

# The distribution of SE-reflexives in Dutch

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word count: 14995

**Abstract:** Handling clause-bound SE-reflexives such as Dutch *zich* transcends the scope of Chomsky's (1981) binding theory and has motivated various revisions of it. This article argues that canonical binding theory is essentially correct because SE-reflexives are not bound but inalienably possessed by their antecedent. Rooryck & Vanden Wyngaerd (2011) provides a syntactic implementation of this idea, which has mainly been elaborated for SE-reflexives in reflexive-verb constructions. This article shows that it can also account for the distribution of Dutch SE-reflexives in a wider range of constructions by considering it in conjunction with the analysis of inalienable possession in Broekhuis & Cornips (1997).

**Keywords:** binding theory, SE-reflexive, inalienable possession, inherent reflexivity, small clauses, AcI-construction

## 1 Introduction

This article maintains that the distribution of morphologically simplex reflexive pronouns is not controlled by binding theory; these reflexives are not bound but inalienably possessed by their antecedent. This article extends Rooryck & Vanden Wyngaerd (2011) syntactic implementation of this idea for simplex reflexives in (inherently) reflexive-verb constructions to constructions in which they are used as a regular arguments. Like other Germanic languages, Dutch only has a specialized form for third person reflexive pronouns, viz. *zich*; all other simplex reflexive forms are homophonous with the phonetically weak object forms of the referential pronouns. For clarity's sake, the discussion will be restricted to the specialized form, referred to as S(implex) E(lement) reflexive; note that the more common notion of SE-*anaphor* cannot be adopted here, because of the crucial assumption that SE-reflexives are not anaphors.

The article is organized as follows. Section 2 discusses the problem that the Dutch SE-reflexive *zich* poses for canonical binding theory: it exhibits mixed behavior in that it sometimes occurs in the same environments as anaphors and sometimes occurs in the same environments as referential pronouns. Section 3 reviews two earlier proposals to account for this distribution of *zich*: (i) Everaert's (1986) claim that SE-reflexives are essentially case absorbers triggering ergative syntax; (ii) Postma's (1997) and Lødrup's (1999/2007) claim that SE-reflexives function as possessums in inalienable-possession constructions. Section 3.3 proposes a syntactic implementation of these hypotheses, building on earlier work by Rooryck & Vanden Wyngaerd (2011). The latter work mainly focusses on the distribution of *zich* in (inherent) reflexive-verb constructions but Section 4 will show that it can also account for the distribution of SE-reflexives in the remaining contexts by considering it in conjunction with the analysis of inalienable possession in Broekhuis & Cornips (1997). The data in Section 4 will be taken mainly from Dutch but I will conclude with a brief discussion of similar data from Norwegian. Section 5 concludes with two brief remarks: the first pertains to a potential problem for the current syntactic analysis (as well as for most earlier ones), viz. the use of SE-reflexives in (apparent) adverbial phrases; the second provides additional evidence from the Scandinavian languages supporting the analysis proposed in this article.

This article mainly focuses on Dutch *zich*, despite the fact that SE-reflexives also occur in the other Germanic languages: see König & Van der Auwera (1994), Thráinsson (2007:ch.9), and Faarlund (2019:ch.9). This is not just because *zich* has been central in the literature on the

distribution of SE-reflexives so far but also because it can be considered an unambiguous SE-reflexive, which does not always hold for the monomorphemic reflexives in the other Germanic languages. German *sich*, for instance, crucially differs from Dutch *zich* in that it can also be found in prototypical anaphor positions, like *Johann hasst sich* ‘Johann hates himself’. We are dealing with true anaphors here, as is clear from the fact that *sich* can not only receive a reflexive but also a reciprocal interpretation; cf. *Sie hassen sich* ‘They hate each other’. The *se*-reflexive *sich* and the anaphor *sich* differ in that only the latter can bear stress (Reuland 2011:§8.3). Another case is Icelandic *sig*, which differs from Dutch *zich* in that it can be bound by an antecedent external to its minimal clause, especially in subjunctive/indirect speech contexts such as *Jón<sub>i</sub> heldur [að þú hatir<sub>subj</sub> sig<sub>i</sub>]* ‘Jón believes that you hate him’ (Thráinsson 1991/2007:§9.1-2). I have nothing new to say about this logophoric use of Icelandic *sig*; see De Vries (1999) for discussion.

## 2 Dutch SE-reflexives and canonical binding theory

The distribution of SE-reflexives does not follow from the binding theory in (1), which regulates the syntactic relation between referentially dependent elements and their c-commanding antecedents: the notion of anaphoric domain is used as a cover term for governing category (Chomsky 1981), complete functional complex (Chomsky 1986), or whatever other notion one prefers.

- (1) Canonical binding theory:
- a. Anaphors are bound in their anaphoric domain.
  - b. Referential pronouns are free (not bound) in their anaphoric domain.
  - c. Referential expressions are free.

The examples in (2) show that the Dutch SE-reflexive *zich* differs from the anaphor *zichzelf* ‘himself’ in that it cannot occur in simple sentences as a nominal/prepositional object, which normally also holds for the nominal part of adverbial PPs.<sup>1</sup> Referential dependencies are indicated by italics.

- (2) a. *Marie sloeg zichzelf/\*zich/\*haar.* [DO]  
 Marie hit herself/REFL/her  
 ‘Marie was hitting herself.’
- b. *Marie gaf zichzelf/\*zich/\*haar een boek.* [IO]  
 Marie gave herself/REFL/her a book  
 ‘Marie gave herself a book.’
- c. *Marie vertrouwt op zichzelf/\*zich/\*haar.* [PP-object]  
 Marie relies on herself/REFL/her  
 ‘Marie relies on herself.’
- d. *Marie spreekt namens zichzelf/\*zich/\*haar.* [adverbial PP]  
 Marie speaks on.behalf.of herself/REFL/her  
 ‘Marie is speaking on behalf of herself.’

Although *zich* behaves like the referential pronoun *haar* ‘her’ in that it cannot be bound by the subject of the clause in (2), the following examples show that it differs from it in that it cannot remain free.

<sup>1</sup> SE-reflexives do occur as free datives, such as possessive/benefactive indirect objects in German and various eastern Dutch dialects; cf. Scholten (2018:ch.5). Since free datives are not productively used in Dutch, they will be ignored here, but see Broekhuis et al. (1996) for relevant discussion.

- (3) a. Ik sloeg \*zichzelf/\*zich/haar. [DO]  
 I hit himself/REFL/her  
 ‘I hit her.’
- b. Ik gaf \*zichzelf/\*zich/haar een boek. [IO]  
 I gave himself/REFL/her a book  
 ‘I gave her a book.’
- c. Ik vertrouw op \*zichzelf/\*zich/haar. [PP-object]  
 I rely on himself/REFL/her  
 ‘I rely on her.’
- d. Ik spreek namens \*zichzelf/\*zich/haar. [adverbial PP]  
 I speak on.behalf.of himself/REFL/her  
 ‘I speak on behalf of her.’

This shows that SE-reflexives do not count as true anaphors or pronouns but exhibit mixed binding behavior and are consequently not covered by the canonical binding theory.

Everaert (1981/1986) observed that the SE-reflexive *zich* is typically found in reflexive-verb constructions such as (4), which account for approximately 95% of the occurrences of *zich* in the corpus of (written) texts he used. Since SE-reflexives in the inherently reflexive-verb constructions in (4) cannot be replaced by referential expressions such as *Marie*, it is often assumed that *zich* is not an argument in such constructions; the same holds for reflexive-verb constructions such as *Jan scheert zich* ‘Jan is shaving’, which do alternate with regular transitive constructions.

- (4) a. Jan vergist zich/\*Marie.  
 Jan mistakes REFL/Marie  
 ‘Jan is mistaken.’
- b. Jan schaamt zich/\*Marie.  
 Jan shames REFL/Marie  
 ‘Jan is ashamed.’

There are, however, also cases in which *zich* occurs in an unequivocal argument position; Everaert (1986:ch.3) mentions the three syntactic environments in (5).

- (5) Syntactic functions of *zich* in argument position:
- a. Logical subject of small clauses (including verbal particles).  
*Jan voelt* [<sub>SC</sub> *zich* moe/een genie].  
 Jan feels REFL tired/a genius  
 ‘Jan feels tired/himself a genius.’
- b. Complement of the locational P in prepositional small clauses:  
*Jan legt* [<sub>SC</sub> het boek naast *zich*].  
 Jan puts the book next.to REFL  
 ‘Jan puts the book next to him.’
- c. Nominal/prepositional object of the infinitival clause in AcI-constructions:  
*Jan laat* [<sub>CLAUSE</sub> *zich* (door de dokter) onderzoeken].  
 Jan let REFL by the doctor examine  
 ‘Jan lets himself be examined (by the doctor).’

The SE-reflexives in (5) again behave differently from anaphors and pronouns, as illustrated in (6) for examples with a prepositional small clause. First, (6a) shows that the SE-reflexive differs from the reciprocal anaphor *elkaar* in that it cannot be bound by the logical subject of the PP-predicate, *de honden* ‘the dogs’. Second, (6b) shows that *zich* behaves like a referential pronoun in that it can be bound by the subject of the sentence. Finally, (6c) shows that binding condition

B cannot account for the distribution of *zich*, as *zich* must be bound within its minimal finite clause.<sup>2</sup>

- (6) a. Marie houdt [<sub>SC</sub> *de honden* bij *elkaar*/\**zich*/\**ze*].  
 Marie keeps the dogs with each.other/REFL/them  
 ‘Marie keeps the dogs together.’
- b. Marie houdt [<sub>SC</sub> *de honden* bij *zich*/'*r*/\**zichzelf*].  
 Marie keeps the dogs with REFL/her/herself  
 ‘Marie keeps the dogs with her.’
- c. Marie denkt [<sub>clause</sub> *dat ik* [<sub>SC</sub> *de honden* bij 'r/\**zich*/\**zichzelf*] *breng*].  
 Marie thinks that I the dogs with her/REFL/herself bring  
 ‘Marie thinks that I will bring the dogs to her.’

The discussion above again points to *zich* as exhibiting mixed binding behavior: it sometimes patterns with anaphors and sometimes with referential pronouns. There have been many attempts to account for this: Vat (1980), Everaert (1981/1986), Koster (1987) and Broekhuis (1992) proposed analyses postulating a larger set of anaphoric domains: *zich* is like the referential pronouns in that it must be free in the anaphoric domain in which *zichzelf* must be bound (which may be smaller than its minimal clause) but bound in a slightly larger anaphoric domain (typically its minimal clause). The reflexivity framework developed in Reinhart & Reuland (1993) and Reuland (2011) adopts a modular approach involving the interaction of syntactic and non-syntactic factors. I will largely ignore like proposals for reasons of space and concentrate on developing an account of the distribution of *zich* invoking the hypothesis that SE-reflexives are not anaphoric elements.

### 3 SE-reflexives in reflexive-verb constructions

This section reviews and expands two earlier approaches to (inherently) reflexive-verb constructions that attribute a specific syntactic function to SE-reflexives. I will first discuss Everaert's (1986) finding that subjects of inherently reflexive-verb constructions exhibit properties of internal arguments, which also holds for non-inherently reflexive-verb constructions; the NP *zijn vader* ‘his father’ in the examples in (7) refers to the person being shaved and thus functions as a theme in both cases.

- (7) a. Jan scheert *zijn vader* met een scheermes. [transitive]  
 Jan shaves his father with a razor  
 ‘Jan shaves his father with a razor.’
- b. *Zijn vader* scheert *zich* met een scheermes. [reflexive]  
 his father shaves REFL with a razor  
 ‘His father shaves with a razor.’

