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Reflexive *-st* verbs in Icelandic

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Abstract The *-st* morpheme in Icelandic resembles Romance and Slavic reflexive clitics and some Germanic simplex reflexives in that it is associated with a number of different uses on various verbs; this includes, among other uses, a middle/anticausative, a reciprocal, and a reflexive use. The reflexive use of *-st* is, however, much more restricted than that of typical reflexive clitics. In this article, I discuss in detail one particular class of reflexive *-st* verb, which I will refer to as the 'figure reflexive'. With figure reflexive constructions, the subject bears an external agentive θ-role and is also understood as a 'figure' with respect to a spatial 'ground', in the sense of Talmy (1985). I discuss two questions that reflexive *-st* verbs raise for a syntactic view of argument structure: what is the relationship between anticausatives and reflexives, and where does lexical idiosyncrasy arise? For the first question, I propose to analyze *-st* as an argument expletive, which in figure reflexive constructions is merged in SpecpP (cf. Svenonius 2003, 2007), but in anticausatives is merged in SpecVoiceP. Only in the former case can the θ-role survive in semantics, which is argued to derive from the fact that VoiceP dominates pP, and not the other way around. For the second question, I argue that there are two separate issues: the first is the syntactic distribution of *-st* (which limits the kinds of reflexive *-st* verbs that can exist) and the second is the integration of roots into abstract event structure. This analysis supports a model of grammar where the semantics interprets the syntax, but the syntax operates autonomously from semantics: interpretation is determined 'late', just like phonological forms are.

Keywords Icelandic · *-st* verbs · figure reflexive · anticausatives · reflexive verbs · middle voice · argument structure · split pPs

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1 Introduction

Beginning with the work of Kratzer (1996), and continuing through Embick (1997); Pylkkänen (2002, 2008); Cuervo (2003); Svenonius (2003, 2007); Alexiadou and Anagnostopoulou (2004); Alexiadou et al. (2006); Schäfer (2008); and Alexiadou (2010) (among many others), a long line of fruitful inquiry has pursued the hypothesis that external arguments of various types are introduced syntactically by functional heads which vary in featural content and thematic interpretation. This view, combined with the architectural assumption that syntactic structures are built bottom-up by successive applications of Merge, paved the way for an understanding of transitivity alterntations where rather than deriving an intransitive verb from a transitive one, or vice-versa, both intransitive and transitive structures are built independently, from some but not all of the same formatives, subject to the condition that a converging derivation results. For a derivation to converge, all syntactic requirements must be met, and the result must be readable by the semantics and the morphology/phonology.

Consider how Schäfer (2008) analyzes the German causative alternation in this approach.[1]

(1) German

a. Hans öffnete die Tür.
John opened the door
'John opened the door.' (*transitive/causative*)

b. Die Tür öffnete sich.
the door opened REFL
'The door opened.' (*intransitive/anticausative*)

Both the causative and anticausative structures share the vP structure corresponding to 'open the door'; they differ at the VoiceP layer. In the transitive, an active Voice head is merged with this vP and an agent is merged in its specifier. (The subscript notation is adapted from Sigurðsson (2011, 2012a) for expositional clarity.) In the anticausative, an 'expletive' Voice head is merged. This Voice head is interpreted as semantically null and takes in its specifier a reflexive pronoun which ultimately does not get interpreted thematically.

(2) a. [$_{\text{VoiceP}}$ John Voice$_{\text{Active}}$ [$_{\text{vP}}$ open the door]]
b. [$_{\text{VoiceP}}$ REFL Voice$_{\text{Expletive}}$ [$_{\text{vP}}$ open the door]]

A number of variants of this kind of analysis have been proposed (Alexiadou, 2010; Sigurðsson, 2011, 2012a), but they all share the property that anticausatives differ from causatives only in what is merged with the change-of-state vP structure. In fact, Schäfer (2008) proposes that the expletive Voice head is not intrinsically distinct from from the active one, but that expletive Voice is derived by merging the reflexive

[1] The following abbreviations are used in the glosses in this article: 3 = 3rd person, ACC = accusative, ACT = active morphology, DAT = dative, EXPL = expletive, GEN = genitive, INF = infinitive, NA = *-na* morphology, NOM = nominative, PL = plural, PRS = present, PST = past, PTCP = participle, REFL = reflexive, SG = singular, ST = *-st* morphology, SUBJ = subject.

element in SpecVoiceP. When the reflexive is merged lower in the structure, it is interpreted thematically as a bound reflexive.[2]

Sigurðsson (2011, 2012a) has adapted Schäfer's (2008) analysis to Icelandic *-st* marked anticausatives, exemplified in (3b) below.

(3) a. Ásta splundraði rúðunni.
Ásta.NOM shattered window.the.DAT
'Ásta shattered the window.' (*transitive/causative*)

b. Rúðan splundraðist.
window.the.NOM shattered-ST
'The window shattered.' (*intransitive/anticausative*)

However, while the *-st* morpheme developed historically from the reflexive pronoun, and synchronically behaves similarly to reflexive clitics and pronouns cross-linguistically in several ways, the reflexive 'use' of *-st* is generally considered to be non-productive, or at best, lexically idiosyncratic. The analysis of *-st* as an argument expletive raises a number of interesting questions for a syntactic view of argument structure, of which I will focus on two: what is the relationship between expletivization and reflexivization, and where does lexical idiosyncrasy arise? I will address these questions by focusing on a class of reflexive *-st* verbs which I argue are more productive than previously acknowledged. I will refer to these as FIGURE REFLEXIVE constructions, for reasons to be discussed below; an example is presented in (4b).[3]

(4) a. Þau vilja brjóta rúðuna.
they.NOM want break window.the.ACC
'They want to break the window.' (*transitive*)

b. Þau vilja brjótast inn í húsið.
they.NOM want break-ST in to house.the
'They want to break into the house.' (*figure reflexive*)

To answer the question of how the expletivizing and reflexivizing functions of *-st* are related, I take as a starting point the proposal by Svenonius (2003, 2007) that just as extended verb phrases have a functional head Voice which is able to introduce external arguments for some verb phrases, so too do extended prepositional phrases have a functional head p which is able to introduce prepositional external arguments for some prepositional phrases. I then propose that anticausatives and figure reflexives are structurally parallel, reflective of this independent structural parallelism: in both cases, *-st* merges in the external argument position (SpecVoiceP/SpecpP).

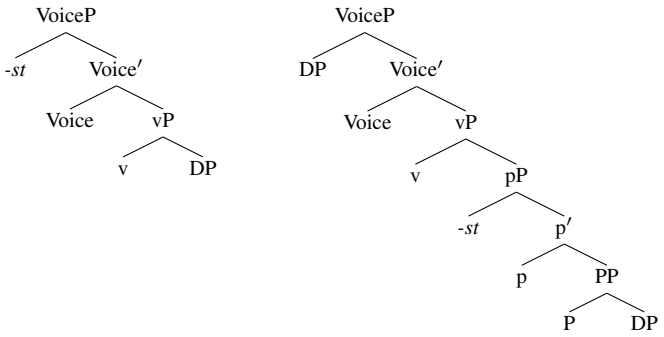
(5) a. $[_{\text{VoiceP}}$ *-st* $[_{\text{Voice}'}$ Voice $[_{\text{vP}}$ v DP]]]
b. $[_{\text{pP}}$ *-st* $[_{\text{p}'}$ p $[_{\text{PP}}$ P DP]]]

[2] Though Schäfer (2008, 258ff.) analyzes the bound reflexive use of *sich* as resulting from an Agree relation between *sich* and its antecedent, one might consider the possibility that some subset of *sich* constructions involve reflexivization by expletivization, as proposed below for reflexive *-st* verbs. This must be left for future research, however.

[3] Note that anticausative 'break' in Icelandic is not an *-st* verb, but a *-na* verb *brotna* 'break' (Sigurðsson 1989, 276; Wood 2012, 156).

The distinct interpretations of anticausatives and figure reflexives follow from their asymmetric positioning with respect to each other, with pP dominated by VoiceP but not vice-versa; sections 3.3 and 4 show how the interpretive difference follows from these structures.

(6) a. Anticausative b. Figure Reflexive



Harley (2011) points out that given standard views of the semantic component, the minimalist architecture does not require the θ-Criterion or Projection Principle of the Government and Binding (GB) theory. All that is required is 'Full Interpretation': the semantic component must be able to assign an interpretation to a structure built in syntax. A DP must bear a θ-role because the semantics has to integrate the denotation of the DP into the semantic representation; θ-roles, now understood as semantic relations, are a way of doing this. Harley (2011) further points out that under this view, nothing in principle would prevent a DP from bearing more than one θ-role.

The relationship between the expletivizing and reflexivizing functions of *-st* is as follows. *-st* is a valency-reducing clitic which has no thematic semantics and cannot bear a semantic role. When it merges in SpecVoiceP, Voice is unable to introduce a θ-role in the interpretive component, because it would violate 'Full Interpretation': there would be nothing to saturate that role; this is a version of the 'expletive Voice' analysis mentioned above. When it merges in SpecpP, however, p will still be able to introduce its normal θ-role, and the semantic composition will result in the DP in SpecVoiceP bearing two roles: the role introduced by Voice and the role introduced by p. This results in reflexive-like semantics which, however, is formally distinct from the semantics involving reflexive pronouns. Expletivization, then, is understood as the merger of a non-thematic element in an argument position; this can result in reflexivization if it takes place lower than another argument position, provided that semantic composition proceeds such that one DP can saturate two θ-roles.

