28th of August 2010) judge long-distance possessive anaphors as OK (4 or 5) and long-distance anaphors in the complement of a verb as marked or ungrammatical (< 3). 26 % of the informants found both types of long-distance anaphors marked or ungrammatical (< 3), and 14 % found them both acceptable (> 4). Note that possessive anaphors still need a local antecedent. Anaphoric possessors in the complement of a verb in a finite subordinate clause cannot be bound by the subject of the main clause. This is tested in the ScanDiaSyn questionnaire as well, and the mean value for this type of sentence is 1.3.

In other words, it is important to note that simple short-distance reflexives in the complements of verbs behave differently from simple reflexives in the complements of prepositions and anaphoric possessors. In the literature it has frequently been pointed out that simple reflexives in the complement of verbs, i.e. the reflexives that make a predicate “reflexive”, behave differently from typical internal arguments. As e.g. Kayne (1975), Alsina (1996) and Medová (2007) have shown, reflexive predicates behave like intransitive predicates rather than transitive predicates in many languages. This is the case in Swedish too. In Swedish, generally only intransitive verbs are allowed in existential clauses. As shown in (61b), a reflexive pronoun is allowed in existential clauses, but not an argumental pronoun ((61a) shows a regular clause, where both reflexive and non-reflexive pronouns are of course available):

- (61) a. Han la mig/sig i sängen.
he lie. me/REFL in bed.DEF
 ‘He laid me down in the bed/he laid himself/lay down in the bed.’
 b. Det la *mig/sig en man i sängen.
it lay me/sig a man in bed.DEF
 ‘A man lay (*me) down in bed’

Note also that complex reflexives are out in existential clauses:

- (62) Det tvättade sig (*själva) några män nere vid stranden.
it washed REFL SELF.PL some men down at beach.DEF
 ‘Some men washed (themselves) down at the beach.’

Note that the first or second person verbal reflexive could never be used in an existential clause, given the definiteness restrictions on the associate and that first and second persons are obligatorily definite. There is however another contexts where verbal reflexives, no matter the person-value, behaves differently from argumental pronouns. In (63a), a first person verbal reflexive appears before a verb-particle. In (63b), the morphologically identical object pronoun is obligatorily placed after the verb-particle:²²

- (63) a. Jag slängde mig in i rummet.
I threw me in in room.DET
 ‘I threw myself into the room.’
 b. Han slängde in mig i rummet.
he threw in me in room.DEF
 ‘He threw me into the room.’

²²Direct objects are obligatorily placed after all sorts of verb-particles in Swedish. Verbal reflexives are in general placed after verb-particles as well, though some particle verbs take a reflexive before the particle. I will not be able to give an account of exactly what determines the order of the reflexive and the particle, but instead I just point out the difference between reflexive and non-reflexive elements.

I therefore suggest that simple anaphors with any person or number features can be either arguments or verbal elements. I will call the second type of reflexives verbal reflexives. When they reflexive-mark a predicate, i.e. change the lexically specified co-reference relation between the arguments of a verb, they are always verbal elements. As complements of prepositions and as long-distance anaphors (and also first and second person arguments of verbs) they are arguments. Note that the distinction between verbal and argumental reflexive will capture many of the distinctions that Reinhart and Siloni 2005 capture by making a distinction between lexical and syntactic reflexives.²³ It is not obviously the case that a language will have an item that will go both in argument position and in a verbal position. We are thus not surprised that some languages use different morphology in typical unaccusative or anti-causative contexts (which would necessarily involve re-coding of the argument structure) and some long-distance “reflexive” contexts, that should involve an argumental reflexive.

There is another more subtle test to distinguish simplex verbal reflexives from complex reflexives, regular pronouns and simple long-distance reflexives, and that is coordination. In my Swedish, simple verbal reflexives can not be co-ordinated. There is however a huge variation among speakers here (see e.g. Kiparsky 2002 for reports on completely different judgements), but given the interesting differences between simple verbal reflexives and other simple reflexives, I choose to include this set of data.

Most importantly, simple reflexives in the complement of a verb cannot easily be co-ordinated, while reflexives in adjuncts can, as shown in (64). Note that complex reflexives can be co-ordinated when they are in object position (64a):

- (64) a. Han tvättade sig ??(själv) och sin bror innan
he washed REFL (self) and REFL.POSS brother before
 de gick och la sig.
they went and laid REFL
 ‘He washed himself and his brother before they went to bed.’
- b. Hon ordnade ett möte hemma hos sig (??själv)
she arranged a meeting home at REFL and
 och sin sambo.
 REFL.POSS *partner*
 ‘She arranged a meeting at her and her partner’s place.’