As the use of a SE-reflexive seems to lead to valency reduction, Everaert claims that the null hypothesis should be that SE-reflexives in reflexive-verb constructions are regular NPs with the syntactic properties in (8). Section 3.1 will clarify this hypothesis: for now, it suffices to say

<sup>2</sup> It is difficult to construct reflexive constructions of the kind in (6a). One reviewer suggests that the unacceptability of *zich* in this example could be attributed to the fact that it does not have a reciprocal meaning; even then, the second and third observation are still sufficient to make the relevant point. Note further that *zichzelf* in (6b) becomes more acceptable with an accent on *zelf*. In such cases, we are not dealing with a complex reflexive but with the SE-reflexive *zich* followed by the emphatic modifier *zelf*. This option is expected, as the modifier *zelf* can also be used with other NPs; cf. *Ik heb Marie/haar ZELF gesproken* ‘I have spoken to Marie/her herself’.

that *zich* absorbs the accusative case of the original theme argument *zijn vader* in (7a), as a result of which this argument must appear as the subject in (7b).

- (8) SE-reflexives:
- a. are not assigned a  $\theta$ -role by the verb;
  - b. absorb accusative case, and
  - c. trigger ergative syntax as a result.<sup>3</sup>

The claim in (8a) that SE-reflexives are not assigned a  $\theta$ -role (thematic role) is problematic, as NPs should be formally licensed by being assigned case and semantically licensed by being assigned a  $\theta$ -role. Everaert (§7.3.1) is aware of this and proposes that the SE-reflexive is semantically licensed by an *ad hoc* rule linking it to the  $\theta$ -role of its antecedent; cf. Section 3.1. An alternative solution to this problem can be based on Postma's (1997) claim that SE-reflexives are semantically licensed (in the same way) as a possessum in an inalienable-possession construction; cf. Section 3.2. Section 3.3 concludes with a syntactic implementation of Postma's insight based on Rooryck & Vanden Wyngaerd (2011), which derives all properties of SE-reflexives listed in (8). This implementation will be used in Section 4 to account for a wider range of constructions with SE-reflexives.

### 3.1 Reflexive-verb constructions are ergative

This section discusses reflexive-verb constructions and provides a more extensive motivation for the ergativity hypothesis in (8b-c). SE-reflexives are frequently used as reflexive markers in inherently reflexive-verb constructions such as (4), repeated here as (9). The fact that a referential NP cannot be used in the position of *zich* suggests that this position is not semantically selected (i.e. not assigned a  $\theta$ -role) by the verb; this is also reflected by the fact that the English renderings of inherently reflexive-verb constructions normally contain just a single nominal argument.

- (9) a. Jan vergist zich/\*Marie.  
 Jan mistakes REFL/Marie  
 b. Jan schaamt zich/\*Marie.  
 Jan shames REFL/Marie

Everaert (1986) nevertheless assumes that the SE-reflexives in (9) are not parts of lexically listed verbal expressions but regular NPs. Since NPs must normally be assigned case, there are two structurally case-marked NPs in inherently reflexive-verb constructions. At first glance, this seems to contradict the earlier conclusion that inherently reflexive verbs select only a single nominal argument, but it is consistent with the assumption that subjects of inherently reflexive-verb constructions are actually internal arguments of the verb: they cannot be assigned accusative case, as this case is assigned to the reflexive marker *zich*, and must therefore be assigned nominative case and be realized as the subject of the clause. This also accounts for the fact that inherently reflexive verbs are like ergative verbs in that their subjects are not typical agents (which are always external arguments).

Since SE-reflexives are prototypically used in inherently reflexive-verb constructions, Everaert suggests that such constructions should be taken as our point of departure for the description of SE-reflexives in *all* syntactic environments. This leads to the hypothesis in (8b)

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<sup>3</sup> Decisive evidence for the ergative status of reflexive-verb constructions in Dutch is hard to find, but Everaert (p.74) mentions the impossibility of agentive *er*-nominalization and passivization. An alternative term for ergative verb is unaccusative verb (verb unable to assign accusative case), but the latter term will be avoided here, as the analysis in Section 3.3 entails accusative-case assignment to the SE-reflexive.

that SE-reflexives are essentially CASE ABSORBERS; they are assumed to perform a similar function as the passive morphology on participles in the theory of passivization proposed in Baker, Johnson, and Roberts (1989). This entails that, if the verb in question is transitive, its external argument must be suppressed in order to allow object-to-subject raising; cf. (8c). This is of course not immediately visible in the case of inherently reflexive-verb constructions with *zich vergissen/schamen* ‘to be mistaken/ashamed’ in (9), as they do not occur as run-of-the-mill transitive verbs. Nor is it obvious in the case of (non-inherently) reflexive verbs of personal hygiene like *wassen* ‘to wash’ and *scheren* ‘to shave’, which can also be used as transitive verbs; cf. (10a). The addition of *zich* in (10b) should result in suppression of the original agent and promotion of the theme argument to subject but it is not immediately clear that the subject in (10b) is not an agent, as it is interpreted simultaneously as actor and theme.

- (10) a. Jan scheert zijn vader met een scheermes. [transitive verb]  
 Jan shaves his father with a razor  
 b. Zijn vader scheert zich met een scheermes. [reflexive verb]  
 his father shaves REFL with a razor

That the subject in (10b) has both an actor and a theme-like interpretation cannot be used as a valid argument for claiming that we are dealing with a regular transitive construction, as it is not unusual to find theme subjects with actor-like properties. This is clear from the unequivocal ergative construction *Jan is vrijwillig vertrokken* ‘Jan has left voluntarily’, in which *Jan* also has actor and theme-like features; see Rooryck & Vanden Wyngaerd (2011:§3.4) for a more detailed discussion. What is crucial, however, is that the actor-like feature is less prominent or even absent in other reflexive-verb constructions. This holds, for instance, for verbs expressing bodily harm such as *verwonden* ‘to hurt’ in (11). The subject in (11b) is less actor-like than the subject in the transitive construction in (11a), as is clear from the fact that the object causing the injury is normally not expressed by an instrumental *met*-PP but by a non-instrumental *aan*-PP; see Postma (1997) and Rooryck & Vanden Wyngaerd (2011) for detailed discussion.

- (11) a. Jan verwondde zijn tegenstander met zijn mes/\*aan het hek. [transitive verb]  
 Jan hurt his opponent with his knife/on the gate  
 ‘Jan hurt his opponent with his knife.’  
 b. Jan verwondde zich aan het hek<sup>2</sup> met zijn mes. [reflexive verb]  
 Jan hurt REFL on the gate/with his knife  
 ‘Jan hurt himself on the gate.’

I take this as support for claim (8c) that also the subjects of non-inherently reflexive verbs are internal (theme) arguments of the verb. More support for this can be found in the selectional restrictions imposed by verbs: the transitive verb *verspreiden* ‘to disperse’ requires a plural object (or an object headed by a collection noun like *menigte* ‘crowd’) in contexts such as (12a); the (b)-examples show that the same holds for the subject in its reflexive counterpart (Everaert 1986:83).

- (12) a. De politie verspreidt de demonstranten/\*demonstrant. [transitive verb]  
 the police disperses the demonstrators/demonstrator  
 ‘The police disperse the demonstrators.’  
 b. De demonstranten verspreiden zich. [reflexive verb]  
 the demonstrators disperse REFL  
 b'. \*De demonstrant verspreidt zich.  
 the demonstrator disperses REFL

The ergative syntax of reflexive-verb constructions also becomes clear when we compare them to the cases in (13), which illustrate the so-called causative-inchoative alternation. The verb *breken* in (13a), which selects the auxiliary *hebben* ‘to have’ in the perfect tense, is a transitive verb able to assign accusative case to its internal (theme) argument. The verb *breken* in (13b) is an ergative verb: it selects the auxiliary *zijn* ‘to be’ so that accusative case is no longer available and the internal argument of (13a) must surface as the subject of the construction (and the subject of the corresponding transitive construction cannot be expressed).

- (13) a. Jan heeft/\*is het glas gebroken. [transitive; causative]  
 Jan has/is the glass broken  
 ‘Jan has broken the glass.’  
 b. Het glas is/\*heeft gebroken. [ergative; inchoative]  
 the glass is/has broken  
 ‘The glass has broken.’

Reflexive-verb constructions differ from ergative constructions such as (13b) by normally selecting *hebben* in the perfect tense, as illustrated in (14); see Everaert (1986:§4.6.3) for some exceptions. This is in keeping with (8b); the reflexive verb cannot be truly “unaccusative” (cf. note 3), as it must assign accusative case to the SE-reflexive.

- (14) Jan heeft zich vergist/geschoren.  
 Jan has REFL mistaken/shaved  
 ‘Jan has been mistaken/has shaved.’

Example (15) bears out that it is indeed the SE-reflexive that forces the use of *hebben* as the auxiliary: example (13b) has already shown that standard Dutch does not employ a SE-reflexive in inchoative constructions and that *zijn* is used in the perfect tense form of such constructions; (15) shows that Dutch varieties using a SE-reflexive in such constructions do select *hebben* (Cornips 1994).

- (15) Het glas heeft/\*is zich gebroken. [Heerlen Dutch]  
 the glass has/is REFL broken  
 ‘The glass has broken.’

The examples in (13) and (15) show that there are two strategies for detransitivization verbs. It seems that standard Dutch in fact employs both strategies: while standard Dutch does not employ the SE-reflexive in the causative-inchoative alternation with *breken* ‘to break’ in (13), the examples in (16) show again that there is a comparable alternation with *verspreiden* ‘to spread’ in which the SE-reflexive must be used (Everaert 1986:52-3, 85). As a SE-reflexive has to be assigned case, the reflexive inchoative construction is correctly predicted to behave like the Heerlen Dutch example in (15b) by selecting the auxiliary *hebben* in the perfect tense.

- (16) a. Jan heeft het gerucht verspreid. [transitive/causative]  
 Jan has the rumor spread  
 b. Het gerucht heeft zich verspreid. [inchoative]  
 the rumor has REFL spread  
 ‘The rumor has spread.’

Causative-inchoative alternations with and without a SE-reflexive cannot be considered purely idiosyncratically constrained alternatives, as the absence or presence of a SE-reflexive may affect the semantic interpretation of inchoative constructions. This is clear from the (b)-examples in (17): the two detransitivization strategies are sometimes simultaneously available with a distinct meaning difference (Broekhuis et al. 2015:§2.5.2).

- (17) a. Eucalypta verandert Paulus/zichzelf in een schildpad. [transitive/causative]  
 Eucalypta changes Paulus/herself into a tortoise  
 ‘Eucalypta turns Paulus/herself into a tortoise.’
- b. Eucalypta verandert zich per ongeluk in een schildpad. [inchoative]  
 Eucalypta changes REFL by accident into a tortoise  
 ‘Eucalypta accidentally turns herself into a tortoise.’
- b’. Paulus verandert (\*zich) gelukkig niet in een schildpad. [inchoative]  
 Paulus changes REFL happily not into a tortoise  
 ‘Paulus fortunately does not turn into a tortoise.’

In the story alluded to, the witch Eucalypta by mistake drinks her own draught, which was originally intended for the gnome Paulus. The presence of the SE-reflexive depends on the instigator of the action: if the derived (theme) subject is the instigator, as in (17b), the reflexive is preferably present: if it is not the instigator, as in (17b’), the reflexive cannot be present.

This section has shown that we are justified in assuming for at least certain types of reflexive-verb constructions that the SE-reflexive can be considered a case absorber that detransitivizes the verb and triggers ergative syntax. However, the claim that the SE-reflexive is not assigned a  $\theta$ -role by the verb raises the question as to how it is semantically licensed. This is the topic of Section 3.2.