Turning to the question of lexical idiosyncrasy, there turn out to be two kinds of restrictions at issue. One kind of restriction on the class of reflexive *-st* verbs stems from the syntactic distribution of *-st*: it may merge in SpecVoiceP or SpecpP but not SpecApplP or the complement of v. There may be other argument positions where *-st* can merge, but this article will focus on these four possibilities. A second kind of restriction stems from the integration of lexical roots into the event structure post-syntactically. Thus, while I will argue that figure reflexives are syntactically

completely regular and productive, they generate an event structure representation which may have an effect on the interpretation of the verbal root. More generally, in determining the properties or productivity of an argument structure alternation, the interpretation of the lexical roots involved needs to be considered separately from the interpretation of syntactic functional structure.

The remainder of the article is organized as follows. In section 2, I provide a brief overview of the *-st* morpheme. I review two arguments that it is a clitic and then show why its reflexive use is generally not considered to be productive. In section 3, I turn to figure reflexives. I first argue that they are productive enough to warrant a synchronic syntactic and semantic analysis. I show that the subjects of figure reflexives are agentive, and thus reflexive in that they bear two θ-roles. I then present their analysis in detail, and show how expletivizing a low position leads to reflexive semantics. In section 4, I present the analysis of anticausatives, showing how *-st* expletivizes the VoiceP layer, which does not lead to reflexive semantics. In section 5, I show that *-st* generally cannot merge in SpecApplP, and relate this to the special properties of the dative case assigned to the specifier of Appl. Finally, in section 6, I turn to the post-syntactic integration of lexical roots into the interpretation.

2 The *-st* morpheme and reflexive *-st* verbs

The *-st* morpheme in Icelandic developed diachronically from a reduced form of the reflexive pronoun *sik* (modern day *sig*; see especially Ottósson 1992 on the historical development of *-st*). This development has traditionally been taken to be a development from a clitic into a suffix (e.g. Andrews 1982, 1990; Ottósson 1986, 1992, 2008; Anderson 1990; Irie 1996; Enger 2002). Recently, however, many authors have come to view it as being synchronically more like a clitic (see Eythórsson 1995, 233–244; Kissock 1997; Svenonius 2006; Julien 2007, 226–232; Sigurðsson 2012a, and Wood 2012, ch.2). I adopt the latter assumption. Specifically, I will propose that it is a valency-reducing clitic, one that merges in an argument position instead of a DP.[4] While it is beyond the scope of this article to defend the clitic analysis of *-st* fully, I would like to briefly present two pieces of evidence in favor of it.

First, the clitic analysis of *-st* is supported by the fact that *-st* generally sits outside tense and agreement morphology, unlike typical 'Voice-like' morphemes both cross-linguistically, and within Icelandic, but like well-studied '*s*' clitics in Romance and Slavic. For example, the intransitive inchoative suffix *-na* appears inside tense and agreement morphology. This is illustrated in (7)–(8) below.[5] Similarly, *-st* appears outside participial morphology, again unlike *-na*, as shown by the contrast in (9).

(7) a. Þær **opnu-ðu** dyrnar.
they open-3PL.PST door.the
'They opened the door.'

[4] As will be clear below, however, I agree with Jónsson (2011, 105–106) that *-st* is not simply a 'bound variant' of the reflexive pronoun.

[5] The word *dyrnar* 'the door' is semantically singular, but formally plural (cf. Sigurðsson 2009).

b. Dyrnar **opnu-ðu-st**.
door.the open-3PL.PST-ST
'The door opened.'

(8) a. Jón **hita-ði** vatnið.
John.NOM heat-3SG.PST water.the.ACC
'John heated the water.'

b. Vatnið **hit-na-ði**.
water.the.NOM heat-NA-3SG.PST
'The water heated.'

(9) a. Ólafur hefur lengi **dá-ð-st** að Pétri.
Olaf.NOM has long admire-PTCP-ST at Peter.DAT
'Olaf has long admired Peter.'

b. Vatnið hefur **hit-na-ð** vel.
water.the.NOM has heated-NA-PTCP well
'The water has heated (up) well.'

The fact that *-st* appears outside tense, agreement, and participial morphology, despite being involved in argument structure alternations, suggests that it is a clitic (cf. Eythórsson 1995, 238–244; Julien 2007, 226–232).

Second, the clitic analysis of *-st* is supported by the fact that it can sit outside a 2nd person weak subject pronoun in imperative contexts for some speakers; this is non-standard, but well-attested and described (Kissock 1997; Thráinsson 2007, 285). (In the standard form, *-st* precedes the weak subject pronoun.) A number of attested examples of the non-standard variant can be found online:[6]

(10) a. Ger-**ðu-st** meðlimur í klúbbnum.
do-2SG.NOM.SUBJ-ST member.SG.NOM in club.the
'Become a member of the club.'

b. Kom-**du-st** að því hvort það eru laus störf hjá RÚV.
come-2SG.NOM.SUBJ-ST to it whether EXPL are free jobs at RÚV.
'Find out whether there are open jobs at RÚV.'

c. Bú-**ðu-st** frekar við svölum bardagasenum í slow-motion.
expect-2SG.NOM.SUBJ-ST rather with cool battle.scenes in slow-motion
'Rather, expect cool battle scenes in slow motion.'

As pointed out by Kissock (1997, 5), this is rather striking evidence that *-st* is a clitic. The *-ðu*/*-du* morpheme, glossed '2SG.NOM.SUBJ', is a weak form of the nominative 2nd person singular pronoun *þú*. The fact that *-st* can, for some speakers, attach to the right of a weak nominative subject pronoun supports the claim that *-st* is a clitic rather than a suffix. See Wood (2012, 77–102) for further arguments that the morphosyntactic properties *-st* match those of clitics cross-linguistically.

[6] Thanks to Einar Freyr Sigurðsson for pointing out some of these examples and discussing them with me.

This *-st* clitic has been the subject of many studies, many of which focus on its different apparent 'uses'. Works such as Vigfusson (1866), Smári (1920, 136ff.), Einarsson (1949, 147ff.), Valfells (1970), Ottósson (1986), Sigurðsson (1989, 259–263), and Anderson (1990) divide *-st* verbs into distinct classes, while other studies discuss or focus on one particular 'use' of *-st*, such as the reflexive (Roehrs, 2005), the anticausative (Svenonius, 2006), the reciprocal (Irie, 1996), or the generic middle (Maling, 2001, 440–442). Examples of these uses are provided in (11).

(11) a. Jón dulbjóst sem prestur.
John.NOM disguised-ST as priest
'John disguised himself as a priest.' (Jónsson, 2005, 400) (Reflexive)

b. Glugginn opnaðist af sjálfu sér.
window.the.NOM opened-ST by itself
'The window opened by itself.' (Sigurðsson, 1989, 268) (Anticausative)

c. Jóna og Siggi kysstust eftir ballið.
Jóna.NOM and Siggi.NOM kissed-ST after dance.the
'Jóna and Siggi kissed after the dance.' (Jónsson, 2005, 399) (Reciprocal)

d. Rafmagnsbílar seljast (vel) hér.
electric.cars.NOM sell-ST (well) here
'Electric cars sell well here.' (Generic Middle)

In this article, I will focus primarily on reflexive *-st* verbs and how their analysis relates to anticausatives. See Schäfer (2008) and Wood (2012, 284–285) on generic middles, which I assume are syntactically similar or identical to anticausatives, and Wood (2012, 290–300) on reciprocals, where it is proposed that the latter can have a syntax that is similar to either anticausative or reflexive *-st* verbs.

On the one hand, most of the different uses of *-st* do not seem particularly shocking from a cross-linguistic perspective, since similar uses are common for reflexive affixes, clitics and pronouns in the world's languages. In Romance and much of Slavic, reflexive clitics mark many anticausatives and reciprocals in addition to 'inherent' and 'non-inherent' reflexives, and in Germanic, it is common to find simplex reflexives like German *sich* or Swedish *sig* serving these functions.

On the other hand, in Icelandic it is actually not clear how productive the reflexive 'use' of *-st* is. Smári (1920, 136) considered the reflexive use of *-st* to be the 'true' middle. Anderson (1990, 251) claims that any verb with the right semantics will allow an *-st* reflexive. However, according to Ottósson (1986, 90), discussions of *-st* have been strongly influenced by considerations of its historical development rather than its synchronic use. He argues for a division among *-st* verbs: those that are productive and predictable, and those that are not. Reflexive *-st* verbs are argued to fall into the latter class.[7]

A great many verbs do not allow an *-st* reflexive, though they are perfectly compatible with reflexive semantics. Inherent reflexives, which disallow non-coreferent objects, do not allow *-st*, as illustrated in (12a). 'Naturally reflexive' verbs like *raka* 'shave' allow the reflexive pronoun *sig*, but not *-st*, as illustrated in (12b) (see Jónsson

[7] Ottósson (1986) states this in terms of inflection (productive) versus derivation (non-productive).

2005, 398). Nor can *-st* be used on non-reflexive verbs like *berja* ‘beat’ to mean ‘beat oneself’, as illustrated in (12c).

(12) a. Jón { ***hegðast** / hegðar sér } vel.
John { *behaves-ST / behaves REFL } well
‘John behaves well.’

b. Jón { ***rakaðist** / rakaði sig }.
John { *shaved-ST / shaved REFL }
‘John shaved himself.’

c. Jón { ***barðist** / barði sjálfan sig }.
John { *beat-ST / beat self REFL }
‘John beat himself.’