²³I think however that simple parametric choice between lexical and syntactic reflexives, or verbal and argumental reflexives, is not enough to capture all of the differences in the anaphoric system of different languages. At least two other factors are involved. First, some languages have more verbal lexical entries that are under-specified for co-reference relations than others (e.g., English allows more morphologically unmarked causative-inchoative alternations than e.g. Swedish, but still there are limits on English). Secondly, languages differ in the person/number marking of anaphors. Some languages allow third person reflexives as a “default” form (occurring with first and second person antecedents), while other languages require person/number agreement on anaphors. Both issues will be returned to briefly below.

In this way, long-distance *sig* look like a first or second person object pronoun:

- (65) Min mamma tvättade mig (*själv) och min bror innan vi
My mother washed me (self) and my brother before we
 gick och la oss.
went and laid us
 ‘My mother washed me and my brother before we went to bed’

Let us assume that reflexives (including first and second person pronouns in reflexive contexts) can only be co-ordinated if they occupy an argument position.²⁴ We then have to suggest that short-distance, simple reflexives in the complement of verbs are not truly arguments. I will argue that they rather instantiate a verbal head (see Zubizaretta 1992 and Folli 2001 for an analysis of this kind for Romance reflexive clitics). This indicates that the both first person object pronoun *mig* (and second person object pronouns) and the third person reflexive pronoun *sig* have two different functions: the first one is as a verbal morpheme, lexicalizing a head that introduces a sub-event (presumably Res), and the second one is as a regular argument, behaving like a regular pronoun. Reflexives will however only turn up as arguments in “non-reflexive” contexts.

Given that complex reflexives can be co-ordinated, I will assume them to be regular arguments. The question is then whether verb-phrases with complex reflexive complements have an altered argument structure, i.e., whether the indices on the verbal heads are re-coded. I will remain agnostic on this point, leaving the alternative open that these sentences are underlyingly transitive. If this is the case, we could expect there not to be full co-reference between the anaphor and the antecedent, but possibly a mind-body split or a split in consciousness between the two arguments. I leave this matter for future research, although I will mention briefly in section 5.2 that the fact that complex reflexives may occur in the complements of eventive nominalizations could be taken as support for a transitive analysis of verbs with complex reflexive complements.

5.1.1. How to use a reflexive

In section 3 I sketched a system that made use of late insertion, and that further assumed that lexical entries contain category features (of the type Proc and Res for verbs) as well as information about co-reference between different features. Following this system, the absence of reflexive/self-caused readings for certain types of participles and nominalizations has its root in the impossibility of inserting a transitive verb in a context where two

²⁴It should be noted that typology of pronouns proposed by Cardinaletti and Starke (1999) does not cover the +/- reflexive distinction made here. The restriction on co-ordinating anaphoric pronouns cannot be explained by them being light pronouns or clitics, since they can be co-ordinated once they are not reflexive marking a predicate.

heads are co-indexed for arguments, i.e., a lexical item that is specified as $[\text{Proc}_i [\text{Res}_j]]$ can not lexicalize the following string: $[\text{Proc}_i [\text{Res}_i]]$. This is easily illustrated for the verb *sänka_{trans}* ‘sink’ in (66). In (66a) we see that the verb is obligatorily transitive, i.e. an internal argument is required. In (66b) the verb is used as an anti-causative, and as an anti-causative the reflexive is necessarily present. (66c-d) shows that the anti-causative reading is not felicitous in nominalizations and participles:

- (66) a. Ubåten sänkte *(skeppet).
submarine.DEF sank_{trans} ship.DEF
 ‘The submarine sank the ship.’
- b. Mörkret sänkte sig.
darkness.DEF sank_{trans} REFL
 ‘Darkness fell.’
- c. #mörkrets sänkande/#sänkandet av mörkret
darknessPOSS sink_{trans}.NOM/sink.NOM.DEF of darkness
 int. ‘the falling of darkness’
- d. #det sänkta mörkret
the sunk_{trans}.PART darkness
 int. ‘the fallen darkness’

The next question to answer is how to actually get a transitive verb to lexicalize a stretch of Proc and Res carrying identical indices. Let us start by assuming that the underlying semantic structure for the following English/Swedish pair is identical (i.e., $[\text{Proc}_i [\text{Res}_i]]$).