### 3.2 The pronoun *zich* as a possessum

Section 3.1 has shown that SE-reflexives in reflexive-verb constructions are regular NPs functioning as case absorbers: they are formally licensed by being assigned accusative case by the verb, as a result of which the internal argument of the verb must be assigned nominative case (i.e. realized as the subject of the clause); cf. (8b-c). As NPs are ordinarily semantically licensed by being selected as an internal or external argument of some lexical head (V, N, A or P), it is surprising that Everaert assumes that this does not hold for SE-reflexives; cf. (8a). He evades the problem by introducing a rule linking the SE-reflexive to the  $\theta$ -role of its antecedent. This section develops an alternative solution, based on the observation that SE-reflexives can occur in certain inalienable-possession constructions (Postma 1997; Lødrup 1999).

#### 3.2.1 Inalienable-possession and reflexive-verb constructions

Postma (1997) observes that dyadic constructions with a verb of physical disruption such as *breken* ‘to break’ in (18) can have two different interpretations. Example (18a) involves a run-of-the-mill transitive construction with an agentive subject, which allows passivization. Example (18b), on the other hand, is an inalienable-possession construction, which differs from the transitive construction (18a) in at least two ways: (i) the subject of the clause is not agentive but functions as the possessor of the NP *zijn arm*; (ii) the construction cannot be passivized without losing its inalienable-possession meaning.<sup>4</sup>

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<sup>4</sup> Some care is needed as binding of the internal possessor of a derived subject by the agent in passives constructions is normally marked. It is, however, not entirely impossible but can be forced by adding the emphazier *zelf*, as in *zijn arm is door Jan zelf gebroken* ‘his arm was broken by Jan himself’, which can only receive the causative reading found in the (a)-examples. That the argument is somewhat problematic is mainly due to the peculiarity of standard Dutch that it normally uses a possessive pronoun as the determiner of the possessum in inalienable-possession constructions, as Dutch dialects that use a definite article instead exhibit the same behavior illustrated in (18b-b’); see Scholten (2018: §4.4) for examples and discussion.

- (18) a. Jan<sub>i</sub> brak zijn<sub>j</sub> arm. [subject = agent]  
 Jan broke his arm  
 ‘Jan broke his (≠ Jan’s) arm.’  
 a’. Zijn<sub>j</sub> arm is (door Jan<sub>i</sub>) gebroken.  
 his arm has.been by Jan broken  
 ‘His (≠ Jan’s) arm has been broken by Jan.’  
 b. Jan<sub>i</sub> brak zijn<sub>i</sub> arm. [subject = possessor]  
 Jan broke his arm  
 ‘Jan broke his (= Jan’s) arm.’  
 b’. \*Zijn<sub>i</sub> arm is (door Jan<sub>i</sub>) gebroken.  
 his arm has.been by Jan broken  
 Impossible: ‘His (= Jan’s) arm has been broken by Jan.’

Postma also shows that interpretation may affect the choice between the simplex and the complex reflexive pronoun in object position. This is illustrated in (19), with the verb of bodily harm *bezeren* ‘to hurt’. I have again added an adverbial phrase to these examples in order to clarify the two interpretations of the subject: the agentive reading is compatible with an instrumental *met*-PP, while the inalienable-possession reading favors a non-instrumental *aan*-PP to refer to the object that has inflicted the injury; cf. (11).

- (19) a. Jan<sub>i</sub> bezerde zijn<sub>j</sub> arm met het mes/\*aan het hek. [subject = agent]  
 Jan hurt his arm with the knife/on the gate  
 a’. Jan<sub>i</sub> bezerde zichzelf<sub>i</sub> met het mes/\*aan het hek.  
 Jan hurt himself with the knife/on the gate  
 b. Jan<sub>i</sub> bezerde zijn<sub>i</sub> arm aan het hek/?met het mes. [subject = possessor]  
 Jan hurt his arm on the gate/with the knife  
 b’. Jan<sub>i</sub> bezerde zich<sub>i</sub> aan het hek/?met het mes.  
 Jan hurt REFL on the gate/with the knife

The primed examples suggest that the anaphor *zichzelf* is used in the regular transitive construction while the SE-reflexive *zich* is used in the inalienable-possession construction. Postma concludes from this that *zich* in (19b’) has the same function as the NP *zijn arm* in (19b), viz. as the possessum of an inalienable-possession construction. Postma further claims that *zijn arm* and *zich* differ semantically in that they refer to, respectively, a subpart of the possessor and the possessor as a whole; Lødrup (2007) claims the same for Norwegian *seg*.<sup>5</sup>

### 3.2.2 Entailments

On the assumption that *zich* functions as a possessum in an inalienable-possession construction, one might expect all inalienable-possession constructions to have a reflexive counterpart. This expectation is not borne out but can be accounted for by appealing to specific semantic differences between the verbs involved.

#### 1. Upward entailment

The claim that *zich* is a possessum referring to the whole of the possessor may be important to account for the difference between verbs of physical disruption such as *breken* ‘to break’ in (18) and verbs expressing bodily harm such as *bezeren* ‘to hurt’ in (19): while both types of verb occur in inalienable-possession constructions, only the latter occurs in reflexive-verb

<sup>5</sup> This claim nullifies Reuland’s (2011:§6.5.3.2) suggestion that inalienable-possession constructions “could provide a model for complex reflexives” such as *zichzelf*, in the sense that the body part has a similar function as the *zelf*-morpheme.

constructions. Postma claims that this can be accounted for in terms of semantic entailment. The examples in (20), in which  $\models$  stands for “entails”, show that we can conclude from the fact that Jan hurt his (own) finger, that he also hurt his hand/himself.

- (20) a. Jan<sub>i</sub> bezerde zijn<sub>i</sub> vinger.  
           Jan hurt       his finger  
       b.  $\models$  Jan<sub>i</sub> bezerde zijn<sub>i</sub> hand.  
           Jan hurt       his hand  
       c.  $\models$  Jan<sub>i</sub> bezerde zich<sub>i</sub>.  
           Jan hurt       REFL

This shows that verbs expressing bodily harm are upward entailing in the sense that the possessum referring to a certain body part of the possessor can be replaced by a possessum referring to a larger body part that includes the smaller one, as in (20b), or to the possessor as a whole, as in (20c). In this respect, *bezeren* crucially differs from verbs of physical disruption such as *breken* ‘to break’. The acceptability contrast between the reflexive-verb constructions in (20c) and (21c) suggests that upward entailment allows a transitive verb to enter both the inalienable-possession and the reflexive-verb construction.

- (21) a. Jan<sub>i</sub> brak   zijn<sub>i</sub> vinger.  
           Jan broke his finger  
       b.  $\not\models$  Jan<sub>i</sub> brak   zijn<sub>i</sub> hand.  
           Jan broke his hand  
       c.  $\not\models$  \*Jan<sub>i</sub> brak   zich<sub>i</sub>.  
           Jan broke REFL

Note in passing that the restrictions on upward entailments are far from clear, as it does not seem likely to conclude from example (20a) that Jan hurt his arm or his upper body. Such restrictions are probably not of a linguistic nature but related to the way we look at the world: it is quite common to see a finger as a subpart of a hand but not as a subpart of an arm or upper body. Another illustration of the same phenomenon is given in (22): *Jan bezerde zijn neus* clearly entails *Jan bezerde zijn gezicht* but it is less clear whether it also entails *Jan bezerde zijn hoofd*. This suggests that a nose is seen as an inherent part of a face but not as an inherent part of a head (at least by Dutch speakers); this is consistent with the fact that *hoofd* can also denote subparts of non-human entities such as the head of a worm, a pier, a department, etc.

- (22) a. Jan<sub>i</sub> bezerde zijn<sub>i</sub> neus  
           Jan hurt       his nose  
       b.  $\models$  Jan<sub>i</sub> bezerde zijn<sub>i</sub> gezicht.  
           Jan hurt       his face  
       c.  $\not\models$  Jan<sub>i</sub> bezerde zijn<sub>i</sub> hoofd.  
           Jan hurt       his head

Whatever the precise nature of the restrictions may be, it seems plausible that upward entailment of the sort in (20) makes it possible for a verb to enter into both the inalienable-possession and the reflexive-verb construction; see Rooryck & Vanden Wyngaerd (2011:80-1) for a different proposal.

## 2. Downward entailment

We have seen above that upward entailment allows a transitive verb to occur in both the inalienable-possession and the reflexive-verb construction. Upward entailment is, however, a *sufficient* but not a *necessary* condition for a verb to enter into a reflexive-verb construction. This can easily be illustrated by verbs of personal hygiene such as *wassen* ‘to wash’. The

primeless examples in (23) first show that *wassen* behaves like *breken* ‘to break’ in (18) in that it can enter regular transitive constructions with an agentive subject as well as inalienable-possession constructions. That the subject in (23b) functions as a possessor and not as an agent is perhaps less obvious than in the case of (18b) but the fact that the inalienable-possession reading cannot be obtained in the corresponding passive example suggests that we are not dealing with an external argument; see also the remark below example (10) and note 4.

- (23) a. Jan<sub>i</sub> waste zijn<sub>j</sub> handen. [subject = agent]  
 Jan washed his hands
- a'. Zijn<sub>j</sub> handen zijn (door Jan<sub>i</sub>) gewassen.  
 his hands have.been by Jan washed  
 ‘His (≠ Jan’s) hands have been washed by Jan.’
- b. Jan<sub>i</sub> waste zijn<sub>i</sub> handen. [subject = possessor]  
 Jan washed his hands
- b'. \*Zijn<sub>i</sub> handen zijn (door Jan<sub>i</sub>) gewassen.  
 his hands have.been by Jan washed  
 Impossible: ‘His (= Jan’s) hands have been washed by Jan.’

The invalidity of the entailments in (24) shows, however, that verbs of personal hygiene are not upward entailing in the sense that they allow a possessum referring to a certain body part of the possessor to be replaced by a possessum referring to a larger part including it or to the possessor as a whole. This incorrectly predicts (24c) to be unacceptable.

- (24) a. Jan<sub>i</sub> waste zijn<sub>i</sub> vinger.  
 Jan washed his finger
- b.  $\neq$  Jan<sub>i</sub> waste zijn<sub>i</sub> hand  
 Jan washed his hand
- c.  $\neq$  Jan<sub>i</sub> waste zich<sub>i</sub>  
 Jan washed REFL

We see in (25) that verbs like *wassen* are downward entailing, as washing of the whole entails washing of at least certain subparts of the whole.

- (25) a. Jan<sub>i</sub> waste zich<sub>i</sub>.  
 Jan washed REFL
- b.  $\models$  Jan<sub>i</sub> waste zijn<sub>i</sub> bovenlijf/armen/...  
 Jan washed his upper.body/arms

My suggestion would be that this kind of entailment also makes it possible for a verb to enter into the inalienable-possession as well as the reflexive-verb construction, i.e. *zich* is possible only if the verb is *either upward or downward* entailing. Note that this reformulation does not affect the prediction for (21c), as *breken* ‘to break’ is not downward entailing either: *Jan<sub>i</sub> brak zijn<sub>i</sub> hand*  $\neq$  *Jan<sub>i</sub> brak zijn<sub>i</sub> vinger*.

Again, the restrictions on downward entailments are not entirely clear and probably of a non-linguistic nature, as is clear from *zich scheren* ‘to shave oneself’, which would normally entail the removal of a male’s facial hair but the removal of hair on a female’s different body parts.

### 3. No entailment

It seems self-evident to assume that upward entailment (part → whole) enables transitive verbs typically occurring in inalienable-possession constructions to also appear in reflexive-verb constructions. Downward entailment (whole → part) would then enable transitive verbs typically occurring in reflexive-verb constructions to also appear in inalienable-possession

constructions. If correct, this will lead us to expect that there may be verbs that typically occur in inalienable-possession or reflexive-verb constructions but do not participate in the alternation. That this expectation is indeed borne out is shown in Table 1, in which N is taken to denote an inalienably possessed body part.