Sigurðsson (1989, 264, fn31) states that there are many “minimal pairs of reflexive verbs and middle verbs.”

(13) a. Steinninn { hreyfðist / *hreyfði sig }.
stone.the { moved-ST / *moved REFL.ACC }

b. Páll { ?? hreyfðist / hreyfði sig }.
Paul { ?? moved-ST / moved REFL.ACC } (Sigurðsson, 1989, 264, fn31)

The examples in (14) show especially clearly that no reflexive interpretation is involved, since (14c) cannot refer to suicide (see Sigurðsson 1989, 268).

(14) a. Lögreglan drap einræðisherrana.
police.the.NOM killed dictators.the.ACC
‘The police killed the dictators.’

b. Einræðisherrarnir voru drepnir (af lögreglunni).
dictators.the.NOM were killed (by police.the)
‘The dictators were killed by the police.’

c. Einræðisherrarnir drápust (*af lögreglunni).
dictators.the.NOM killed-ST (*by police.the)
‘The dictators got killed.’

Moreover, many *-st* verbs which do have reflexive meaning seem to have an idiosyncratic semantic relationship with the corresponding non-*st* verb that has to be learned individually. According to Ottósson (1986, 89), “Middle verbs which have been considered to be of the reflexive group generally do not have clear reflexive meaning, but rather some specialized meaning.”[8] For example, *eigna sér eitthvað* means ‘appropriate something to oneself, often wrongly’, whereas *eignast eitthvað* means more generally ‘get/acquire something’.

One very frequently discussed potentially reflexive *-st* verb is *segjast* ‘say of oneself’ (Andrews 1982, 1990; Anderson 1990; Kissock 1997, 18–19; Barðdal and

[8] Original: “Miðmyndarsagnir sem taldar hafa verið til afturbeygilega flokksins hafa yfirleitt ekki hreina afturbeygilega merkingu, heldur einhverja sérhæfðari merkingu.” See also Jónsson (2005, 398) for the same claim.

Eythórsson 2003, 457–462; Eythórsson and Barðdal 2005, 835–837; Roehrs 2005; Barðdal and Eythórsson 2006, 164–166; Wood 2012, 305–308). A few other verbs—(the somewhat archaic) *kveðast* 'say of oneself', *þykjast* 'think/pretend', *látast* 'act like/pretend', *hyggjast* 'plan'—are similar to *segjast* 'say of oneself' in taking bare infinitive complements.

(15) a. Sigga segir sig elska Svein.
Sigga.NOM says REFL.ACC love Sveinn.ACC

b. Sigga segist elska Svein.
Sigga.NOM says-ST love Sveinn.ACC
BOTH: 'Sigga says she loves Sveinn.' (Andrews, 1990, 199)

This verb is potentially important in that *-st* seems to replace an embedded ECM subject. If true, then reflexive *-st* verb formation could not be limited purely to the lexicon, on the assumption that the ECM subject (*sig* in 15a) is not an argument of the matrix verb. Unfortunately, despite a number of studies and surveys conducted over the last three decades, it is not clear what the status of this verb actually is; judgments in the crucial cases are incredibly murky, and subject to rather dramatic speaker variation (Andrews, 1990; Roehrs, 2005). It has been analyzed as a raising verb and as a control verb, rather than as a reflexive verb, and both analyses are ultimately unsatisfactory; it is clearly different from both (Andrews 1990, 198ff.; Wood 2012, 305–308). According to Barðdal and Eythórsson (2006, 166), verbs like *segjast* 'say of oneself' show "that the categories of control predicates and raising-to-subject predicates are fuzzy." This conclusion might be a bit too strong, but what is clear from the data discussed in the literature is that we cannot draw any definitive conclusions about reflexive *-st* verbs, let alone *-st* verbs in general, on the basis of this small class of verbs.[9]

Ottósson's conclusion that the middle/anticausative use of *-st* is primary, and that the reflexive use is not productive, has been generally accepted in the literature. Sigurðsson (2002, 4) states: "there are some instances where a reflexive verbs (e.g. *klæða sig* 'get dressed') can be replaced by an *-st*-verb (e.g. *klæðast* 'get dressed') but generally, this is not the case." Thráinsson's (2007) discussion of the syntax of *-st* alternations focuses on the anticausative/middle use, and only mentions the reflexive

[9] One might consider the possibility that it is a restructuring predicate, since the latter often show such mixed properties (Wurmbrand 1998, 2004; Cinque 2004; Legate 2012, 499–502). However, restructuring predicates often have very small complements, and the infinitival complement of *segjast* can be headed by rather high modal verbs like *munu* 'will' and *skulu* 'shall'; moreover (as originally pointed out to me by Einar Freyr Sigurðsson), the infinitives vary morphologically depending on the tense of the matrix verb.

(i) a. Hún segist munu koma.
she says.PRS-ST will.INF.PRS come
'She says that she will come.'

b. Hún sagðist mundu koma.
she said.PST-ST will.INF.PST come
'She said that she would come.' (Sigurðsson, 2010, 38)

Since $\text{MoodP}_{\text{Speech Act}}$ is the highest projection in Cinque's (2004) hierarchy, it is possible that (i) is compatible with a restructuring analysis of *segjast*; however, developing such an analysis, relating it to *-st* morphology and the wealth of complex facts in the literature will have to wait for future research.

use in passing. Sigurjónsdóttir (1992), which focuses on the acquisition of classes of reflexive anaphors in Icelandic, does not include *-st* as an 'anaphor' in her study.

Nevertheless, given the view that transitivity alternations are effected by distinct derivations building up related structures in the syntax, the question that arises is what role the *-st* morpheme plays in the structures it occurs in. I will propose that its role in the syntactic derivation and the semantic component is distinct from the role of bound pronouns. I will show that there are some structures where the reflexive use of *-st* is more productive than previously acknowledged, namely, in figure reflexives. I first make this point empirically, and then propose that unlike reflexive pronouns, *-st* is not a full argument bearing its own reference, but is instead an argument expletive that can derive reflexive-like semantics depending on the syntactic context it is merged in. The restricted nature of the reflexive use of *-st* will then be argued to stem in large part from restrictions on which syntactic positions it may merge in.

3 Figure reflexives

3.1 Productivity

Sigurðsson (1989, 261–262) observes that with some *-st* verbs, the presence of *-st* forces the presence of a preposition (which may take a clausal or DP complement). One subclass of *-st* alternations involving argumental PPs is what I call the figure reflexive. The term 'figure', introduced by Talmy (1978, 1985), is described by Svenonius (2003, 432) as "the entity in motion or at rest which is located with respect to the Ground." The 'ground' is the "location with respect to which the Figure is located" (Svenonius, 2003, 433). For example, in the expression *the keys on the table*, *the keys* is the figure, and it is positioned with respect to the ground, *the table*, by the spatial relation denoted by *on*. The figure can be in motion, as in (16a), or at rest, as in (16b).

(16) a. John threw the keys on the table.
b. John saw the keys on the table.

In (16a), the keys are understood to traverse a path, the endpoint of which is on the table. In (16b), the keys are at rest in a position on the table. Svenonius (2003, 2007) argues that the figure has properties reminiscent of external arguments, while the ground has properties reminiscent of internal arguments. Many of these are similar to the asymmetries between subjects and objects familiar from Marantz (1984).[10] Svenonius (2003, 2007) proposes that figures are introduced by a functional head p in a way that is analogous to the introduction of agents and state-holders by Voice in Kratzer (1996) and much subsequent work.[11]

[10] For example, prepositions exhibit selectional restrictions on the ground and determine its case in a way that they do not with the figure. (See section 5 for some relevant case-marking facts.) The interpretation of the ground is also much more dependent on the preposition than the figure is. For example, *on* specifies that its ground be interpreted as a surface, whereas *in* specifies a container ground. By contrast, alternating between *on*/*in* has no interpretive effect on the figure. Space restrictions prevent me from arguing for these conclusions here, but see Svenonius (2003, 2007).

[11] See Svenonius (2007, 78–80) on *with* and Svenonius (2007, 88–89) on *of*.

(17) $[_{pP}$ FIGURE $[_{p'}$ p $[_{PP}$ P GROUND]]]

Arguments merged in SpecpP and SpecVoiceP will generally A-move to a higher position such as SpecvP or SpecTP for licensing, when appropriate (cf. Svenonius 2007, 91; in the licensing typology of Sigurðsson 2012a, this would be φ-licensing). In this article, however, I will only be concerned with the pre-movement structures.

With this background in place, consider the examples in (18b-c), which resemble their English translations in involving the same root used to describe literal breaking events ($\sqrt{\text{BREAK}}$/$\sqrt{\text{BROT}}$) (18a).[12] However, in Icelandic, *-st* appears when the PP is introduced. This exemplifies the figure reflexive construction.

(18) a. Þau vilja brjóta rúðuna.
they.NOM want break window.the.ACC
'They want to break the window.'

b. Þau vilja brjótast inn í húsið.
they.NOM want break-ST in to house.the
'They want to break into the house.'

c. Þau vilja brjótast út úr fangelsi.
they.NOM want break-ST out of prison
'They want to break out of prison.'

In (18b-c), the subject is not only understood as the agent of the event, but also as the figure. In (18b), the subject ends up inside the house; the event denoted involves a path from an area outside the house leading to an area inside the house, such that the subject/agent crosses that path. The root 'break' adds the information that there is some kind of breaking in the course of traversing that path.[13] The subject is thus not just the agent who brings the event about, but is also the figure of the spatial relation defined by the ground starting point or endpoint (i.e. the prison or the house).