- (67) a. Dörren öppnade sig.
 The door opened REFL
- b. The door opened.

The Swedish lexical item *öppna* and the English lexical item *open* however must be different. The lexical item *öppna* is stored in the lexicon with the information that the argument of Proc and Res are not the same, while *open* must be underspecified. I will for now assume the following two lexical entries:

- (68) a. *öppna*: $\text{proc}_i, \text{res}_j$
 b. *open*: $\text{proc}, \text{res}_i$

I will assume that (67a) and (67b) have the same underlying representations (for the verb phrase, $[\text{Proc}_i, \text{Res}_i]$). In English, the verb *open* can be inserted in that context, given that it has no argument specification on Proc. In Swedish however, this is not possible without the help of a reflexive pronoun. The question is then, how does the reflexive make it possible for the transitive verb to be inserted in a context where Proc and Res are co-indexed. One could speculate that the underlying representation for the Swedish sentence (68a) is not $[\text{Proc}_i, \text{Res}_i]$, but rather $[\text{Proc}_i,$

Res_{*j*}]. In this case, the reflexive would just add the information that *i* and *j* are co-referential. The underlying representation for the English sentence (68b) would however still be [Proc_{*i*}, Res_{*i*}], just like any other unaccusative verb (given that *open* behaves just like any other unaccusative verb in English). However, we do not want the underlying semantic representation to be aware of which lexical elements actually exist in a given language. The semantic representation should in other words not vary from language to language. We then need a mechanism that makes it possible for the transitive verb to be inserted in an unaccusative context.

The first ingredient of the solution is the already presented superset principle. In other words, we have a mechanism that makes it possible for us to insert a lexical item when not all features are present in the syntax.²⁵ The second ingredient was presented in previous section, i.e., an analysis of reflexives that takes them to be heads in the verbal functional sequence, rather than arguments (as in Zubizarreta 1992 and Folli 2001). More specifically, I claim that *sig* (or any of the non-third person forms of the reflexive) can lexicalize a Res head. When there is no lexical item that matches the structural description generated by the syntax, e.g. [Proc_{*i*} [Res_{*i*}]] in the case of *öppna*, the reflexive element can be inserted in Res, while the verbal element only lexicalizes Proc (thereafter, the verbal element moves further to lexicalize higher projections in the clausal spine, say Pred(ication) and T(ense)).²⁶ Inserting a reflexive is in other words a last resort strategy – there is no lexical item matching the syntactic structure, and therefore two separate elements, i.e. the verb and the reflexive, are used to lexicalize the structure. The only function of the reflexive is to identify a Result sub-event, and further specify that the referent involved in the Result sub-event is identical to the referent of a structurally higher sub-event.

5.2. Why is there no overt reflexive marking on participles and nominalizations?

We have now seen that the simple reason for the absence of a reflexive reading on most participles and nominalizations is the absence of reflexive marking. A legitimate question is then why we cannot put reflexive marking on them, to get the reflexive interpretation.

Starting with verbal passive participles, the same restrictions that hold for unaccusative verbs in general are expected to hold for reflexive verbs, i.e., the same restrictions that makes **they were being arrived* ungrammat-

²⁵Note that it is important that the index and the sub-event feature not be split. If we were to allow underattachment solely of the index, then every verb could be inserted in an unaccusative/co-indexed context.

²⁶In some cases, it is quite obvious that the reflexive adds a Resultative subevent to an otherwise atelic event, for example in resultative phrases added to unergative verbs, e.g. *springa sig trött* ‘run oneself tired’. It could otherwise be argued that the reflexive element lexicalizes Proc, and the verbal root Res. In this paper I choose to assume that all verbal reflexives are inserted in Res.

ical should rule out a verbal passive from an anti-causative or a reflexive verb.²⁷ However, when it comes to attributive participles, we expect reflexive verbs, with explicit reflexive marking, to be as acceptable as unaccusative verbs. This is however not true (remember that I have argued that unaccusative verbs form eventive participles that can be used attributively):