Table 1: Alternation of inalienable-possession and reflexive-verb constructions

	TYPICAL READING			
	INALIENABLE POSSESSION		REFLEXIVE	
	UPWARD ENTAILMENT CF. (20)	NO UPWARD ENTAILMENT CF. (21)	DOWNWARD ENTAILMENT; CF. (25)	NO DOWNWARD ENTAILMENT CF. (26) BELOW
INALIENABLE POSSESSION	<i>zijn N bezeren</i>	<i>zijn N breken</i>	<i>zijn N wassen</i>	<i>*zijn N vervelen</i>
(INHERENTLY) REFLEXIVE	<i>zich bezeren</i>	<i>*zich breken</i>	<i>zich wassen</i>	<i>zich vervelen</i>

If we assume that verbs expressing bodily harm such as *bezeren* ‘to hurt’ and verbs of physical disruption like *breken* ‘to break’ are transitive verbs that typically enter inalienable-possession constructions, the fact illustrated in (20) and (21) that only the former evokes upward entailment correctly predicts that the latter cannot be used in reflexive-verb constructions. If we further assume that transitive verbs of personal hygiene such as *wassen* ‘to wash’ and psych-verbs such as *vervelen* ‘to bore’ typically find themselves in reflexive-verb constructions, the fact that the latter verb cannot be used in inalienable-possession constructions follows from its inability to evoke downward entailment.<sup>6</sup> In this case, there is not even a conventional name for the mental organ involved in registering psychological states: cf. (26b).

- (26) a. Jan<sub>i</sub> brak zijn<sub>i</sub> been/\*zich<sub>i</sub>.  
 Jan broke his leg/REFL
- b. Jan<sub>i</sub> verveelde zich<sub>i</sub>/\*zijn<sub>i</sub> N. [N = body part]  
 Jan bored REFL/his N  
 ‘Jan was bored.’

### 3.3 Formalization

The previous subsections argued that the semantic function of the SE-reflexive in a reflexive-verb construction is similar to that of a possessum in an inalienable-possession construction. This means that the syntactic properties attributed to SE-reflexives, repeated here as (27), should also hold for the possessum in an inalienable-possession construction.<sup>7</sup>

- (27) • SE-reflexives:
- are not assigned a  $\theta$ -role by the verb;
  - absorb accusative case, and;
  - trigger ergative syntax as a result.

<sup>6</sup> That psych-verbs such as *vervelen* are transitive can be illustrated by *Jan verveelde zijn zuster/zichzelf met zijn verhalen* ‘Jan bored his sister/himself with his stories’; see Broekhuis et al. (2015:§2.5.1) for a discussion of the verb frames that psych-verbs are used in.

<sup>7</sup> Of course, SE-reflexives play a role in a wider range of constructions expressing, e.g., a passive, middle or inchoative meaning. What I would like to maintain is that the common denominator of *all* these constructions is that the SE-reflexives involved exhibit the properties in (27); showing this is clearly a topic for a separate paper.

The ergative syntax of inalienable-possession constructions in general is supported by the fact that such constructions cannot be passivized, as was already illustrated in (18b) and (23b). That the possessum is assigned (“absorbs”) accusative case is clear from the German inalienable-possession construction in (28) (Rooryck & Vanden Wyngaerd 2011:73).

- (28) Das Pferd<sub>Nom</sub> hat seinen Fuss<sub>acc</sub> verletzt.  
 the horse has his foot hurt  
 ‘The horse hurt its foot.’

Property (27a), which states that SE-reflexives are not assigned a  $\theta$ -role by the verb, follows from their use as a possessum. This can be backed up by the fact that possessums and their inalienable possessors constitute semantic units in general (Lee-Schoenfeld 2006:§1.1). This becomes especially clear by comparing the non-standard construction in (29a), in which the possessor appears as a dative phrase, with its standard Dutch counterpart in (29b), but we can assume that the same holds for nominative possessors.

- (29) a. Ik was hem<sub>dat</sub> de handen. [eastern-Dutch varieties]  
 I wash him the hands  
 b. Ik was zijn handen. [standard Dutch]  
 I wash his hands  
 ‘I wash his hands.’

The standard Dutch example in (29b) shows that the verb *wassen* ‘to wash’ selects a single internal (theme) argument, and it would therefore be undesirable to assume that the corresponding nonstandard form selects two internal arguments: a theme and a possessor. This is in line with the proposal in Broekhuis & Cornips (1997) that the dative possessor and the possessum are inserted in the structure as a single small-clause constituent (henceforth: SC). Following Den Dikken (2006), the SC is represented as RP in (30a), where R stands for relator (a cognate of the functional head *Pred* in Bowers 1993). This results in a structure similar to the structure in (30b) for prepositional indirect-object constructions proposed in Den Dikken (1995). The “ $P_{\emptyset}$ ” in (30a) stands for a phonetically empty preposition, and the number sign “#” indicates that the structure is not acceptable as a surface form for reasons to be discussed shortly.

- (30) a. #Ik was [RP de handen R [P $\emptyset$  hem]].  
 I was the hands him  
 b. Jan gaf [RP het boek R [aan Marie]]  
 Jan gave the book to Marie

Structure (30a) solves the problem with respect to the selectional properties of the verb *wassen* ‘to wash’, as we can now assume that this verb always selects a single internal argument: the NP *zijn handen* in (29b) and the SC [*de handen R [P $\emptyset$  hem]*] in (29a). The semantic licensing of the NPs in the SC is independent of the verb: the pronoun *hem* is licensed as the internal argument of the empty preposition and the resulting PP [*P $\emptyset$  hem*] functions as a predicate taking the NP *de handen* as its external argument. The external argument of the SC is of course formally licensed by being assigned case by the transitive verb *wassen*.

The surface order in (29a) results from the fact that the empty preposition  $P_{\emptyset}$  in (30a) must be phonologically supported, which is obtained by incorporating it into the verb. Broekhuis & Cornips (1997) argue for the derivation in the (a)-examples in (31) on the basis of various empirical facts; the derivation closely follows Den Dikken’s (1995) analysis of the double-object construction in the (b)-examples, which likewise involves a phonetically empty  $P_{\emptyset}$  (instead of *aan* in (30b)).

- (31) a. Ik was [<sub>FP</sub> [<sub>P<sub>0</sub></sub> hem]<sub>i</sub> F+R ... [<sub>RP</sub> de handen t<sub>R</sub> t<sub>i</sub>]] [predicate movement]  
 a'. Ik was+P<sub>0</sub> [<sub>FP</sub> [t<sub>P</sub> hem]<sub>i</sub> F+R ... [<sub>RP</sub> de handen t<sub>R</sub> t<sub>i</sub>]] [P-incorporation]  
 b. Jan gaf [<sub>FP</sub> [<sub>P<sub>0</sub></sub> Marie]<sub>i</sub> F+R ... [<sub>RP</sub> het boek t<sub>R</sub> t<sub>i</sub>]] [predicate movement]  
 b'. Jan gaf+P<sub>0</sub> [<sub>FP</sub> [t<sub>P</sub> Marie]<sub>i</sub> F+R... [<sub>RP</sub> het boek t<sub>R</sub> t<sub>i</sub>]] [P-incorporation]

The movement of the PPs in the primeless examples can be identified as predicate inversion, taken to be dependent on R-to-F movement, which extends the phase RP to FP; see Den Dikken (2006:115) and note 8 below for more discussion. Predicate inversion places the SC-predicate into a position close enough to the main verb to license the subsequent movement of P<sub>0</sub> into V; see the primed examples, in which t<sub>P</sub> is the trace of the incorporated P<sub>0</sub>. The resulting complex verb V+P<sub>0</sub> is able to assign dative case to the indirect object.

A roughly similar derivation of the inalienable-possession and reflexive-verb constructions in this article is given in (32); it mainly differs in that the complex verb V+P<sub>0</sub> is incapable of assigning dative case to the possessor, which must therefore be moved into the subject position of the clause in order to be assigned nominative case. This is illustrated in (32) by means of *Jan bezeert zich/zijn voet* ‘Jan hurts himself/his foot’. The m-dash is used to indicate that the verb does not take an external argument; the subject position of the clause is therefore available for the possessor *Jan*.<sup>8</sup>

- (32) a. — bezeert [<sub>RP</sub> zich/zijn voet R [<sub>P<sub>0</sub></sub> Jan]]  
 b. — bezeert [<sub>FP</sub> [<sub>P<sub>0</sub></sub> Jan]<sub>i</sub> F+R [<sub>RP</sub> zich/zijn voet t<sub>R</sub> t<sub>i</sub>]]  
 c. — bezeert+P<sub>0</sub> [<sub>FP</sub> [ t<sub>P</sub> Jan]<sub>i</sub> F+R [<sub>RP</sub> zich/zijn voet t<sub>R</sub> t<sub>i</sub>]]  
 d. Jan bezeert+P<sub>0</sub> [<sub>FP</sub> [ t<sub>P</sub> t<sub>Jan</sub>]<sub>i</sub> F+R [<sub>RP</sub> zich/zijn voet t<sub>R</sub> t<sub>i</sub>]]

The assignment of accusative case in the derivations in (31) and (32) needs special attention in light of the fact that the possessum is not “close” to the verb. This seems a more general property of predicate-inversion constructions, already familiar from its specific instantiation known as locative inversion: cf. *Into the room entered the man*. Locative inversion is typically analyzed as involving A-movement of the predicative PP into the regular subject position, i.e. SpecIP (Hoekstra & Mulder 1990; Den Dikken & Næss 1993, Moro 1997). If so, this shows that nominative case can be assigned to the subject *the man* in the specifier of the SC: [<sub>PP</sub> Into the room] entered [<sub>SC</sub> the man t<sub>PP</sub>]]. The references just cited appeal to intricate coindexation mechanisms, but currently we can simply assume that I can assign nominative case under Agree to the nominal phrase *a man* in its c-command domain (Broekhuis 2008:ch.5). If so, we can assume that the verb *bezeren* is also able to assign accusative case to the possessum/SE-reflexive under Agree in the derivations in (31)/(32), as the possessum/reflexive is the closest NP in the c-command domain of the verb (or, more precisely, the verbal root *v*). This accounts for the claim in (27b) that SE-reflexives absorb accusative case.

<sup>8</sup> Rooryck and Vanden Wyngaerd (2011:§3) give a different implementation of the same general idea involving multiple incorporation, viz. P-to-R followed by R+P-to-V; they also provide a number of arguments of a more semantic nature in favor of the general idea. I believe that the derivation in the main text is supported by examples such as (40b) below but there is no room to elaborate on this; see Broekhuis & Cornips (1997) for relevant discussion. The derivations in (31) and (32) are simplifications and somewhat misleading in that they suggest a counter-cyclic derivation, while the actual derivation of course proceeds bottom-up in a cyclic fashion. I do not commit myself to the postulation of the functional head F in these derivations, as I believe that FP can be taken to be an extended projection of RP in the sense of Grimshaw (1997); this does not affect the derivation in any crucial way, except that it may eliminate the need for the concept of phase extension.

#### 4 SE-reflexives in constructions with a non-reflexive verb

Section 3.3 presented an analysis of reflexive-verb constructions based on the claim that the SE-reflexive is actually the possessum of an inalienable-possession construction: the possessum is the logical subject of a SC expressing possession, as in (33a). The construction as such is not acceptable as a surface structure due to the presence of the empty preposition  $P_{\emptyset}$ , which must find phonological support in order to be licit. This is obtained by moving the PP into the specifier position of a functional projection close to the verb, from where incorporation of  $P_{\emptyset}$  into the verb can take place, as in (33b&c). The derivation is formally identical to the derivation of double-object constructions proposed in Den Dikken (1995).