A great many (but not all) figure reflexive *-st* verbs correspond to non-*st* verbs where the figure is a separate (dative or accusative) argument (see section 5 on the case marking). This is illustrated with the following pair where *koma* 'come' can be used transitively to mean 'get someone somewhere' and *komast* can mean 'get somewhere'. The latter is listed as a reflexive *-st* verb in Jónsson (2005, 407).

(19) a. Ég kom honum á sjúkrahús.
I.NOM came him.DAT to hospital
'I got him to the hospital.'

b. Ég komst á sjúkrahús.
I.NOM came-ST to hospital
'I got to the hospital.'

[12] Many Icelandic verbs undergo vowel shifts which are sensitive to tense, mood, number and participial contexts. For consistency, in this article, I will notate the root using the stem form of the perfect participle.

[13] However, note that no entity need be in a 'broken' state after such an event; some property of the path is expected to prevent its traversal by the subject, but this property is 'broken' by the subject/agent as it successfully crosses the path. This property could be a law, a societal rule, a security system, etc. See section 6 for discussion of the semantic contribution of verbal roots in figure reflexives.

Other examples of figure reflexive *-st* verbs alternating with non-*st* verbs with a distinct figure DP are presented in (20-24).[14]

(20) a. Ég laumaði miðanum úr fötunni.
I.NOM snuck note.the.DAT out.of waste.bin.the
'I snuck the note out of the waste bin.'

b. Ég laumaðist úr fötunni.
I.NOM snuck-ST out.of waste.bin.the
'I snuck out of the waste bin.'

(21) a. Hann ruddi henni úr röðinni.
he.NOM cleared her.DAT out.of line.the
'He knocked her out of the line.'

b. Hann ruddist úr röðinni.
he.NOM cleared-ST out.of line.the
'He elbowed his way out of the line.'

(22) a. Ég ætla að skjóta henni í búðina.
I.NOM intend to shoot her.DAT in shop.the.ACC
'I'm going to pop her over to the shop.' (usually driving)

b. Ég ætla að skjótast í búðina.
I.NOM intend to shoot-ST in shop.the.ACC
'I'm going to pop over to the shop.' (not necessarily driving)

(23) a. Jón Daði böðlaði boltanum yfir línuna.
Jón Daði struggled ball.the.DAT over line.the.ACC
'Jón Daði bumbled the ball over the line.'

b. Ég böðlaðist yfir snjóskaflinn.
I.NOM struggled-ST over snow.bank.the.ACC
'I struggled over the snowbank.'

(24) a. Hann tróð henni inn með hópnum.
he.NOM squeezed her.DAT in with group.the
'He squeezed her in with the group.'

b. Hann tróðst inn með hópnum.
he.NOM squeezed-ST in with group.the
'He squeezed in with the group.'

In all of these examples, the appearance of *-st* correlates with the loss of one argument. The separate figure argument is impossible when *-st* is present, as can be seen by comparing the ungrammatical (25) with the grammatical sentences in (24).

(25) * Hann tróðst { henni / sér } inn með hópnum.
he.NOM squeezed-ST { her.DAT / REFL.DAT } in with group.the

[14] The sentences in (24) are due to Halldór Sigurðsson (p.c.). The sentence in (23a) is slightly adapted from a sentence found in an online newspaper article (http://www.sunnlenska.is/ithrottir/7103.html).

A non-exhaustive list of *-st* verbs which may occur as figure reflexives is presented in (26).[15]

(26) *brjótast* 'break (into/out of)', *böðlast* 'struggle', *drullast* 'drag', *dröslast* 'drag', *flytjast* 'move', *hlaupast* 'run away', *hunskast* 'scram', *klöngrast* 'clamber', *laumast* 'sneak', *læðast* 'prowl/sneak', *ryðjast* 'barge/shove', *skreiðast* 'crawl', *skjótast* 'shoot/pop over somewhere', *skrönglast* 'move reluctantly', *staulast* 'totter (along)', *troðast* 'squeeze', *þvælast* 'wander'.

Given the large number of figure reflexive *-st* verbs, and the fact that they frequently alternate with non-*st* verbs with a separate figure argument, I conclude that the *-st* figure reflexive construction is productive enough to warrant a synchronic syntactic analysis such as that proposed below.

3.2 Agentivity

As observed above, the subjects of figure reflexives seem to have two θ-roles: they are agents, but they also bear the figure role that is borne by a separate DP in the corresponding non-*st* sentences. In this subsection, I show that unlike anticausative *-st* verbs, figure reflexive *-st* verbs easily pass agentivity tests. I will show this by comparing a figure reflexive *troðast* 'squeeze' to an anticausative use of the same root $\sqrt{\text{TROÐ}}$ in *troðast undir* 'get trampled (underfoot)'.[16] The latter is a somewhat idiomatic construction which is incompatible with the figure reflexive structure.

(27) a. Bjartur tróðst gegnum mannþröngina.
Bjartur.NOM squeezed-ST through crowd.the
'Bjartur squeezed through the crowd.'

b. Bjartur tróðst undir.
Bjartur.NOM squeezed-ST under
'Bjartur got trampled.'

Note that *-st* is not a necessary part of this idiom, as illustrated with the following transitive examples. (28b) shows that an overt ground is sometimes used.

(28) a. Var hann að taka myndir úti í runnum þegar fíllinn
was he to take pictures out in bushes.the when elephant.the.NOM
tróð hann undir.
squeezed him.ACC under
'He was taking pictures out in the bushes when the elephant trampled him.'[17]

[15] Thanks to Einar Freyr Sigurðsson for judgments of the verbs on this list, as well as to Björg Jóhannsdóttir and Erla Skúladóttir for extensive discussion. Thanks also to Merrill Kaplan for an interesting discussion of the roots of many of the verbs on this list.

[16] Thanks to Jóhannes Gísli Jónsson for pointing out this contrast to me.

[17] http://www.mbl.is/frettir/erlent/2011/11/07/fill_tredur_veidivord_undir/

b. Hesturinn ætlaði að troða hann undir hófunum.
horse.the.NOM intended to squeeze him.ACC under hooves.the
'The horse intended to trample him.'[18]

Based on the meaning of the transitive *troða undir* 'trample', it will be clear in section 6 why *-st* is only compatible with the anticausative structure for this idiom.[19] By comparing figure reflexive uses of *troðast* 'squeeze' with the strictly anticausative *troðast undir* 'get trampled', we ensure that we are not simply testing for the animacy of the surface subject. See Wood (2012, 185–190) for further tests and discussion of these tests.

First, figure reflexives can form impersonal passives, which have been shown to be restricted in Icelandic to events where the understood agents act volitionally, even more robustly than personal passives (Zaenen and Maling 1984, 327; Sigurðsson 1989, 63–64, 310–322; Thráinsson 2007, 266–273).

(29) a. Þá var troðist gegnum mannþröngina.
then was squeezed-ST through crowd.the.ACC
'Then there was squeezing through the crowd.'

b. * Þá var troðist undir.
then was squeezed-ST under
INTENDED: 'Then people got trampled.'

Second, figure reflexives can occur in constructions that refer to an agent's doing something agentively, such as in the sentences in (30) (see Jóhannsdóttir 2011, 47–48, 52–53 on this test).

(30) a. Bjartur tróðst gegnum mannþröngina, þótt Baldur hefði
Bjartur squeezed-ST through crowd.the though Baldur had
sagt honum að gera það ekki.
told him to do that not
'Bjartur squeezed through the crowd, though Baldur told him not to do so.'

b. * Bjartur tróðst undir, þótt Baldur hefði sagt honum að gera
Bjartur squeezed-ST under though Baldur had told him to do
það ekki.
that not
INTENDED: 'Bjartur got trampled, though Baldur told him not to do so.'

Third, Eiríkur Rögnvaldsson (p.c.) points out that the agentivity differences between the two uses of *troðast* can also be seen in "what happened to X" clefts, where the agentive use of *troðast* is unacceptable, while the anticausative is acceptable.

[18] http://timarit.is/view_page_init.jsp?pageId=4988444

[19] The structure of *troðast undir* 'get trampled' will be the same as (47), except, of course, the vP-internal structure will involve a pP. Note that in the present framework, there is strictly speaking no such thing as an unaccusative or anticausative verb, only an unaccusative or anticausative structure.

(31) a. * Það sem Jón lenti í var að troðast gegnum mannþröngina.
that which John landed in was to squeeze-ST through crowd.the
INTENDED: 'What happened to John was he squeezed through the crowd.'

b. Það sem Jón lenti í var að troðast undir.
that which John landed in was to squeeze-ST under
'What happened to John was he got trampled.'

This is reversed if a *þurfa* 'need' infinitive is used. The agentive use becomes acceptable and the anticausative unacceptable.

(32) a. Það sem Jón lenti í var að þurfa að troðast gegnum
that which John landed in was to need to squeeze-ST through
mannþröngina.
crowd.the
'What happened to John was he had to squeeze through the crowd.'

b. * Það sem Jón lenti í var að þurfa að troðast undir.
that which John landed in was to have to squeeze under
INTENDED: 'What happened to John was he had to get trampled.'

These tests show that the subject of figure reflexives is indeed agentive, in contrast to anticausatives. The constructions are reflexive in that the subject bears two θ-roles, agent and figure.

That figure reflexive *-st* verbs are indeed reflexive in a meaningful way is further shown by the fact that for verbs that alternate between *-st* and non-*st* forms, the non-*st* form can take a reflexive pronoun and receive the same interpretation.