- (69) a. de nyligen anlända gästerna (unaccusative)
 ‘the recently arrived guests’
 b. en nyligen sjunken ubåt
 ‘a recently sunk submarine’
- (70) a. den (*sig) hängda (*sig) mannen (reflexive)
 the (REFL) hanged (REFL) man (int. ‘the man who hanged himself’)
 b. den (*sig) öppnade (*sig) dörren (reflexive/anti-causative)
 the (REFL) opened (REFL) door (int. ‘the door that opened (itself)’)

There are several plausible explanations for the unacceptability of the reflexives in (70). The post-participial reflexive is presumably out due to a general ban on non head-final modifiers in Swedish. The participial ending is presumably the head of the participial modifier, and hence the participle has to be the final element of the attributive modifier. When it comes to the pre-nominal reflexive, one could argue that the order reflexive-verb in general is illicit, which could be due to restrictions on movement (it could for example be seen as a crossover effect). Another more plausible analysis is that the verbal anaphor needs person and number features present in order to spell out. It is highly likely that attributive participle phrases (and prenominal modifier phrases in general) lack any type of person information. Thus, the form of the reflexive would not be able to be determined. (This presupposes that the third person form *sig* is not a default form, but an explicit third person form.)

In nominalizations, we can actually use an overt reflexive pronoun, but only a complex reflexive, once a binder is present, either as a possessor in the DP, or somewhere outside the DP, as in (71):

²⁷But compare the availability of impersonal passives in certain languages, as discussed in footnote 10. If one gives a strict unaccusative analysis of reflexive verbs, one would expect the reflexive verbs to be as bad in impersonal passives as unaccusative verbs. In German, the reflexive impersonal passives however seem to be slightly better than the unaccusative impersonal passives. This indicates that in German, reflexive verbs are treated as unergatives, which is supported by the fact that they take the auxiliary *haben* rather than *sein*, just like unergative and transitive verbs. For languages that do not allow impersonal passives of reflexive verbs (Swedish, Norwegian, Dutch etc. see Schäfer 2010 for an overview), we could take this to be an indication of their unaccusative status. However, there are likely to be other forces at work here, as will be shown below.

- (71) a. hans hyllande av sig själv.
his celebrate.NOM of REFL self
 ‘His celebrating of himself.’
- b. Han la mycket tid på vårdandet av sig själv.
he put much time on care-take.NOM.DEF of REFL self
 ‘He invested a lot of time in the care-taking of himself.’

Simple reflexives are not licit in the complements of nominalizations (see e.g. Telemann et al. 1999, and see Siloni and Preminger 2009 on cross-linguistic variation with respect to reflexive marking on nominals). One reason for the absence of simplex reflexives in nominalizations might be the clitic-like behavior of the simple reflexive. However, this is unlikely, given that we have seen reflexives in the complement of prepositions that do not show reflexive behavior. What is more likely is that a simple reflexive in a verbal position needs a very local antecedent. More specifically, a subject with interpretable person and number features needs to be present to determine the very shape of the reflexive. It should be noted that even first and second person simple reflexives are unavailable in nominalizations, which indicates that verbal reflexives, irrespective of person and number value, need syntactically present, local antecedents. Reinhart and Siloni (2005) and Siloni and Preminger (2009) claim that reflexives in nominalizations are only allowed in languages that have lexical reflexives, i.e., reflexives that are combined with a predicate in the lexicon rather than in the syntax. It is hard to find data to justify this claim, and many of the languages that Siloni and Preminger (2009) discuss show patterns that go against the claims made by the authors (e.g., Czech has syntactic reflexives, but still allows them in nominalizations, German and Dutch differ, according to the authors with respect to where reflexives enter the derivation, though they still show no difference with respect to the availability of reflexives in nominalizations). The generalization rather seems to be the following: languages that have a reflexive that does not inflect for person and number allow reflexives in nominalizations (i.e., those languages that allow strings like ‘I washed SE’ meaning ‘I washed myself’).

Present participles (and nominalizations too, to some extent), can sometimes host the prefix *själv* ‘self’, i.e., the second part of a complex reflexive, and in these cases, a reflexive reading is available. Note however that this is only an option for verbs that preferably take the complex reflexive. Prefixation of *själv* to passive participles is not possible. As will be shown below, present participles are structurally “bigger” (i.e., they contain more structure, and presumably spell out a superset of the features spelled out by the passive participle). This suggests that the prefix *själv* selects for a feature that is present in the present participle but not the past participle. This feature is presumably located higher up in the functional sequence.