- (33) a.  $[_{RP} NP_{\text{possessum}} R [_{P_{\emptyset}} NP_{\text{possessor}}]]$   
 b.  $V [_{FP} [_{P_{\emptyset}} NP_{\text{possessor}}]_i F+R \dots [_{RP} NP_{\text{possessum}} t_R t_i]]$   
 c.  $V+P_{\emptyset} [_{FP} [_{tP} NP_{\text{possessor}}]_i F+R \dots [_{RP} NP_{\text{possessum}} t_R t_i]]$

This section aims at showing that this analysis is not only applicable to constructions headed by reflexive verbs but also to the more complex cases listed in (5), repeated in (34), in which the SE-reflexive at first sight seems to occupy a regular argument position.

- (34) Syntactic functions of *zich* in argument position:  
 a. Logical subject of small clauses (including verbal particles)  
 b. Complement of the locational P in prepositional small clauses  
 c. Nominal/prepositional object of an infinitival clause in AcI-constructions

I will argue that these cases, which have proved problematic for canonical binding theory, find a more natural explanation within the present approach based on the derivation in (33). The proposal leans heavily on the earlier discussion of these constructions in Everaert (1981/1986) and in a sense completes the study in Rooryck & Vanden Wyngaerd (2011), which assigned a special status to the cases in (34).

##### 4.1 Logical subject of small clauses

The easiest case to account for is (34a), in which the SE-reflexive functions as the logical subject of a SC. Consider the examples in (35).

- (35) • *Zich* (and *zichzelf/elkaar*) as the SUBJECT of a small-clause predicate  
 a. *Zij wierpen* [<sub>SC</sub> *zich/zichzelf/elkaar* voor de trein].<sup>9</sup>  
 they threw REFL/themselves/each.other in.front.of the train  
 ‘They threw themselves/each other in front of the train.’  
 b. *Zij achten* [<sub>SC</sub> *zich/zichzelf/elkaar* onmisbaar].  
 they consider REFL/themselves/each.other indispensable  
 ‘They consider themselves/each.other indispensable.’  
 c. *Zij vinden* [<sub>SC</sub> <sup>(?)</sup>*zich/zichzelf/elkaar* bekwame taalkundigen].  
 they believe REFL/themselves/each.other competent linguists  
 ‘They consider themselves/each.other competent linguists.’  
 d. *Zij voelden* [<sub>SC</sub> *zich/??zichzelf* zwellen van trots].  
 they felt REFL/themselves swell with pride  
 ‘They felt themselves swell with pride.’

The derivation of the examples in (35) with the SE-reflexive *zich* goes along the line indicated in (36); the structures focus on what happens to the possessive SC in the specifier of the

<sup>9</sup> Note that the antecedent of *zich* is less agent-like than the antecedent of *zichzelf/elkaar*. It is an actor in the sense discussed in Section 3.1; see the discussion of (10)-(12).

prepositional SC, the predicative part of which (i.e. [... R [<sub>XP</sub> X (PP)]] is represented as PRED. The underlying structure in (36a) is not a well-formed output structure, as the empty preposition P<sub>∅</sub> must be phonologically supported: the PP [P<sub>∅</sub> zij<sub>possessor</sub>] therefore undergoes predicate inversion into the specifier of the functional projection FP close to the verb, as in (36b), in order to license incorporation of P<sub>∅</sub> into the verb, as in (36c). Finally, the possessor *zij* ‘they’ is moved into the subject position of the clause, where it receives nominative case. The SE-reflexive is assigned accusative case by the main verb under Agree. The derivation is again simplified; see note 8.

- (36) a. — V [<sub>SC</sub> [<sub>RP</sub> zich<sub>possessum</sub> R [P<sub>∅</sub> zij<sub>possessor</sub>]] PRED]  
 b. — V [<sub>SC</sub> [<sub>FP</sub> [P<sub>∅</sub> zij<sub>possessor</sub>]<sub>i</sub> F+R [<sub>RP</sub> zich<sub>possessum</sub> t<sub>R</sub> t<sub>i</sub>]]] PRED]  
 c. — V+P<sub>∅</sub> [<sub>SC</sub> [<sub>FP</sub> [t<sub>P</sub> zij<sub>possessor</sub>]<sub>i</sub> F+R [<sub>RP</sub> zich<sub>possessum</sub> t<sub>R</sub> t<sub>i</sub>]]] PRED]  
 d. zij<sub>possessor</sub> V+P<sub>∅</sub> [<sub>SC</sub> [<sub>FP</sub> [t<sub>P</sub> t<sub>zij</sub>]<sub>i</sub> F+R [<sub>RP</sub> zich<sub>possessum</sub> t<sub>R</sub> t<sub>i</sub>]]] PRED]

The fact that the SE-reflexive regularly alternates with the complex reflexive *zichzelf* and/or the reciprocal *elkaar* follows from the fact that regular NPs can also function as the logical subjects of the SCs: *Zij wierpen Jan voor de trein* ‘They threw Jan in front of the train’. This seems consistent with the fact that the restrictions on the use of simplex and complex reflexives as the logical subject of a SC are normally of a non-syntactic nature (De Vries 1999).

#### 4.2 Complement of the locational P in prepositional small clauses

The analysis of SE-reflexives as possessums in inalienable-possession constructions along the lines sketched in (33) is clearly applicable outside reflexive-verb constructions, as shown by the alternation in (37). This was first noted in Postma (1997), who shows that the subject *Marie* can be interpreted both as the inalienable possessor of *haar voeten* ‘her feet’ and as the antecedent of the SE-reflexive *zich*.<sup>10</sup>

- (37) a. Marie<sub>i</sub> zette de tas voor haar<sub>i</sub> voeten (neer).  
 Marie put the bag in.front.of her feet down  
 ‘Marie put the bag (down) in front of her feet.’  
 b. Marie<sub>i</sub> zette de tas voor zich<sub>i</sub> (neer).  
 Marie put the bag in.front.of REFL down  
 ‘Marie put the bag (down) in front of her.’

Examples like (37a&b) are regularly analyzed as prepositional SC-constructions. Such constructions differ from their adjectival and nominal counterparts in that only they allow the use of a SE-reflexive as the complement of the predicative part of the construction. On the traditional assumption that SE-reflexives are anaphors, this SC-analysis leads to the unlikely claim that the adjectival and nominal SCs in (38b-c) differ from prepositional SCs, to the extent that the former but not the latter constitute an anaphoric domain in which the SE-reflexive in complement position must be bound; see Vat (1980), Everaert (1981/1986), Koster (1987) and Broekhuis (1992) for attempts to account for the special status of prepositional SCs.

<sup>10</sup> The particle *neer* is generally optional, although preferences vary from speaker to speaker. The relevant structure here is the one without *neer*. Examples with *neer* should receive a quite different analysis (Broekhuis 1992: §7.3.1; Den Dikken 1995: §2.3.5; 3.11.2).

- (38) a. *Jan legde* [<sub>SC</sub> het boek voor *zich*/*'m*].  
 Jan put the book in.front.of REFL/him  
 'Jan put the book in front of him.'
- b. *Jan vindt* [<sub>SC</sub> het huis te klein voor *'m*/*\*zich*].  
 Jan considers the house too small for him/REFL
- c. *Jan vindt* [<sub>SC</sub> dit een probleem voor *'m*/*\*zich*].  
 Jan considers this a problem for him/REFL  
 'Jan believes this to be a problem for him (=Jan).'

The pattern in (38) can be more easily understood on the hypothesis that SE-reflexives are possessums in inalienable-possession constructions because complements of adjectival and nominal SCs differ from those of prepositional SCs in that they do not participate in inalienable-possession relations. We can therefore assume that the SE-reflexive and its antecedent are introduced as parts of a possessive SC in the complement position of the prepositional SC in (38a). This results in structure (39a), where R<sub>2</sub> and R<sub>1</sub> refer to the relational head of the locational and the possessive SC, respectively. What we want to obtain is that the PP [<sub>P<sub>∅</sub></sub> Jan] is ultimately moved into the specifier of FP, as in (39b), followed by incorporation of the empty preposition into the verb, as in (39c). The antecedent of *zich* is then moved into the subject position of the clause in order to be assigned nominative case, which results in the surface structure in (39d).

- (39) a. — *legde* [<sub>R<sub>2</sub>P</sub> het boek R<sub>2</sub> [<sub>PP</sub> VOOR [<sub>R<sub>1</sub>P</sub> zich R<sub>1</sub> [<sub>P<sub>∅</sub></sub> Jan]]]]]  
 b. — *legde* [<sub>FP</sub> [<sub>P<sub>∅</sub></sub> Jan]<sub>i</sub> F+R<sub>2</sub> [<sub>R<sub>2</sub>P</sub> het boek t<sub>R<sub>2</sub></sub> [<sub>PP</sub> VOOR [<sub>R<sub>1</sub>P</sub> zich R<sub>1</sub> t<sub>i</sub>]]]]]  
 c. — *legde*+P<sub>∅</sub> [<sub>FP</sub> [t<sub>P</sub> Jan]<sub>i</sub> F [<sub>R<sub>2</sub>P</sub> het boek t<sub>R<sub>2</sub></sub> [<sub>PP</sub> VOOR [<sub>R<sub>1</sub>P</sub> zich R<sub>1</sub> t<sub>i</sub>]]]]]  
 d. Jan *legde*+P<sub>∅</sub> [<sub>FP</sub> [t<sub>P</sub> t<sub>Jan</sub>]<sub>i</sub> F [<sub>R<sub>2</sub>P</sub> het boek t<sub>R<sub>2</sub></sub> [<sub>PP</sub> VOOR [<sub>R<sub>1</sub>P</sub> zich R<sub>1</sub> t<sub>i</sub>]]]]]

A problem for the derivation in (39) is that movement of [<sub>P<sub>∅</sub></sub> Jan] cannot be analyzed as predicate inversion, as it violates the locality restriction on this A-movement operation: it crosses the phase boundary R<sub>1</sub>P. This suggests that predicate inversion does not apply in a single step, which can indeed be motivated by the alternation in (40a-b), taken from Broekhuis & Cornips (1997).

- (40) a. Marie zette *Jan<sub>i</sub>* het kind op zijn<sub>i</sub> knie. [possessive dative]  
 Marie put Jan the child onto his knee
- b. Marie zette het kind *bij Jan<sub>i</sub>* op zijn<sub>i</sub> knie. [possessive *bij*-PP]  
 Marie put the child with Jan on his knee  
 'Marie put the child on Jan's knee.'

Broekhuis & Cornips assume that the two examples have the same underlying structure, more specifically, the preposition *op* selects the possessive SC: *op* [*zijn knie* R<sub>1</sub> [<sub>P<sub>∅</sub></sub>/*bij Jan*]]. The main difference between the two examples is that P is phonetically empty in (40a) but overtly realized as *bij* in (40b). The word order difference follows from the fact that the PP [<sub>P<sub>∅</sub></sub> Jan] must move into SpecFP to allow P-incorporation, while [*bij Jan*] does not. This also accounts for Corver's (1992) observation that the string *bij Jan op zijn knie* forms a constituent; the examples in (41) show that topicalization of the PP *op zijn knie* in (40b) obligatorily pied pipes the possessive *bij*-PP and the verb-second restriction on Dutch main clauses therefore leaves no doubt that we are dealing with a single phrase, which is derived by predicate inversion accompanied by incorporation of the relator R of the possessive SC into the preposition *op*; cf. [[*bij Jan*]<sub>i</sub> op+R [<sub>RP</sub> zijn knie t<sub>R</sub> t<sub>i</sub>]].

- (41) a. [*Bij Jan op zijn knie*] zette Marie het kind.  
 with Jan on his knee put Marie the child
- b. ??*Op zijn knie* zette Marie het kind *bij Jan*.