(33) a. Hann tróð sér gegnum mannþröngina.
he.NOM squeezed REFL.DAT through crowd.the.ACC
'He squeezed through the crowd.'

b. Hann tróðst gegnum mannþröngina.
he.NOM squeezed-ST through crowd.the.ACC
'He squeezed through the crowd.'

The sentences in (33) are mutually entailing. Thus, if one is negated and the other asserted, the result is a contradiction.

(34) a. # Ekki tróðst hann gegnum mannþröngina, en hann tróð
not squeezed-ST he through crowd.the, but he squeezed
sér gegnum mannþröngina.
REFL.DAT through crowd.the

b. # Ekki tróð hann sér gegnum mannþröngina, en hann
not squeezed he REFL.DAT through crowd.the, but he
tróðst gegnum mannþröngina.
squeezed-ST through crowd.the

However, this is not to say that *troða sér* (33a) and *troðast* (33b) are identical at LF, even if their LFs lead to indistinguishable truth conditions in many cases. In (33), the

context is controlled so that the lexical root $\sqrt{\text{TROÐ}}$ makes the same encyclopedic contribution; see section 6 for further discussion. Further, as noted by Andrews (1990, 199) (see also Jónsson 2005, 397), *-st* reflexives cannot be interpreted long-distance, unlike verbs with simplex reflexive pronouns.[20]

(35) a. Ásta taldi að Bjartur mundi troða sér inn í herbergið.
Ásta$_i$ thought that Bjartur$_j$ would squeeze REFL.DAT$_{i/j}$ in to room.the
'Ásta$_i$ thought that Bjartur$_j$ would squeeze her$_i$/himself$_j$ into the room.'

b. Ásta taldi að Bjartur mundi troðast inn í herbergið.
Ásta$_i$ thought that Bjartur$_j$ would squeeze-ST$_{*i/j}$ in to room.the
'Ásta$_i$ thought that Bjartur$_j$ would squeeze *her$_i$/himself$_j$ into the room.'

In sum, figure reflexive constructions are reflexive in that the subject bears two θ-roles, an agent and a figure role. As mentioned earlier, there is no reason in the present theory why a DP should be banned in principle from bearing two θ-roles. However, the question still arises as to what syntactic configuration leads to this kind of thematic interpretation. In the next subsection, I will present my proposal as to how this works.

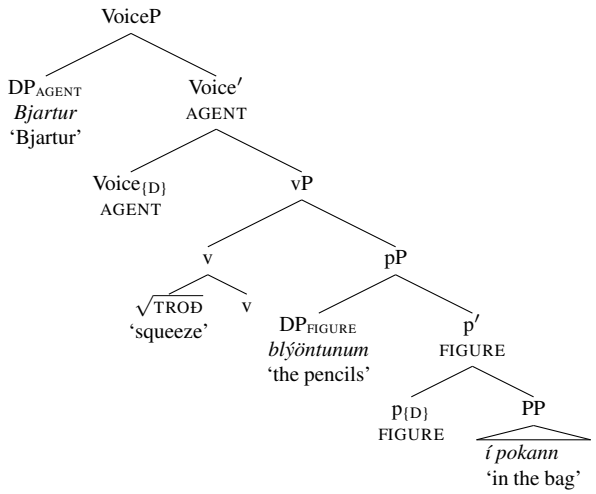
3.3 Analysis

Before presenting the analysis of figure reflexive *-st* verbs, I will present the notational conventions that I adopt and theoretical assumptions that I make by discussing the analysis of non-reflexive figure constructions such as (36), which have the structure in (37).

(36) Bjartur tróð blýöntunum í pokann.
Bjartur.NOM squeezed pencils.the.DAT in bag.the
'Bjartur squeezed the pencils into the bag.'

[20] Andrews (1990) made this point for *segjast* 'say of oneself', but it holds for reflexive *-st* verbs in general. The analysis presented below will address the impossibility of a long-distance reflexive interpretation of *-st*, but an analysis of long-distance reflexives in general is beyond the scope of the present study.

(37)



I assume the general framework of Distributed Morphology (DM) (Halle and Marantz, 1993, 1994; Embick, 2004; Embick and Marantz, 2008; Embick, 2010), where all structure building takes place in the syntax; complex words and phrases are built by a combination of lexical roots and functional heads. Following Schäfer (2008), argument-introducing heads may come with a D-feature requiring something of category 'D' to merge in their specifier (see also Bruening 2012). In (37), the DPs *blýöntunum* 'the pencils' and *Bjartur* check the D-features of p and Voice, respectively. In the tree structure diagrams, I notate semantically unsaturated θ-roles in small caps under the node where they remain unsaturated, and subscripted to the DP which ends up bearing that role in semantics. This notation, however, should be seen as a shorthand for the thematic interpretation which occurs post-syntactically; it does not reflect any features or properties of the syntactic tree itself.

Within the DM tradition, lexical roots are category-neutral and may attach to a categorizing v head which is responsible for eventive semantics. There is some debate within this tradition as to the phrase-structural status of the root, and how that relates to its semantic contribution (Embick 2004, 370–378; Harley 2005, 2012; Alexiadou and Lohndal 2011; De Belder and van Craenenbroek 2011; De Belder 2011; Marantz 2012). For present purposes, the phrase-structural status of roots is not important. I assume that roots externally merge either with v, or, in case the root names the end state of a change-of-state construction, with the DP object undergoing the change of state (as in (47) below). The semantic contribution of roots is discussed in further detail in section 6.

For the semantics itself, I assume a Heim and Kratzer (1998) style system where the denotations of terminal nodes are represented by a typed lambda calculus and combine with the denotations of their sisters by a limited set of combinatory mechanisms. For the analysis below, I assume Functional Application (Heim and Kratzer, 1998, 44), Function Composition (Kratzer 2000, 392; Kobele 2010), Predicate Conjunction (Kratzer, 2009, 194), and Event Identification (Kratzer, 1996, 122). I will not go into the details of these mechanisms, since the purpose of this article is not to investigate modes of semantic composition themselves; for more detail, see Wood

(2012, 27–37). I subscript operators binding variables with their semantic types: s for stative and dynamic eventualities and e for entities. I will use the variable 'x' for entities, 'e' for dynamic eventualities and 's' for stative eventualities. Because I make the stative/dynamic distinction explicit in the choice of variable, I omit from the following representations predicates such as 'state(s)' or 'event(e)' (cf. Kratzer 2000).

For present purposes, I assume a fairly simplistic denotation of the PP, where it denotes a stative relation named by the head preposition.[21] Following Svenonius, p introduces the figure argument in Neo-Davidsonian fashion.

(38) a. $[\![\text{ PP }]\!] = \lambda s_s$. in(the bag,s)

b. $[\![\text{ p }]\!] = \lambda x_e.\lambda s_s$. FIGURE(x,s)

c. $[\![\text{ p}']\!] = \lambda x_e.\lambda s_s$. FIGURE(x,s) $\wedge$ in(the bag,s)
(c) comes from (a) and (b) by Event Identification

The pP in this case is thus a stative small clause; x bears the figure relation with respect to the "in the bag" state. However, I will in what follows generally only refer to the figure relation itself, leaving out the semantics of the PP.

At an intuitive level, the semantics can be read off of the tree above. The pP is a state, and the vP denotes the squeezing events that cause that state. More precisely, the semantics of this construction is presented in (39) below.

(39) Non-reflexive Figure Derivation

a. $[\![\text{ pP }]\!] = \lambda s_s$. FIGURE(the pencils,s)

b. $[\![\text{ v }]\!] = \lambda P_{\langle s,t \rangle}.\lambda e_s.\exists s_s$. P(s) $\wedge$ 'squeeze'(e) $\wedge$ CAUSE(e,s)

c. $[\![\text{ vP }]\!] = \lambda e_s.\exists s_s$. FIGURE(the pencils,s) $\wedge$ squeeze(e) $\wedge$ CAUSE(e,s)
$\approx$ 'The set of squeezing events which cause the pencils to be in the bag.'
(c) comes from (a) and (b) via Functional Application

d. $[\![\text{ Voice }]\!] = \lambda x_e.\lambda e_s$. AGENT(x,e)

e. $[\![\text{ Voice}']\!] = \lambda x_e.\lambda e_s.\exists s_s$. AGENT(x,e) $\wedge$ FIGURE(the pencils,s) $\wedge$ squeeze(e) $\wedge$ CAUSE(e,s)
$\approx$ 'The set of squeezing events, for which x is the agent, and which cause the pencils to be in the bag.'
(e) comes from (c) and (d) via Event Identification

f. $[\![\text{ VoiceP }]\!] = \lambda e_s.\exists s_s$. AGENT(Bjartur,e) $\wedge$ FIGURE(the pencils,s) $\wedge$ squeeze(e) $\wedge$ CAUSE(e,s)
$\approx$ 'The set of squeezing events, for which Bjartur is the agent, and which cause the pencils to be in the bag.'