5.3. Overt external arguments in nominalizations and passives

So far I have said nothing about the status of overtly present external arguments in nominalizations and passives. As is well known, an external argument can surface in passives as a *by*-phrase (72a) (*av* in Swedish), and as a prenominal possessor in nominalizations (72b):²⁸

- (72) a. Han blev kammad av sin mamma.
he BLI.PAST *comb*.PART *by* REFL.POSS *mother*
 ‘He was combed by his mother.’
- b. regeringens spridande av lögner
government.DEF.POSS *spread*.NOM *of* *lies*
 ‘the government’s spreading of lies’

I have not yet been explicit about the status of the indices on the verbal items. Therefore, in this section I will discuss the status of indices and overtly present external arguments in nominalizations and passives.

The indices on the verbal items can be compared to temporal indices lexicalized by tense suffixes. Following e.g. Reichenbach (1966) and Demirdache and Uribe-Etxebarria (2000) I assume the difference between present tense and past tense to be a difference in the relation between speech time and reference time. In the present tense, the speech time and the reference time is co-indexed (i.e. speech time and reference time happen at the same time), while in the past tense, the speech time and the reference time are not co-indexed (i.e., the reference time precedes the speech time).²⁹ Without going into details, we can assume that the past tense morpheme lexicalizes a head that encodes speech time and a head that encodes reference time under the condition that the two heads are not co-indexed. A present tense suffix also lexicalizes the two heads that encodes speech time and reference time, but only when they are co-indexed. The difference between a past tense morpheme and present tense morpheme is then analogous to the difference between an unaccusative verb like *arrive* and a transitive verb like *bring*:

- (73) a. Present: *Speech Time_i, Reference Time_i*

²⁸In Swedish, external arguments can surface as *by*-phrases in nominalizations as well, but this is usually a bit marked (compared to e.g. English). One reason for this might be that the preposition *av* also introduces internal arguments in nominalizations (equivalent to *of* in English), and the stacking of two *av*-phrases might be avoided as far as possible.

²⁹Reichenbach (1966) and Demirdache and Uribe-Etxebarria (2000) argue that three types of relations can hold between speech time and reference time: WITHIN/EQUAL, BEFORE and AFTER. The BEFORE-relation is used to describe the future tense (i.e., the speech time is before the reference time). However, I think there are good reasons to treat future tenses as a kind of modality (i.e., a relation between worlds, see Sarkar 1998), and keep the number of possible relations between speech and reference time to two: co-indexed and not co-indexed. Given that speech time = now (disregarding embedded clauses), and that statements about the future involve modality, a non-coreferent reference time will necessarily be located prior to speech time, giving rise to past tense. Justifying this claim lies far outside the scope of this paper though.

- b. Past: *Speech Time_j, Reference Time_i*
- c. Arrive: *Proc_i, Res_i*
- d. Bring: *Proc_j, Res_i*

Pushing the parallel further, we can take overtly present external arguments in passives (72a) nominalizations (72b) to be similar to temporal adverbials, as in (74):

(74) I bought the book on Monday.

It is hard or impossible to convincingly argue that there is an implicit temporal adverb present to encode the pastness in a past tense sentence lacking an overt temporal modifier, as in (75):

(75) I bought a book PRO_{then}.

Rather, the pastness is presumably solely encoded in the relation between speech time and reference time. The function of the temporal adverbial is to modify, or give an exact value, to the temporal indices (more exactly, to the index in Reference Time). Reflexive and anti-causative readings in eventive nominalizations and passives containing transitive verbs are just as impossible as present tense interpretations of past tense verbs, and for the very same reason. Thus, we do not need to assume that nominalizations or passives contain an actual external argument position.

Possessors in eventive nominalizations seems to have a more restrictions on their interpretation than possessors in resultative nominalizations and underived nouns. The possessor in eventive nominalizations can easily be interpreted as an agents or temporal modifier, and more restrictively as a patient/theme (see e.g. Alexiadou 2001 for discussion of the restrictions on so-called passive nominalizations):

- (76)
- a. regeringens ständiga spridande av lögner
government.DEF.POSS constant spread.NOM of lies
 ‘the government’s constant spreading of lies’
 - b. Fjolårets festande hade satt sina spår.
last.year.POSS party.NOM had sitPAST REFL.POSS trace
 ‘Last year’s partying had left its traces.’
 - c. Hans gripande ledde till stora protester.
his arrest.NOM led to big protests
 ‘His arrest led to big protests.’