We have seen that the derivation in (39) cannot be fully correct because of the locality restriction on predicate inversion. The remedy is to assume that the PP-movement in (39b) does not apply in one go but is preceded by the more local movement step also involved in the derivation of (40b):  $[[P_{\emptyset} \text{ Jan}]_i \text{ voor} + R [R_{IP} \text{ zich } t_R t_i]]$ .

#### 4.3 Nominal/prepositional object of an infinitival clause in AcI-constructions

This section discusses the distribution of SE-reflexives embedded in bare infinitival complements of AcI-constructions (indicated by VP). A long-standing problem for approaches that take SE-reflexives to be “long-distance” anaphors is illustrated in (42): because SE-reflexives have approximately the same distribution as clause-bound referential pronouns, the acceptability contrast between the pronoun *r* ‘her’ and the SE-reflexive *zich* is unexpected. The hypothesis that *zich* is a possessum in an inalienable-possession construction can easily account for this contrast by assuming that the subject of the infinitival clause *Jan* blocks A-movement of the possessor *Marie* into the subject position of the matrix clause.

- (42) *Marie* hoorde  $[_{VP} \text{ Jan } 'r/*\text{zich} \text{ roepen}]$ .  
 Marie heard Jan her/REFL call  
 ‘Marie heard Jan call her.’

A potential problem for this proposal is, however, that *zich* can take *Marie* as an antecedent in (43). This problem will be solved by adopting Petter’s (1998:ch.4) hypothesis that these constructions with causative/permissive *laten* ‘to make/let’ are not AcI-constructions but double-object constructions with a nominal indirect object and a verbal direct object; *Jan* is thus not the subject of the VP, as in (43a), but an indirect object of the matrix verb *laten*, as in (43b); compare Kayne’s (1975:§3.1) analysis of *On fera boire du vin à Jean/On lui<sub>dative</sub> fera boir du vin* ‘One made Jean/him drink wine’.

- (43) a. *Marie* liet  $[_{VP} \text{ Jan op } 'r/\text{zich} \text{ schieten}]_{DO}$ .  
 Marie let Jan at REFL/her shoot  
 b. *Marie* liet  $\text{Jan}_{IO} [_{VP} \text{ op } 'r/\text{zich} \text{ schieten}]_{DO}$ .  
 Marie let Jan at REFL/her shoot  
 ‘Marie made/let Jan shoot at her.’

Space limitations make it impossible to review Petter’s arguments in favor of the analysis in (43b) but I will add one additional argument (i.e. not given by Petter) directly related to our topic, based on an observation in Everaert (1986:§5.4.2).<sup>11</sup> Should the reflexives in (44) be analyzed as subjects of an infinitival clause, we would expect them to surface as a complex or a simplex form; cf. Section 4.1. This prediction is correct for constructions with perception verbs but not for those with the causative verb *laten*.

<sup>11</sup> Petter’s proposal is reviewed in Broekhuis & Cover (2015: §5.2.3.4), who in fact suggest that *laten* is like French *faire* in that it can occur in two syntactic frames, which we may paraphrase as *laten* + *aan* and *laten* + *door* constructions, analogous to Kayne’s (1975) *faire à* and *faire par* constructions. A reviewer further reports that Petter’s proposal receives support from Frisian, where perception and causative verbs select, respectively, the *-n* and *-e* form of the infinitive: cf. *Hja sjocht de manlju laitsjen* ‘She sees the men laugh’ versus *Hja lit se laitsje* ‘She lets them laugh’ (taalportaal.org/taalportaal/topic/pid/topic-13998813342313286).

- (44) a. *Jan zag zichzelf/zich zwemmen (op TV).*  
 Jan saw himself/REFL swim on TV  
 a'. *Jan laat zichzelf/\*zich zwemmen.*  
 Jan makes himself/REFL swim  
 b. *Jan hoorde zichzelf/zich over Peter praten.*  
 Jan heard himself/REFL about Peter talk  
 b'. *Jan laat zichzelf/\*zich over Peter praten.*  
 Jan makes himself/REFL about Peter talk

The contrast between the primeless and primed examples follows if the latter are double-object constructions, as example (2b) has shown that indirect objects normally do not surface as SE-reflexives. Example (45) shows that *zich* becomes possible when we replace the unergative verb *zwemmen* in (44a') by ergative verb *vallen* 'to fall'; this follows from the fact that *zich* can only be analyzed as the internal (hence, obligatory) argument of *vallen* and not as the indirect object of *laten*. Note in passing that this shows that the indirect object of *laten* is not always obligatorily expressed.

- (45) *Jan liet zich<sup>?</sup>/zichzelf vallen.*  
 Jan let REFL/himself fall  
 'Jan dropped/fell down.'

Section 4.3.1 investigates the consequences of Petter's hypothesis for cases in which *zich* is (part of) a nominal/prepositional argument of the infinitival verb, and section 4.3.2 for cases in which *zich* is embedded in a prepositional SC. Unfortunately, the discussion is complicated by the fact that reliable judgments on the relevant data are sometimes difficult to obtain. Reuland (2011:292), for instance, considers examples similar to (42) with a referential pronoun bound by the matrix subject marked or even unacceptable, while Everaert (1986:278) considers them fully acceptable. Everaert's position seems supported by the completely natural quote from *De zesde mei* (2003:ch.2) by the Dutch writer Tomas Ross: *Ze zegt: 'Dag Bob', en ze hoort hem haar teruggroeten [...]* 'She says, "Hello Bob," and she hears him greet her back [...]. Internet data will be used to shed new light on conflicting judgments we will encounter later.

#### 4.3.1 Nominal and prepositional objects

The introduction has already shown that the examples in (46) pose a problem for approaches that take the SE-reflexive *zich* to be a "long-distance" anaphor, as we would expect it to have the same distribution as the clause-bound weak referential pronoun 'r 'her'.

- (46) a. *Marie hoorde [VP Jan 'r/\*zich roepen].*  
 Marie heard Jan her/REFL call  
 'Marie heard Jan call her.'  
 b. *Marie liet [VP Jan 'r/\*zich wekken].*  
 Marie let Jan her/REFL wake  
 'Marie let Jan wake here up.'

The examples in (47), which differ from the examples in (46) in that the subject of the VP is omitted, complicate the overall picture even more because the SE-reflexive *zich* and the pronoun 'r are also mutually exclusive in this context, be it that *zich* is now the acceptable form.

- (47) a. *Marie* hoorde [<sub>VP</sub> *zich*/\*'r (door Jan) roepen].  
 Marie heard REFL/her by Jan call  
 'Marie heard someone/Jan call her.'
- b. *Marie* liet [<sub>VP</sub> *zich*/\*'r (door Jan) wekken].  
 Marie let REFL/her by Jan wake  
 'Marie let someone/Jan wake her up.'

This subsection accounts for the distribution of *zich* in these examples by using the hypothesis that it functions as the possessum in an inalienable-possession construction: I conclude that raising of the possessor of *zich* (here: *Marie*) to the subject position of the matrix clause is possible only when the infinitival clause is subjectless.

First, consider the examples in (46). On the standard assumption that we are dealing with AcI-constructions, we expect the VP to constitute an anaphoric domain for the referential pronoun 'r 'her'; binding condition B correctly predicts that it cannot be bound by the subject of the infinitival clause while it can be bound by the subject of the matrix clause. However, the hypothesis that *zich* is a "long-distance" anaphor wrongly predicts that *zich* must also be free in this anaphoric domain, and thus bound by the subject of the matrix clause. The alternative hypothesis that the SE-reflexive is the possessum of an inalienable-possession construction, on the other hand, predicts that the raised possessor can only become the subject of the infinitival clause because of the locality restriction on A-movement (i.e. predicate inversion). We would therefore expect a reflexive-verb interpretation of the infinitival verbs, which is excluded for the same (non-syntactic) reason that \**Jan roept zich* and \**Jan wekt zich* are unacceptable. The alternative hypothesis therefore seems preferable even on the standard analysis of (46).

The infinitival clauses in (47) arguably do not contain an empty PRO-subject given that the agent is optionally expressed by a *door*-PP. Furthermore, if PRO were present, the bracketed phrase would be the anaphoric domain of the pronoun 'r 'her' so that binding condition B would incorrectly predict that the pronoun can be bound by the subject of the matrix clause. If the infinitival clauses are indeed subjectless, the fact that *zich* is possible follows in a more or less standard way from the current hypothesis based on the derivation in (33): *zich* absorbs the accusative case of the infinitival verb, consequently the possessor must be assigned case by being promoted to subject of the main clause after predicate inversion of the possessor-PP and incorporation of its empty preposition  $P_{\emptyset}$ . P-incorporation could in principle be obtained in two ways. The first option would be incorporation of  $P_{\emptyset}$  into the infinitival verb after predicate inversion within the possessive SC. The second option would be that the possessor PP does not only undergo predicate inversion within the possessive SC but is subsequently moved into the empty subject position of the VP (i.e. locative inversion), from where  $P_{\emptyset}$  is incorporated into the matrix verb. As the first option leaves open why the verb-frame properties of the matrix verb are affected by P-incorporation, the second option would appear to be the better one.<sup>12</sup>

The analysis of the difference between (46) and (47) can also account for the minimal pair in (48), taken from Everaert (1986:141), provided we assume that the infinitival complement in the *laten*-construction may contain a PRO-subject that can be interpreted as coreferential with the indirect object, as proposed by Petter (1998). This means that we reanalyze (46b) as follows: *Marie* liet Jan<sub>i</sub> [<sub>VP</sub> PRO<sub>i</sub> 'r/\**zich* wekken]. Since the infinitival

<sup>12</sup> The judgments in (47) also follow if we analyze the pronouns as derived subjects of a bare-infinitival *passive* clause; cf. Section 4.1. However, this analysis is problematic because the infinitive does not show any morphological reflex of passivization and thus requires some *ad hoc* stipulation to block accusative-case assignment by it. The analysis in the main text resembles passivization in that it also involves omission of the external argument of the infinitive but without affecting its case-assigning properties.

clause has a PRO-subject, we still predict that *Marie* cannot be the antecedent of the SE-reflexive because of the locality restriction on predicate inversion. Example (48a) now has the same structure as (46b) but is fully acceptable because the antecedent of *zich* is the PRO-subject itself; example (48b) is of the type in (47) and, consequently, the subject of the matrix clause may act as the antecedent of *zich*.

- (48) a. Marie laat Jan<sub>i</sub> [*PRO*<sub>i</sub> *zich* wassen].  
 Marie makes Jan REFL wash  
 ‘Marie makes Jan wash himself.’  
 b. *Marie* laat [*zich* (door Jan) wassen].  
 Marie lets REFL by Jan wash  
 ‘Marie lets herself be washed (by Jan).’

Note in passing that example (48b) resembles the so-called reflexive middle constructions with permissive *laten* ‘to let’. Section 3.1 has already shown that standard Dutch does not have reflexive middle constructions such as (49b), but the middle construction with *laten* in (49c) is quite productive. The properties of the reflexive middle construction are similar to those of the infinitival *zich*-constructions in (47) and (48b): *zich* absorbs accusative case of the infinitival verb and the nominal phrase *het truitje* ‘the sweater’ is realized as the subject of the matrix clause. Differences are: (i) a referential expression cannot substitute for the SE-reflexive; (ii) an adverbial phrase like *gemakkelijk* ‘easily’ seems obligatory; (iii) an agentive *door*-PP cannot be used. This suggests that reflexive middle constructions with *laten* can also be subsumed under the present proposal, although their special properties need more investigation.

- (49) a. Jan wast het truitje. [transitive]  
 Jan washes the sweater  
 b. \**Het truitje* wast *zich* gemakkelijk. [reflexive middle]  
 the sweater washes REFL easily  
 c. *Het truitje* laat *zich* gemakkelijk wassen. [reflexive middle]  
 the sweater lets REFL easily wash  
 ‘The sweater washes easily.’