The external argument of the pP, *blýöntunum* 'the pencils', bears the figure role within that pP. Since v is causative, it takes the set of stative eventualities denoted by the pP as its argument, resulting in the set of events which cause the state of affairs that the

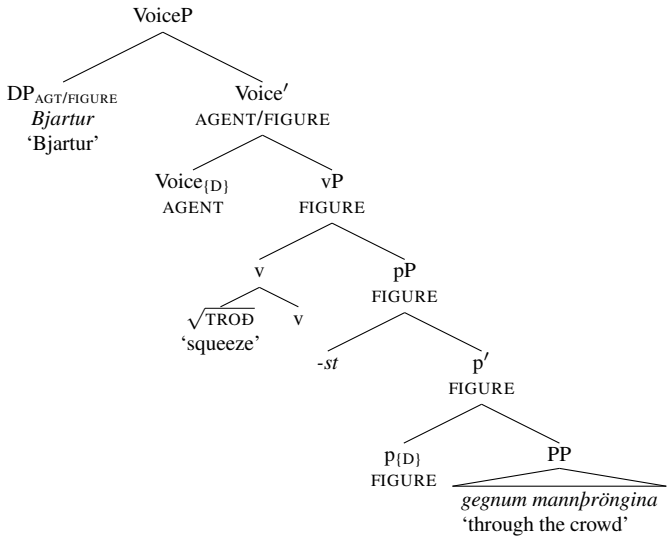
[21] See Svenonius (2008) for a finer-grained pP-internal semantics. See also Svenonius (2010, 147ff) on the syntax and semantics of certain pPs headed by prepositions like *through*.

pP denotes, as in (c). Voice introduces the agent, and combines with vP by Event Identification, so that the specifier of Voice becomes the agent of the causing event.

Now consider the figure reflexive construction with *-st* in (40), which has the structure in (41).

(40) Bjartur tróðst gegnum mannþröngina.
Bjartur.NOM squeezed-ST through crowd.the.ACC
'Bjartur squeezed through the crowd.'

(41)



Here, instead of a full DP, the argument expletive clitic *-st* is merged in SpecpP. It is interpreted as a type-neutral identity function which passes the denotation of its sister to its mother.[22] Thus, while SpecpP is occupied syntactically, semantically it is as though nothing is there. This is not to say that it has no semantic effect; the fact that it is an argument expletive in this case just means that the semantic argument is not saturated, even if the syntactic position is filled. This alters the way that semantic composition will take place, and results in the formation of a complex predicate, as shown below.

(42) *-st* Figure Reflexive Derivation

a. $[\![\text{p}']\!] = \lambda x_e.\lambda s_s.$ FIGURE(x,s)

b. $[\![\textit{-st}]\!] = \lambda x.$ x

c. $[\![\text{pP}]\!] = \lambda x_e.\lambda s_s.$ FIGURE(x,s)

d. $[\![\text{v}]\!] = \lambda P_{\langle s,t \rangle}.\lambda e_s.\exists s_s.$ P(s) $\wedge$ squeeze(e) $\wedge$ CAUSE(e,s)

e. $[\![\text{vP}]\!] = \lambda x_e.\lambda e_s.\exists s_s.$ FIGURE(x,s) $\wedge$ squeeze(e) $\wedge$ CAUSE(e,s)
$\approx$ 'The set squeezing events which cause x to go through the crowd.'
(e) comes from (c) and (d) via Function Composition

[22] Nothing would change in the analysis if it were assumed that the node occupied by *-st* were simply invisible at semantics.

f. $[\![$ Voice $]\!] = \lambda x_e.\lambda e_s.$ AGENT(x,e)

g. $[\![$ Voice′ $]\!] = \lambda x_e.\lambda e_s.\exists s_s.$ AGENT(x,e) $\wedge$ FIGURE(x,s) $\wedge$ squeeze(e) $\wedge$ CAUSE(e,s)
$\approx$ 'The set of squeezing events, for which x is the agent, and which cause x to go through the crowd.'
(g) comes from (e) and (f) via Predicate Conjunction

h. $[\![$ VoiceP $]\!] = \lambda e_s.\exists s_s.$ AGENT(Bjartur,e) $\wedge$ FIGURE(Bjartur,s) $\wedge$ squeeze(e) $\wedge$ CAUSE(e,s)
$\approx$ 'The set of squeezing events, for which Bjartur is the agent, and which cause Bjartur to go through the crowd.'

When p introduces a figure role but takes *-st* in its specifier, the denotation of the pP is an open predicate looking for an entity argument in order to denote a set of (stative) eventualities. While v is looking to combine with an event or state—something of type $\langle s,t\rangle$—the pP is one entity argument away from being one; it is $\langle e,\langle s,t\rangle\rangle$. To get around this, v and pP combine by Function Composition, which essentially passes the entity argument slot up the tree in the semantics. Voice will then combine with vP by Predicate Conjunction, and *Bjartur* will simultaneously saturate both the agent and figure roles. The tree in (41) illustrates this schematically by showing that the FIGURE role is open at each node from p up to Voice′; strictly speaking, this is not part of the syntactic derivation, but rather reflects the fact that the thematic role is open at that stage of composition in semantics, as shown in (42). This derivation thus provides a kind of 'reflexive-like' denotation without syntactic binding.

In sum, this section has shown how reflexive-like semantics can be derived by expletivizing a low position. The low θ-position remains unsaturated until the DP in SpecVoiceP saturates it along with the agent role introduced by Voice. The main idea is that *-st* has this effect because of where it is merged in the structure; it may be banned from or allowed to merge in other positions, and it may have different semantic effects in different syntactic positions. In the next section, I will discuss the effect of merging that same argument expletive in a high position, SpecVoiceP, where the result is not reflexive semantics. I then turn to another position where we might expect *-st* to be able to merge and produce reflexive semantics, SpecApplP. I argue that *-st* generally cannot merge there, however, resulting in a significant lexical gap in the class of *-st* verbs. I propose that this restriction is tied to special case properties of Appl which distinguish it sharply from Voice and p.

4 Anticausatives

In section 2, it was shown that the *-st* morpheme is not a fully productive reflexive marker. Sigurðsson (1989, 268) demonstrates that *-st* marked verbs like those in (13) are not passive either, but rather anticausative; this is shown by the fact that unlike passives, they can occur with the Icelandic counterpart to *by itself*, and cannot occur with agentive modifiers, as shown in (44a) (cf. Schäfer 2009, fn 29); anticausatives

also cannot occur with a passive *by*-phrase, as shown in (44b), or a purpose infinitive, as shown in (44c).[23]

(43) a. Rúðunni var splundrað { viljandi / *af sjálfu sér }.
window.the.DAT was shattered { intentionally / *by itself }
'The window was shattered on purpose.'

b. Rúðunni var splundrað (af ræningjunum).
window.the.DAT was shattered (by robbers.the.DAT)
'The window was shattered by the robbers.'

c. Rúðunni var splundrað (til þess að gera hann reiðan).
window.the.DAT was shattered (for it to make him mad)
'The window was shattered in order to make him mad.'

(44) a. Rúðan splundraðist { *viljandi / af sjálfu sér }.
window.the.NOM shattered-ST { *intentionally / by itself }
'The window shattered by itself.'

b. Rúðan splundraðist (*af ræningjunum).
window.the.NOM shattered-ST (*by robbers.the.DAT)
'The window shattered (*by the robbers).'

c. Rúðan splundraðist (*til þess að gera hann reiðan).
window.the.NOM shattered-ST (*for it to make him mad)
'The window shattered (*in order to make him mad).'

Like anticausatives cross-linguistically, the causing event can be named in a PP (cf. Alexiadou et al., 2006; Alexiadou, 2010; Kallulli, 2006, 2007; Schäfer, 2008, 2009).[24]

(45) a. Rúðan splundraðist af þrýstingnum.
window.the.NOM shattered-ST from pressure.the.DAT
'The window shattered from the pressure. '

b. Rúðan splundraðist við þrýstinginn.
window.the.NOM shattered-ST at pressure.the.ACC
'The window shattered from the pressure.'

Anticausative *-st* verbs, then, lack the implied external argument of passives, and also cannot be interpreted as reflexives. These properties follow from Schäfer's (2008) analysis of marked anticausatives, adapted to Icelandic *-st* anticausatives by

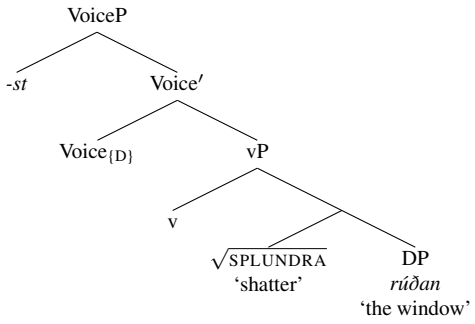
[23] I will not, in this article, provide an analysis of the fact that direct object dative case is preserved in the passive but not the anticausative (though see section 5 for some discussion). For proposals that are directly compatible with the present assumptions, see Schäfer (2008, 279–281), Sigurðsson (2012a, 204–205), and Wood (2012, 132); see also Svenonius (2006).

[24] Like Greek, Albanian and Latin, Icelandic can use the same preposition (*af*) to introduce a causing event in anticausatives and an agent in passives (cf. Kallulli, 2007). The preposition *við* in (45b) more strongly implies temporal simultaneity than does *af* in (45a). Eiríkur Rögnvaldsson (p.c.) finds the sentences in (45) a bit strange, since *splundrast* 'shatter' implies an immediate, punctual event and *þrýstingurinn* 'the pressure', for him, implies a slower process; *höggbylgjan* 'the shock wave' works better for him. Some speakers find *af*-phrase slightly degraded here as well, though everyone I know of accepts the *við*-phrase.

Sigurðsson (2012a), in which the anticausative marker, here *-st*, externally merges in the external argument position, SpecVoiceP.[25] The structure of (46) is thus (47).[26]

(46) Rúðan splundraðist.
window.the.NOM shattered-ST
'The window shattered.'