Other interpretations, for example locative, benefactive/goal, possessor and commitative, seem to be unavailable. (77b) shows the unavailability of a benefactive/goal interpretation:

- (77) a. De skickade honom ständigt brev med anstötligt
They sent him constantly letters with indecent
 innehåll.
content
 ‘They constantly sent him letters with indecent content.’
- b. hans ständiga skickande av brev med oanständigt innehåll
his constant send.NOM of letters with indecent content
 ‘his constant sending of letters with indecent content’

The possessor in (77b) can only be interpreted as an agent, not as a benefactive/goal. In a result nominalization with a possessor, e.g. *his gift*, the possessor could be interpreted either as an agent (or possibly source) or as a goal (or possessor).

In short, the existence of *by*-phrases does not necessarily mean that the nominalization or participle contains a subject specifier. This is because we have independent evidence that adjunct phrases can function to further specify structural elements that are present either only as indices or as implicit content on a head. While these adjunct phrases are sensitive to the semantic constraints on those indices and are thus constrained in their interpretation, as shown above, this does not mean that they are themselves in subject position, or even that a subject position exists. Instead, in the absence of a convincing cross-categorical definition of ‘Grammatical Subject’, I will assume that the structures corresponding to nominalizations and participles are sufficiently different from verb phrases that the *same* notion of subject cannot be applied to them. In this I am essentially in agreement with Grimshaw (1990) and Alexiadou (2001).

5.4. Summing up, clarifying and extending

Above I have argued that simple reflexive elements (with any person and number value) in the complements of verbs are not arguments, but verbal elements. This is not a controversial claim, and similar analyses have been thoroughly argued for i.e. reflexive clitics in Romance and Slavic (see Kayne 1975, Alsina 1996, Folli 2001 and Medová 2007). I have also argued that the simple reflexives themselves can be arguments, although usually not when they occur as complements of verbs.³⁰ The items *sig* (third person), *mi* (first person, singular), *ti* (second person, singular), *oss* (first person, plural) and *er* (second person, plural) thus can be inserted in two different types of position: in an argument position (presumably D) and in verb-position (presumably Res). Whereas other researchers have tried to capture this duality as an indication of Syntax-Lexicon split (see e.g. Reinhart and Siloni 2005 and Siloni and Preminger 2009), I argued that both types of anaphores are syntactic, placing the difference in the argumental-

³⁰In languages that allow long-distance reflexives in direct object positions, simple reflexives can of course be arguments.

verbal distinction. Presumably, verbal and argumental anaphors still share some features – i.e., the homophony between argumental *sig* and verbal *sig* is not accidental (the same holds for verbal (“reflexive”) and argumental *mig* etc.). It is possible that the property that they share is that none of them introduce a new referent, but rather is co-referential with another syntactically present referent. I wish to stress here that first and second person object pronouns should be treated identically to the third person reflexive *sig*. If one takes features for Speaker (and possibly Hearer) to be encoded in the left periphery of the clause, as suggested by Giorgi (2009), then even the first and second person pronouns could be argued to be anaphors (i.e., they do not introduce new referents).

As we further have seen, anaphors can also be used as possessors, and as possessors they show typical adjectival inflection.³¹ We thus have three positions for the anaphoric elements, and these position might very well correspond to N(oun) (or D), V(erb) and A(djective). It is thus likely that the anaphors (in the extended meaning including first and second person object pronouns) are highly underspecified for category.

I now wish to return to some of the variation mentioned above. The data collected in the ScanDiaSyn-project indicated that the majority of Swedish speakers allow long-distance possessive anaphors, but not long-distance binding of anaphors in the complement of verbs. This could indicate that all instances of simple reflexives in the complements of verbs are verbal reflexives for this group of speakers (as opposed to first and second person object pronouns, that obviously can be arguments of verbs). Given that all speakers of Swedish, as far as I am aware, allow simple reflexives (*sig*) in the complement of prepositions, we have to acknowledge that the lexical element *sig* can be an argument as well. The question is then why *sig* is not acceptable as an internal argument of a verb for the majority of Swedish speakers (including myself). The grammar must contain a specific rule that states that simple reflexives can not be used as an argument. I will hypothesize that this rule has developed as a way of avoiding ambiguity. There are three ways of referring to a third person referent in Swedish: a simple reflexive, a complex reflexive (as a local anaphor) or a third person pronoun (when the antecedent is non-local). Possibly, speakers of Swedish avoid the simple reflexive in contexts where it is ambiguous, given that there are non-ambiguous alternatives. When it comes to prepositions, a reflexive in the complement must be interpreted as an argument (i.e., it cannot be a “verbal reflexive”).³²

³¹As possessors, the anaphors show number and gender agreement with the head noun. Non-anaphoric possessors do not show any agreement with the head noun (counting first and second person pronouns as anaphors). The first person plural possessor is “irregular”, and spells out as *vår* rather than the expected *oss(an)*.