We now turn to causative constructions with a PP-complement, and assume that they can be given a similar analysis as the corresponding cases with a nominal complement; if so, sentence (50a) is structurally ambiguous, as indicated in the (b)-examples.

- (50) a. *Marie* liet Jan op *zich*/*r* schieten.  
 Marie let Jan at REFL/her shoot  
 ‘Marie made/let Jan shoot at her.’  
 b. *Marie* liet Jan<sub>i</sub> [<sub>VP</sub> *PRO*<sub>i</sub> op *r*/*\*zich* schieten].  
 b'. *Marie* liet Jan [<sub>VP</sub> op *zich*/*\*r* schieten].

First, consider structure (50b) with a PRO-subject. Since the VP has a subject, it functions as the anaphoric domain of the pronoun *r* ‘her’ and condition B therefore correctly predicts that it can be bound by the matrix-clause subject *Marie*. However, the matrix-clause subject cannot be the antecedent (i.e. possessor) of *zich* because of the locality restriction on locative inversion; only the PRO-subject should be able to act as the antecedent of *zich* and we therefore expect its controller *Jan* to be coreferential with *zich*, which is excluded for the same (non-syntactic) reason that *\*Jan schiet op zich* is unacceptable. Next, consider structure (50b') without a PRO-subject. Because the infinitival clause does not have a subject, the main clause functions as the anaphoric domain of the pronoun and binding condition B therefore predicts that *r* cannot be bound by *Marie*. However, raising of the possessor of the SE-reflexive to the

subject position of the matrix clause can now apply via the empty subject position of the VP and this correctly predicts that *Marie* can be the antecedent of *zich*. The structural ambiguity of (50a) thus account for the fact that *Marie* can be the antecedent of both the referential pronoun and the SE-reflexive.

The analysis above implies that a SE-reflexive cannot be embedded in a PP-object in the AcI-constructions in (51), as the subject of the VP will block raising of its possessor to the subject position of the matrix clause. My judgments seem to be in line with this prediction but it should be noted that different judgments can be found in the literature: Everaert (1986:230), for instance, labels an example with *zich* similar to (51b) as fully acceptable but without comparing it to its counterpart with a referential pronoun. Furthermore, Rooryck & Vanden Wyngaerd (2011:165-8) claim that the acceptability depends on the nature of the antecedent; they label examples with proper names as fully acceptable but marked with antecedents they consider to be less referential (*het meisje* ‘the girl’) or quantificational (*iedereen* ‘everyone’).

- (51) a. *Marie zag* [<sub>VP</sub> Jan naar ’r/?zich zwaaien].  
 Marie saw Jan at himself/REFL/him wave  
 ‘Marie saw Jan wave at herself.’
- b. *Marie hoorde* [<sub>VP</sub> Jan naar ’r/?zich roepen].  
 Marie heard Jan to her/REFL call  
 ‘Marie heard Jan call to her.’
- c. *Marie hoorde* [<sub>VP</sub> Jan over ’r/?zich praten].  
 Marie heard Jan about her/REFL talk  
 ‘Marie heard Jan talk about her.’

A Google search performed on October 8, 2020, lends support to the acceptability contrast given in (51). The search strings [*zag \* naar haar/zich kijken*], [*hoorde \* naar haar/zich roepen*] and [*hoorde \* over haar/zich praten*] did not return any result with the SE-reflexive (apart from a couple of examples from linguistic sources) but several cases turned up with the referential pronoun *haar* (resp. 19, 8 and 7 hits); a manual check revealed that the majority of these cases were indeed of the type in (51). My (cautious) conclusion is that examples of the type in (51) occur with referential pronouns only, as predicted by our analysis.

#### 4.3.2 Prepositional small clauses

The discussion above has shown that *zich* cannot take an antecedent in the matrix clause in an AcI-construction with a perception verb when it occurs as the nominal/prepositional complement of an (in)transitive infinitival clause with an overtly realized subject; cf. (46) and (51). This section will show that the results are quite different if the infinitival clause of the AcI-construction is headed by an ergative verb selecting a prepositional SC. First, consider the simple clauses in (52): (52a) differs from the intransitive clause with a PP-complement in (52b) in that its subject is inserted in a VP-internal position, namely the subject position of the SC.

- (52) a. Jan<sub>i</sub> is [<sub>VP</sub> [<sub>SC</sub> *t<sub>i</sub>* naar haar toe] gekomen]. [prepositional SC]  
 Jan is to her TOE come  
 Jan has come towards her.’
- b. Jan heeft [<sub>VP</sub> naar haar gekeken/geroepen]. [PP-complement]  
 Jan has to her looked/called  
 ‘Jan has looked at/called to her.’

The AcI-constructions in (53) take the infinitival counterpart of (52a) as their complement. Example (53a) with the causative/permissive verb *laten* allows the matrix subject to act as the antecedent of both the referential pronoun ’r and the SE-reflexive *zich*. This need not surprise us given that it also holds for example (50a). However, that the same holds for (53b) with the

perception verbs *zien* ‘to see’ and *horen* ‘to hear’ is surprising, given that there is no clear empirical evidence that the SE-reflexive *zich* can occur in the examples in (51). For completeness’ sake, note that a fair number of cases of the kind in (53b) can be found on the internet, which indicates that the acceptability contrast between the examples in (51) and (53b) is real.

- (53) a. *Marie* liet Jan [<sub>VP</sub> (PRO) naar *zich*/<sup>’r</sup> toe komen].  
 Marie let Jan on her/REFL TOE come  
 ‘Marie made/let Jan come towards her.’  
 b. *Marie* zag/hoorde [<sub>VP</sub> Jan naar *zich*/<sup>’r</sup> toe komen]  
 Marie saw/heard Jan on her/REFL TOE come  
 ‘Marie saw/heard Jan come towards her.’

That the referential pronoun <sup>’r</sup> can be bound by *Marie* in the examples in (53) is once more predicted by binding condition B, but it is less clear why *Marie* can also be the antecedent of the SE-reflexive of *zich*, contrary to what seems to be the case in (51). Let us start by formulating the following generalization based on the contrast between the examples (51) and (53b):

- (54) **SE-reflexives in bare infinitival complements of AcI-constructions:** The subject of a bare infinitival clause in an AcI-construction blocks the presence of *zich* if it is an external (agentive) argument of the infinitival verb but not if it originates as the external (theme) argument of a prepositional small clause.

This generalization follows from the basic ingredients of our analysis: predicate/locative inversion and P-incorporation, which is illustrated again for the simplest case (with predicate inversion) in (55), where NP<sub>possessum</sub> stands for the SE-reflexive.

- (55) a. [<sub>RP</sub> NP<sub>possessum</sub> R [<sub>P $\emptyset$</sub>  NP<sub>possessor</sub>]]  
 b. Predicate inversion: [<sub>FP</sub> [<sub>P $\emptyset$</sub>  NP<sub>possessor</sub>]<sub>i</sub> F+R ... [<sub>RP</sub> NP<sub>possessum</sub> t<sub>R</sub> t<sub>i</sub>]]  
 c. P-incorporation: V+P $\emptyset$  [<sub>FP</sub> [<sub>t<sub>P</sub></sub> NP<sub>possessor</sub>]<sub>i</sub> F+R ... [<sub>RP</sub> NP<sub>possessum</sub> t<sub>R</sub> t<sub>i</sub>]]

The unacceptability of a SE-reflexive in the cases in (51) follows from the proposed analysis. First, predicate inversion must take place before the insertion of the external argument of the infinitival V because P-incorporation results in valency reduction (i.e. the suppression of the external argument) of the infinitival verb, as V+P $\emptyset$  cannot assign case to the possessor, which consequently must be promoted to subject. Second, the derivation of the examples in (53) is crucially different in that the subject of the bare infinitival clause (here; *Jan*) is not an external argument of the infinitive but the logical subject of the prepositional SC. Since the logical subject of the SC is already present *before* predicate/locative inversion takes place, it cannot be affected (i.e. suppressed) by this process; the predicate [<sub>P $\emptyset$</sub>  NP<sub>possessor</sub>] simply crosses it when it moves into the position from which P-incorporation into the matrix verb takes place (here: the subject position of VP). Finally, this shows that the rationale behind generalization (54) is that P-incorporation can only affect the argument structure of a verb supporting it: the argument structure of the prepositional SC always remains intact. For completeness’ sake, note that (53a) should be given the same analysis as (53b) because the proper noun *Jan* functions as the subject of the SC in both cases: a double-object analysis of (53a) is therefore not possible.

#### 4.4 The Scandinavian languages

So far, I have covered the distribution of SE-reflexives in Dutch but similar data can be found in the other Germanic (and Romance) languages. My focus will be on (mostly Bokmål)

Norwegian. The instances in (56), taken from Hellan (1988:ch.3) first show that the SE-reflexive *seg* can be used with reflexive but not with non-reflexive verbs.<sup>13</sup>

- (56) a. *Jon skammer seg/\*seg selv.* [inherently reflexive verb]  
 Jon shames REFL/himself  
 ‘Jon is ashamed.’
- b. *Jon vasket seg/seg selv.* [reflexive/transitive verb]  
 Jon washed REFL/herself  
 ‘Jon washed (himself).’
- c. *Jon beundrer seg selv/\*seg.* [transitive verb]  
 Jon admires himself/REFL  
 ‘Jon admires himself.’
- d. *Jon snakket om seg selv/\*seg.* [intransitive verb with object-PP]  
 Jon talks about himself/REFL  
 ‘Jon talked about himself.’

Lødrup (1999) further claims that “inalienables with external possessors have a distribution that is strikingly similar to the distribution of the simplex reflexive”. What is important for us is that the data he presents (in §3) include constructions similar to the ones discussed in Section 4.1 and 4.2.

- (57) a. *Hun malte munnen/seg rød.* [subject of SC]  
 she painted the.mouth/REFL red  
 ‘She painted her mouth/herself red.’
- b. *Hun trakk dynen over hodet/seg.* [compl. of P in locational SC]  
 she pulled the.duvet over the.head/REFL  
 ‘She pulled the duvet over her head/her.’

Example (58) from Hellan (1988:131) shows that *seg* can also occur as the prepositional object of the infinitival clause in an AcI-construction; see also Lødrup (p.366). This example is potentially problematic for our analysis, however, because Section 4.3 has argued that SE-reflexives are ungrammatical in this context if the external argument of the infinitive is realized.

- (58) *Jon så meg sikte på seg/ham.*  
 Jon saw me aim at REFL/him  
 ‘John saw me aim at him.’

This example should not be seen as a true counterexample, though, for Hellan shows that Norwegian *seg* in such cases resembles Icelandic logophoric *sig*, in that it is used ‘to express a construal of the situation/act described as corresponding to the binder’s own experience or intention’ (p.133). This is illustrated by various examples, including (58), which would be completely ungrammatical in Dutch. More examples are given in (59); the acceptability contrasts with their Dutch counterparts in the primed examples illustrate the logophoric property of Norwegian *seg*.

<sup>13</sup> The judgment in (56c) is taken from Lødrup (1999); however, Hellan (p. 113) gives *Jon beundret seg (i speilet)* ‘John admires himself (in the mirror)’ as acceptable when it “favors a reading where only the physical appearance is involved” (my underlining) and not a “full personality”. This interpretational difference is expected, given the analysis in this article, because the reflexive pronoun can easily be replaced by an NP denoting an inalienably possessed body part; cf. *Jan bewonderde zijn buikspieren in de spiegel* ‘Jan admired his abs in the mirror’. Similar Dutch examples are discussed in Geurts (2004) in terms of stress assignment, which is not enlightening, given that SE-reflexives are phonologically weak by definition; see the discussion of German *sich* in Section 1.