(47)



Recall from the previous section that *-st* is an argument expletive which passes the denotation of its sister to its mother. Since Voice is the highest argument introducing head in the syntax, if it were to introduce a θ-role there would be nothing to saturate it. The figure reflexives discussed in the previous section are acceptable precisely because there is a higher argument which eventually saturates the figure role. In the present case, reflexive semantics does not arise because (47) is not a configuration that feeds such semantics.[27]

It is standardly assumed that certain unaccusatives have a defective, specifierless Voice head (Chomsky, 2001, 2007, 2008; Legate, 2003; Marantz, 2007; Irwin, 2012).[28] In theories where v introduces the external argument, of course, it is v that is defective and specifierless. Given that unaccusatives do not have an implied agent, this Voice head must be associated with a null interpretation; we can therefore conclude that a null interpretation of Voice must be available independently of the present

[25] See Eythórsson (1995, 242) for a related analysis. Note that in Sigurðsson (2012a) argument introducing heads are merged higher than the arguments they license thematically; (47) is the translation of Sigurðsson's (2012a) analysis into the present framework, which is more directly related to the system in Schäfer (2008).

[26] I abstract here away from the label of the node dominating the root and its DP sister. Either the root itself could project the label (Embick, 2004; Schäfer, 2008) or the DP could project the label (Irwin, 2012; Marantz, 2012; Wood, 2012). The exact syntax of roots is orthogonal to present purposes, and though labeling is an interesting issue in its own right (Chomsky, 2012; Lohndal, 2012; Sigurðsson, 2012b), it does not directly bear on the present proposal.

[27] In principle, it would be possible for Voice to introduce a θ-role if a higher head could induce existential close over the entity variable bearing that role, yielding a passive-like semantics; see Wood (2012, 279ff.) for discussion of a construction where this happens. It would also be possible to pass an agent role to a higher verb in an ECM construction, though I do not know of any convincing cases where this happens (see e.g. the discussion of *segjast* 'say' in section 2); it might be that unsaturated θ-roles cannot cross phase boundaries.

[28] Alexiadou and Anagnostopoulou (2004), Schäfer (2008), and Alexiadou (2010) propose that anticausatives can also be derived simply by not merging the VoiceP layer at all; however, they also exploit expletive Voice heads.

proposal. It is this null interpretation that is assigned to Voice in the anticausative structure in (47).

The data in (45), however, has been taken to suggest that anticausatives have a complex event structure, and retain causative semantics (Alexiadou et al., 2006; Alexiadou, 2010; Kallulli, 2006, 2007; Schäfer, 2008, 2009). This is further suggested by the behavior of adverbials like *aftur* 'again' in contexts such as (48).

(48) Dyrnar höfðu alltaf verið opnar, en vindurinn lokaði þeim í gær.
'The door had always been open, but the wind closed it yesterday.'

a. Í dag hef ég opnað þær aftur.
today have I opened it again.
'Today, I have opened it again.'

b. Í dag hafa þær opnast aftur.
today has it opened-ST again.
'Today, it has opened again.'

von Stechow (1996) has shown that the scope of adverbs such as 'again' must be able to target a state subevent below a causing subevent, giving a restitutive reading. In (48), there has never been a previous opening event for *aftur* 'again' to scope over. Rather, the door has previously been in an open state, and *aftur* 'again' modifies this state, not the causing event. This in turn means that there must be a stative subevent for *aftur* 'again' to modify. The restitutive reading obtains for the intransitive variant of the causative alternation as well as the transitive, showing that there must be two subevents in the intransitive.

Following Pylkkänen (2002, 2008), among others, causative semantics is not located in the external-argument-introducing Voice head, but is rather a property of the eventive v head. The CAUSE relation is a relation between eventualities, not between an individual and an event (see also Solstad 2009). The semantics of the vP in (47) is shown in (49).

(49) $[\![\text{vP}]\!] = \lambda e_s.\exists s_s.\ \text{CAUSE}(e,s) \wedge$ 'shattered'(the window,s)
$\approx$ 'The set of events e caused a state s, where s is the shattered state of the window.'

The causative semantics of anticausatives is part of the vP; since merging *-st* in SpecVoiceP has the effect of 'expletivizing' the Voice head (i.e. forcing it to be semantically null), the denotation of the vP and that of Voice′ and VoiceP will be identical. The VoiceP layer is only present for syntactic reasons, and in anticausatives has no semantic import.[29]

[29] We might ask why the syntax would project a structural layer which is not used semantically. The basic insight here is that syntax is not looking ahead to see how semantics is going to interpret the structures it builds, just as it is not looking ahead to see how the structures will be pronounced in the phonological component. The basic architecture of the grammar, with spellout to the interfaces, leads us to expect this state of affairs: not all nodes need an overt pronunciation, and not all nodes need an 'overt interpretation'.

As observed by Sigurðsson (2012a), this analysis extends directly to alternations such as those in (50–51), where *-st* verbs alternate with active ditransitives (Sigurðsson 1989, 270, 2012a, 31; Jónsson 2000, 89; Thráinsson 2007, 290–292).

(50) a. Fólk leyfði **þeim** alla hluti.
people.NOM allowed them.DAT all things.ACC
'People allowed them all things.'

b. **Þeim** voru leyfðir allir hlutir.
them.DAT were allowed all things.NOM
'They were allowed all things.'

c. **Þeim** **leyfðust** allir hlutir.
them.DAT allowed-ST all things.NOM
'They got allowed all things.' (Thráinsson, 2007, 291)

(51) a. Þeir fyrirgáfu **honum** alla glæpina.
they.NOM forgave him.DAT all crimes.the.ACC
'They forgave him all his crimes.'

b. **Honum** voru fyrirgefnir allir glæpirnir.
him.DAT were forgiven all crimes.the.NOM
'He was forgiven all his crimes.'

c. **Honum** **fyrirgáfust** allir glæpirnir.
him.DAT forgave-ST all crimes.the.NOM
'He got forgiven all his crimes.' (Thráinsson, 2007, 290)

Sigurðsson (1989, 270) shows that like anticausatives, and unlike passives, sentences like (50c) and (51c) disallow agentive modifiers. Note that the agentive modifier in the passive sentence in (52b) modifies the implicit agent, which is not possible in (52c).

(52) a. Jón gaf mér þetta tækifæri.
John.NOM gave me.DAT this opportunity.ACC
'John gave me this opportunity.'

b. Mér var gefið þetta tækifæri (viljandi).
me.DAT was given this opportunity.NOM (intentionally)
'I was given this opportunity willingly.'

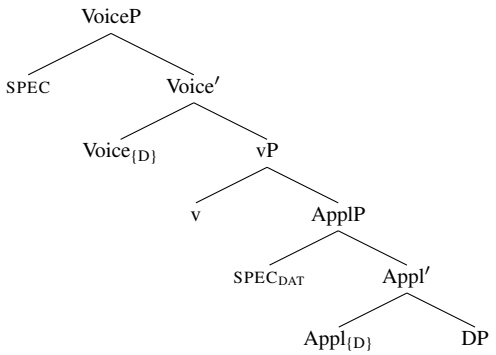
c. Mér gafst þetta tækifæri (*viljandi).
me.DAT gave-ST this opportunity.NOM (*intentionally)
'I got this opportunity.' (Sigurðsson, 1989, 270)

In the line of research within which this study is situated (Pylkkänen, 2002, 2008; Legate, 2002; Cuervo, 2003; Schäfer, 2008; Sigurðsson, 2012a), dative indirect objects are introduced in the specifier of a Voice-like functional head called Appl(icative).[30]

This issue could be discussed at considerable length, but that would go far beyond the present proposal, which is certainly not alone in assuming that some syntactic elements (e.g. expletives) serve a syntactic and perhaps morphological purpose without necessarily getting a semantic interpretation themselves (cf. also the linkers studied in Den Dikken 2006).

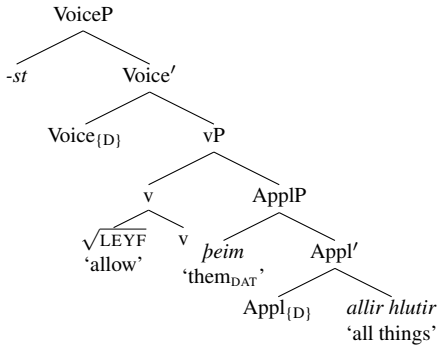
[30] See Anagnostopoulou (2003) for an analysis generating Icelandic dative indirect objects in SpecApplP along the lines of the double object construction (rather than the prepositional dative) (see also Collins

(53)



The sentences in (50c), (51c), and (52c) are analogous to the anticausatives above, except that a dative is introduced in SpecApplP. The dative retains its case, unlike dative direct objects in *-st* anticausative alternations (see example 3 above; the case differences are discussed further in section 5 below).

(54)



According to a line of analysis going back at least to Sigurðsson (1989) (see also Marantz 1984, 79–83 and Platzack 1987, 392–394), and adopted by many since (cf. Marantz 1991/2000; Holmberg and Platzack 1995; Jónsson 1996; McFadden 2004), dative subjects (and other oblique subjects) in Icelandic are always derived by A-movement of an internal argument to subject position.[31] Given the assumption that SpecVoiceP can never be a dative subject (and that *-st* cannot merge in the direct object position; see section 5), the present analysis correctly derives the fact that, according to Jónsson (2005, 401), while there are various kinds of *-st* verbs which have dative subjects, no reflexive *-st* verb has a dative subject.

and Thráinsson 1996; Jónsson 1996; Sigurðsson 2012a). If datives were internally rather than externally merged in this position (cf. Den Dikken 1995; see also Collins and Thráinsson 1996, 428, fn.49), then the generalization in section 5 might get a different explanation from the one advanced there. For reasons independent of the concerns of this article, I assume the structures relevant for Icelandic here are ‘low applicatives’, where Appl merges with what would otherwise be the complement of v (see Wood 2012, 225ff.). The results of the present study, however, would be completely compatible with a high applicative structure, where the complement of Appl is vP.