³²It seems to be the case that speakers who allow long-distance *sig* in the complement of verbs, also tend to allow co-ordination of *sig* and a DP. This at least seems to be the case for the Norwegian speakers I have asked, who all allow long-distance *sig* in the complement of a verb, and *sig* in co-ordinations. Presumably, these speakers do not

5.5. Restrictions on stative participles and nominalizations

The system sketched above predicts that all lexical items should be able to underassociate freely. We would therefore expect that all verbal lexical items that contain Res should be able to shrink to stative participles and result nominalizations. This is however not true, as we have seen in the discussion above (i.e. *hängd* ‘hanged’ does not have a stative reading). This section tries to explain the restrictions on underassociation.

The superset principle leads to situations where more than one lexical item can be inserted. Take for example the two verbs/auxiliaries *have* and *be*. As has been noted since Benveniste (1966), these verbs seem to share certain features (see also Kayne 1993). More specifically, *have* seems to contain *be* (most likely, *have* is *be* + a preposition). Let us assume that *be* can lexicalize the feature X, while *have* can lexicalize the feature set [X, Y]. Given the superset principle, both *have* and *be* could be inserted in a context where only the feature X are present (but *be* cannot inserted in a context where both X and Y is present, given that it cannot lexicalize the feature Y). To make sure that *be* and not *have* is inserted when only X is present, we need an elsewhere principle for lexical insertion:

- *Elsewhere principle*

Where several Vocabulary items meet the conditions for insertion, the item containing fewer features unspecified in the terminal morpheme must be chosen.³³ (Caha 2007)

Hence, *be*, and not *have* will be inserted when only X is present, given that *have* carries an extra feature. The elsewhere principle can therefore explain why *have* cannot “shrink” to only lexicalize the feature X.

The elsewhere principle can also help us understand certain gaps in the availability of stative/resultative nominalizations and participles. One such gap can be seen in the following paradigm:

- (78) a. the recently closed door (Eventive)
 b. the recently opened door (Eventive)
- (79) a. the still closed door (Stative)
 b. the still open/??opened door (Stative)

As discussed in Embick (2004), it seems to be the case that simple underived adjectives can block participles in some cases, as shown in (79) and (78). The verbs *open* and *close* share most properties as full verbs, and even as attributive participles, as shown in (78). However, in stative

adhere to the avoid-ambiguity principle.

³³This elsewhere principle is formulated to mirror the elsewhere principle used in DM, where a subset principle is used for lexical insertion. Note also that “terminal morpheme” is not really appropriate when speaking about Nanosyntax, since we are in most cases dealing with a complex set of heads. See Caha (2009) and Starke (2009) for alternative ways of stating the elsewhere condition.

contexts, there is a special underderived form for *open* that seems to block the predicted participial form *opened*. No such form exists for *close*, and the regular participle has to be used instead. We can speculate that the underderived adjective *open* has fewer unspecified features than the complex form *open-ed*, and the form *open* is therefore inserted. Below I will argue that this type of blocking can occur even when the blocking lexical item is identical neither in form nor in meaning to the blocked item.

In a system that allows under-attachment, a lexical item should always be able to surface in a syntactic structure where only a subset of the lexical item's features are present, unless there exists another lexical item with a smaller subset of features that has exactly the same encyclopedic content (the elsewhere principle, as stated above). We should then expect that all verbs that have both a Proc and a Res feature should be able to surface in three contexts: (i) [Proc [Res]], (ii) [Res] and (iii) [Proc]. The third case will not be discussed here, i.e., cases where a Res feature is not present. The trickiest case is the absence of result nominalizations and stative participles for verbs that clearly seem to have a result phrase. For example, the verb *hänga* 'hang' has neither a corresponding stative participle, nor a corresponding result nominal. The verb *försvinna* 'disappear' has a stative participle, but not a result/stative nominalizations. The (particle-)verb *spela in* 'record' has a result nominal, but no stative participle.