- (59) a. *Jon* bad *meg*<sub>i</sub> [<sub>clause</sub> PRO<sub>i</sub> *hjelpe ham/seg*].  
 Jan asked me help him/refl
- a'. *Jon* vroeg *mij*<sub>i</sub> [<sub>clause</sub> PRO<sub>i</sub> *hem/\*zich te helpen*].  
 Jan asked me him/REFL to help  
 'Jon/Jan asked me to help him.'
- b. *Jon* gjorde [<sub>sc</sub> *oss glad i seg/ham*]  
 Jon made us fond on him/REFL
- b'. *Jon* maakte [<sub>sc</sub> *ons dol op hem/\*zich*].  
 Jan made us fond of him/REFL  
 'Jon/Jan made us fond of him.'

If we take the logophoric property of *seg* into account, we may conclude that our analysis also accounts for the core properties of SE-reflexives in Norwegian.

## 5 Two additional remarks

This section concludes with two brief remarks of a more speculative nature. Section 5.1 discusses the exceptional behavior of (presumed) adverbial locational PPs while Section 5.2 provides additional evidence for the SC-analysis of inalienable-possession constructions.

### 5.1 On presumed adverbial locational PPs

Ordinarily, adverbial prepositional phrases cannot take a SE-reflexive as their complement. Adverbial PPs clearly differ in this respect from predicative PPs in SC-constructions discussed in Section 4.2. Examples of adverbial PPs of various kinds are given in (60).

- (60) a. *Jan* is volgens *zichzelf/\*zich* erg aardig.  
 Jan is according.to himself/REFL very nice  
 'According to himself, Jan is very nice.'
- b. *Jan* spreekt namens *zichzelf/\*zich*.  
 Jan speaks for himself REFL  
 'Jan speaks for himself.'
- c. *Jan* werd door *zichzelf/\*zich* verdedigd.  
 Jan was by himself/REFL defended  
 'Jan was defended by himself.'

Now consider example (61a), in which the locational PP is normally not analyzed as a SC-predicate but as an adverbial phrase because there is no (understood) theme argument located in the place referred to by the PP. This suggests that locational adverbial PPs are special in that they do allow a SE-reflexive as their complement. Other potential examples of this kind are given in (61b-c).

- (61) a. *Jan* keek voor/achter/... *zich/??zichzelf*.  
 Jan looked in.front.of/behind/... REFL/himself  
 'Jan looked in front of/behind/... himself.'
- b. *Jan* zag een slang (voor *zich/\*zichzelf*).  
 Jan saw a snake in.front.of REFL/himself  
 'Jan saw a snake in front of him.'
- c. *Jan* hoorde iemand (achter *zich/\*zichzelf*).  
 Jan heard someone behind REFL/himself  
 'Jan heard someone behind him.'

Constructions with an adverbial PP of the form *P + zich* are restricted in that they are usually locational in nature and only co-occur with a small number of verbs: the perception verbs *zien*

‘to see’, *horen* ‘to hear’, and *kijken* ‘to look’ (the more agentive counterpart of *zien*) in (61) in fact seem to exhaust the possibilities. It is tempting to list such cases as idioms, alongside other cases such as *dat spreekt voor zich* ‘that goes without saying’ (Everaert 1986; 47/68). However, this option is less attractive because the translations of (61) in other Germanic languages also exhibit special behavior: see the Norwegian and English counterparts of (61b) in (62) from Lødrup (2007:185) and Chomsky (1981:290), with *seg/him* instead of a complex reflexive.

- (62) a. *Per så en slange bak seg.*  
 b. *John saw a snake near him.*

That the cases in (61) involve locational PPs is not surprising since we have seen in Section 4.2 that these typically host inalienable possessed phrases (including SE-reflexives). One option therefore is to analyze the PPs in (61b-c) as SC-predicates. This may seem unusual because the PPs in these examples are optional but we should realize that unambiguous SC-predicates can sometimes also be omitted if the resulting sentence is interpretable (Hoekstra et al. 1987); cf. *Jan veegde de stoep (schoon)* ‘Jan swept the floor (clean)’ versus *Jan veegde de bezem \*(aan flarden)* ‘lit.: Jan swept the broom \*(to shreds)’. A semantic argument in favor of a SC-analysis of (61b-c) might be built on the meaning of these examples. Examples such as *Jan zag een slang in de tuin* ‘John saw a snake in the garden’ are ambiguous. First, the full event of Jan seeing a snake may be located in the garden; this should be expressed by an ordinary adverbial analysis of the PP. Second, the location of the full event may be undetermined in that Jan need not be in the garden but simply observes (e.g., from the kitchen) that there is a snake in the garden. The second reading with the PP having a more limited scope is the one also found in (61b-c) and can be ascribed a standard (but non-resultative) SC-structure: cf. *Jan zag [sc een slang in de tuin]*. If so, the examples in (61b-c) can be given a similar analysis as the cases discussed in Section 4.2.

This leaves us with (61a), for which a SC-analysis seems less plausible because no syntactic object is present. Many dictionaries (e.g. *Webster* and *Van Dale*) paraphrase the meaning of *to look (at)* and *kijken (naar)* as “to direct one's eyes/attention + PP”, i.e. as a transitive construction with a predicative locational PP. It is therefore not surprising for *kijken naar* to be listed as a verb with a PP-complement in all major Dutch grammars; see also Lødrup (2007) on Norwegian. As Dutch *naar* is typically used in predicative (directional) PPs, it seems but a small step to assume that we are dealing with a SC-construction with an idiomatically determined empty logical subject.

Although it seems too early to draw definitive conclusions about the syntactic structure of the examples in (61), it is clear that there are grounds for not analyzing the locational PPs as adverbial phrases, which opens the way for analyzing these cases along the lines indicated in this article.

## 5.2 On possessive small clauses

The analysis of the distribution of SE-reflexives in this article adopts the assumption in Broekhuis & Cornips (1997), Den Dikken (2006), and Rooryck & Vanden Wyngaerd (2011) that inalienable-possession constructions are derived from an underlying possessive SC-construction such as (63a). This article claims that the surface realization of the inalienable construction is derived via predicate inversion, as in (63b), P-incorporation, as in (63c), and, finally, A-movement of the possessor into a structural case position.

- (63) a.  $[_{RP} NP_{\text{possessum}} R [_{PP} P_{\emptyset} NP_{\text{possessor}}]]$   
 b.  $V [_{FP} [_{PP} P_{\emptyset} NP_{\text{possessor}}]_i F+R \dots [_{RP} NP_{\text{possessum}} t_R t_i]]$   
 c.  $V+P_{\emptyset} [_{FP} [_{PP} t_P NP_{\text{possessor}}]_i F+R \dots [_{RP} NP_{\text{possessum}} t_R t_i]]$

That we are dealing with predicate inversion of a PP with an empty preposition  $P_{\emptyset}$  was motivated in Section 4.2 by pointing out that the possessor-PP [ $_{PP} P_{\emptyset} NP_{\text{possessor}}$ ] has a counterpart with the morphologically realized preposition *bij*, which forms a constituent with the locational PP containing the possessum (in the order derived by predicate inversion); cf. the discussion of [*Bij Jan op zijn knie*] *zette Marie het kind* in (41b). This provides a first piece of evidence in favor of the SC-structure in (63a) with a PP-predicate. More evidence can be found in the Scandinavian languages, which are more restricted in their expression of external possession (i.e. inalienable possession with a subject/object possessor) but can express inalienable possession by means of a specialized preposition comparable to Dutch *bij* such as *på* in the Norwegian example in (64a).<sup>14</sup> Lødrup (2009) provides ample evidence for claiming that we are dealing with inalienable possession, such as the obligatory presence of a definite determiner on the possessum *hodet* (Vergnaud & Zubizarreta 1992). The brackets in (64a) are used to indicate that the PP *på ham* is embedded within the larger PP, which is illustrated by topicalization in (64b); see Lødrup (2009:§3) for more arguments.

- (64) a. Det fløy en fugl [over hodet på ham].  
 there flew a bird over head-the on him  
 ‘A bird flew over his head.’  
 b. [Over hodet på ham] fløy det en fugl.

There are at least two reasons for assuming that we are dealing with the possessive SC-structure [ $_{SC} \text{hodet } R \text{ [på ham]}$ ] and not with the modification structure [ $_{NP} \text{hodet [på ham]}$ ]. First, the bracketed phrase in (65a) can be split by topicalization, which Lødrup (p.226) shows to be possible with body-part NPs only. Lødrup concludes from this that despite the fact that the bracketed sequence normally constitutes a constituent, it can be split into two (independent) constituents *when they follow the verb* as a result of some form of (unspecified) diachronic reanalysis. That splitting is possible of course follows without further ado from the SC-analysis, as extraction of the logical subject from a SC-complement of a verb is always possible.<sup>15</sup>

- (65) a. De måtte fjerne [leveren på ham].  
 they must remove the.liver on him  
 ‘They must remove his liver.’  
 b. Leveren<sub>i</sub> måtte de fjerne [ $t_i$  på ham].

Second, Lødrup (§4.3) shows that the (unsplit) bracketed sequence in (66a) cannot be used as a subject of a finite clause while the split pattern in the ergative construction in (66b) is fully acceptable. This is unexpected in the modification analysis but again expected in the SC-analysis, as SCs are never used as subjects of finite clauses while this is common for their logical subject in ergative constructions.

- (66) a. \*[Hendene på henne] gled over ryggen hans.  
 the.hands on her slid over the.back his  
 Intended reading: ‘Her hands slid over his back’  
 b. Neglene må klippes [ $t_i$  på ham].  
 nails.the must cut-pass on him  
 ‘His nails must be cut.’

<sup>14</sup> See Thráinsson (2007:§3.1.1.3) for similar Icelandic examples with the preposition *á*.

<sup>15</sup> The NP +PP sequence can also be topicalized as a whole, which is unexpected for a resultative SC. This may be related to the fact that *på* (like Dutch *bij*) can also be used as a regular preposition with a spatial meaning: cf. Lødrup’s (§2-3).

## 6 Conclusion

This article focuses on the distribution of SE-reflexives like Dutch *zich*. This has long been considered a problem for canonical binding theory as SE-reflexives do not seem to fall within its the scope. I have shown that this is not justified as SE-reflexives are not bound but inalienably possessed by their antecedent, and that the distribution of SE-reflexives receives a natural explanation when we adopt the analysis of inalienable-possession constructions in Broekhuis & Cornips (1997). The proposed analysis is preferable on minimalist grounds to its earlier competitors because it accounts for the data without postulating additional means primarily motivated by the “mixed” binding behavior of SE-reflexives, like the additional anaphoric domains proposed in Vat (1980) and its successors or the chain condition in the reflexivity framework. This article fits perfectly in the linguistic tradition since Chomsky (1981) in aiming at unifying the locality constraints on binding, A-movement and inalienable possession. In Chomsky (1981) A-movement traces are anaphors; Guéron (1985) claimed the same for body-part NPs in inalienable-possession constructions. This article takes the opposite direction by reducing the locality restrictions on (presumed) binding of SE-reflexives to those on inalienable possession, as in Postma (1997) and Lødrup (1999), and, ultimately, A-movement in the guise of predicate inversion. What remains as a residue is canonical binding theory itself, which other researchers already have tried to reduce to restrictions on A-movement (Hornstein 2001:ch.5; Grohmann 2003) or the even more minimal operation Agree (Rooryck & Vanden Wyngaerd 2011).

**Acknowledgements:** Form and contents of this article have profited immensely from the comments by three anonymous reviewers. Höskuldur Thráinsson has helped me get a better understanding of the Scandinavian data discussed in Section 5.2. Frits Beukema has read various versions of the manuscript and has given me many useful tips for making the article more accessible to the reader.

**Competing interests:** none

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