There seem to be many factors that restrict the possibilities of under-association. First, let us focus on verbs like *hänga* 'hang', in the sense of execution/suicide. I will suggest here that the result participle/nominalization is blocked by the simpler participle/adjective *dead*, that presumably lacks process features. It is a general tendency that verbs of killing and dying do not have corresponding stative result participles. This holds for both transitive verbs like *execute*, *assassinate*, *kill* and *hang* and intransitive/unaccusative verbs like *drown* and *starve (to death)*. The lack of a target state participle in these cases could all be explained by blocking: the result phrase is the same for all these verbs, i.e. *dead*. The difference between them is located in Proc. The meaning of these verbs differs in the manner of the process (i.e., the carrying out of the event) and the argument structure (co-referential or disjoint arguments of Proc and Res), but the result is always the same. Possibly, the result nominal associated with all of these verbs is *death*.

When it comes to verbs that have a result participle but no result nominalization, or a result nominal but no result participle, other forces must be at work. Here, we need a more elaborate story about lexical categories, more in line with Hale and Keyser (1993) (and elaborated in Hale and Keyser 2002). Some verbs simply have a nominal base, whereas others have an adjectival or predicative base. The verbs with an adjectival base presumably require an argument already in ResP, while the verbs with a nominal base do not. Hale and Keyser's reasoning about the relation between lexical category and argument structure was based mainly on verb-

noun conversion and adjective-verb conversion, but, as argued in Lundquist (2008), this reasoning has to be extended to overtly derived de-adjectival adjectives (i.e. participles) and overtly derived de-verbal nouns (i.e. nominalizations) (see also Lundquist 2009 for a discussion of the relation between non-derived adjectives and (stative) participles and non-derived nouns and (result) nominalizations). The absence of a result nominal for the verb *försvinna* ‘disappear’ should therefore follow from the very predicative core of the lexical item in question.

When it comes to verbs of change of location (i.e. *fall*, *arrive*, *sink*, *move* etc.), it seems like result/stative nominalizations and participles are absent for these verbs as well, and it is harder to come up with more basic nouns/adjectives that block the stative variants. It is likely that in these cases, the Res is categorically more like a Preposition or Particle. The forming of a stative participle from *fall* and *sink* may very well be blocked by the manner neutral P *down*, and in the case of *arrive*, the blocking lexical item may very well be *here*. Similarly, when it comes to many double object verbs (like *give*), the stative participle may be blocked by something like a possessive *-s* or a preposition (with the meaning “possession”, see e.g. Pesetsky 1995, Harley 2002 and Ramchand 2008b for an analysis of this kind). In these two cases (location and possession), Res is presumably obligatorily transitive (i.e., it requires one external and one internal argument).

Exactly how to state the relation between argument structure and category, or how to capture the fact that Res is specified as taking two arguments in some cases (locative and possessive cases), one argument in others (i.e., verbs with only stative participles, or related non-derived adjectives), or no arguments (in the strictly nominal cases, most commonly for unergative and non-transitive/weather-verbs), is not clear at the moment, and I will leave this issue for further study.

6. Concluding remarks

This article has argued against the presence of syntactically present null external arguments in passive participles and nominalizations. The unavailability of reflexive and anti-causative readings of participles and nominalizations can thus not have its ground in the binding theory. I have tried to derive the obligatorily non-reflexive readings in eventive participles and nominalizations from the lexically stored information about individual verbs. Assuming that co-reference relations between arguments are encoded in verbal heads (i.e., each head carries information about whether it introduces a new index or not), we already have an explanation for the absence of reflexive/anti-causative readings of event nominals and eventive participles. We do not need a syntactically present arguments (PRO, pro or whatever) to explain these effects.

One major conclusion from the data discussed in this paper is that

“roots” cannot be completely void of argument structure information and event structure information. It is simply quite obvious that co-reference relations between the arguments of a predicate need to be stated in the lexical entries. It is also obvious that we must be able to tinker a bit with this lexically specified argument-structure. In this paper, I have claimed that we get all the flexibility we need from the rules of lexical insertion given by the Nanosyntax approach.

When it comes to the general issue of “reflexivity”, I have provided further arguments for the claim that we need to take the co-reference relations between the arguments of a predicate into special consideration, a claim originally made by Reinhart and Reuland (1993) and Pollard and Sag (1992).

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