[31] This accounts for, among other things, the fact that the number of attested case patterns is so small, as discussed in Yip et al. (1987). For example, verbs with oblique subjects never have two internal arguments (see also Jónsson 2000).

Before moving on, I would like to take stock of what has been accomplished so far. In the previous section, I showed that if the *-st* clitic is taken to be an argument expletive, then the properties of figure reflexives are derived by merging it in SpecpP. In the semantics, p introduces a figure θ-role, but since *-st* is in its specifier, this role remains unsaturated until Voice combines with vP, forming a complex predicate such that the DP in SpecVoiceP saturates both the agent and the figure role at the same time. This derivation is only possible because p is not the highest argument-introducing head, so p can introduce a θ-role which is saturated at a higher level. I then turned in this section to *-st* anticausatives, and showed that they are not reflexive or passive. This follows from the same analysis of *-st* if *-st* merges in SpecVoiceP in anticausatives; since Voice is the highest argument-introducing head, merging *-st* in its specifier effectively expletivizes the VoiceP layer, preventing Voice from introducing a θ-role (though see note 27). There is much more to be said about the syntax and semantics of anticausatives, but as mentioned in the introduction, the expletive Voice analysis of anticausatives is not what is novel about the present proposal. The argument expletive analysis of *-st* fits in naturally with the class of proposals which say that anticausatives involve expletive Voice. What is important here is that *-st* has a different effect when it merges in the specifier of the highest argument-introducing head from when it merges lower in the structure.

5 No *-st* Appl reflexives

In the present approach, whenever *-st* is merged lower than Voice, it should be possible (in principle) to form a reflexive *-st* verb. The restricted nature of reflexive uses of *-st* discussed in section 2, then, should be relatable to syntactic properties of argument positions lower than Voice. So far, we have seen that *-st* may merge in SpecVoiceP and SpecpP. On the basis of examples such as (55), it is fair to say that *-st* generally may not merge in the direct object position.[32] Rather, its distribution seems to be limited to the specifiers of argument-introducing heads.

(55) a. Jón { ***barðist** / barði sjálfan sig }
John { *beat-ST / beat self REFL }
'John beat himself.'

b. Jón { ***rakaðist** / rakaði sig. }
John { *shaved-ST / shaved REFL }
'John shaved himself.'

c. Jón { ***hegðast** / hegðar sér } vel.
John { *behaves-ST / behaves REFL } well
'John behaves well.'

[32] See Wood (2012, 300–308) for discussion of examples like *klæðast* 'get dressed'. I suspect that the impossibility of merging *-st* in the direct object position is related to the properties of argument introducing heads that make them distinct from the event introducing head v that merges with direct objects (see Wood 2012, 15ff. for some discussion). The introduction of *-st* involves a (sub-)property of the D-feature of those heads; one possibility is that it is introduced in the manner outlined in Svenonius (2012) rather than by traditional Merge.

Given the Appl analysis of dative indirect objects, however, we might expect *-st* to be able to merge in the specifier of the Appl head introduced in the previous section. If a sentence were derived with *-st* in SpecApplP, we would expect the resulting verb to have the following properties: it would have a nominative subject with an accusative direct object; the subject could be agentive and also bear a recipient or "affected" role in addition (e.g. beneficiary or maleficiary); and for some roots, a ditransitive structure would alternate with the *-st* structure.

There may be one or two verbs that fit this description, such as *eignast eitthvað* 'get/acquire sth', which is similar to *eigna sér eitthvað* 'appropriate sth to onself'. Einarsson (1949, 147) mentions that replacing an indirect object dative with *-st* is rare, and gives only the somewhat idiomatic pair *taka sér ferð á hendur* and *takast ferð á hendur* 'undertake a journey' (lit. 'take a journey on one's hands'). The overwhelming generalization in Icelandic, however, is that *-st* in fact cannot merge in SpecApplP. This is illustrated in the following examples, provided by Halldór Ármann Sigurðsson (p.c.).

(56) a. Bjartur gaf sjálfum sér bókina í jólagjöf.
Bjartur.NOM gave self REFL.DAT book.the.ACC in christmas.gift
'Bjartur gave himself the book as a Christmas present.'

b. * Bjartur gafst bókina í jólagjöf.
Bjartur.NOM gave-ST book.theACC in christmas.gift
INTENDED: 'Bjartur gave himself the book as a Christmas present.'

(57) a. Bjartur lagaði sér mat.
Bjartur.NOM fixed REFL.DAT food.ACC
'Bjartur fixed himself some food.'

b. * Bjartur lagaðist mat.
Bjartur.NOM fixed-ST food.ACC
INTENDED: 'Bjartur fixed himself some food.'

(58) a. Bjartur útvegaði sér leyfi.
Bjartur.NOM obtain REFL.DAT permission.ACC
'Bjartur obtained permission.'

b. * Bjartur útvegaðist leyfi.
Bjartur.NOM obtain-ST permission.ACC
INTENDED: 'Bjartur obtained permission.'

(59) a. Bjartur tók sér vald.
Bjartur.NOM took REFL.DAT control.ACC
'Bjartur took over.'

b. * Bjartur tókst vald.
Bjartur.NOM took-ST control.ACC
INTENDED: 'Bjartur took over.'

I propose that the reason for this difference between Appl on the one hand, and Voice and p on the other, is that Appl demands a specific case on its specifier: dative. Appl

dative is different from direct object dative in that, as was seen above, Appl dative does not become nominative in *-st* anticausatives.[33]

(60) Appl dative is retained

a. Fólk leyfði **þeim** alla hluti.
people.NOM allowed them.DAT all things.ACC
'People allowed them all things.'

b. **Þeim leyfðust** allir hlutir.
them.DAT allowed-ST all things.NOM
'They were allowed all things.' (Thráinsson, 2007, 291)

(61) a. Þeir fyrirgáfu **honum** alla glæpina.
they.NOM forgave him.DAT all crimes.the.ACC
'They forgave him all his crimes.'

b. **Honum fyrirgáfust** allir glæpirnir.
him.DAT forgave-ST all crimes.the.NOM
'He got forgiven all his crimes.' (Thráinsson, 2007, 290)

(62) Direct object dative is lost

a. Við lokuðum **glugganum**.
we closed window.the.DAT
'We closed the window.'

b. **Glugginn** lokaðist.
window.the.NOM closed-ST
'The window closed.' (Sigurðsson, 2012a, 204)

(63) a. Ásta splundraði **rúðunni**.
Ásta.NOM shattered window.the.DAT
'Ásta shattered the window.'

b. **Rúðan** splundraðist.
window.the.NOM shattered-ST
'The window shattered.'

Further support for the idea that indirect and direct object datives are reacting differently to the same morphology comes from ditransitives which take two dative objects (Yip et al., 1987; Jónsson, 2000), such as *úthluta* 'allocate' in (64a). E.F. Sigurðsson and Wood (to appear) provide attested examples showing that the direct object becomes nominative under *-st* for such verbs, while the indirect object remains dative, as shown in (64b).

(64) a. Þeir úthlutuðu **okkur velli** til 12:00.
they.NOM allocated us.DAT field.DAT until 12:00
'They allocated a field to us until 12:00.'

b. **Okkur** úthlutaðist **völlur** til 12:00.
us.DAT allocated-ST field.NOM until 12:00

[33] Genitive direct objects behave like dative objects in this respect (Sigurðsson 1989, 270).

'We got allocated a field until 12:00.'[34]

Direct object datives are dependent on the verb's interaction with Voice, while Appl datives are dependent directly on Appl. While the nature of the dependency between Voice and direct object dative goes beyond the scope of this article (see references in note 23), I propose that this distinguishing property of Appl is what prevents *-st* from merging in its specifier.

That Voice in Icelandic does not impose special case requirements on its specifier is well-known; for example, agents never receive a special oblique case in Icelandic (Jónsson, 2003). Svenonius's (2003; 2007) proposal that figures are introduced by p was motivated in part by the observation that the prepositional head P never seems to directly determine the case of the figure. But the facts he discusses also show that p does not make specific case requirements on its specifier: the case of the figure is determined by the verb. Data from Jónsson (2012) provides further evidence that p does not determine the case of its specifier. He points out that a number of verbs used by sports announcers to describe soccer games may take either accusative or dative objects.

(65) a. Messi skallaði { **boltann** / **boltanum** } í netið.
Messi headed { ball.the.ACC / ball.the.DAT } in net.the
'Messi headed the ball into the net.'

b. Markmaðurinn sló { **boltann** / **boltanum** } yfir markið.
goal.keeper.the punched { ball.the.ACC / ball.the.DAT } over goal.the
'The goal keeper punched the ball over the goal.' (Jónsson, 2012)

This case variation is independent of figure constructions, and is conditioned at least in part by aspect, as shown originally by Svenonius (2002). According to Jónsson (2012), such case alternations have (sometimes very subtle) semantic effects; these effects are most likely attributeable to the interaction of the root with the v head (but a special Voice head is another possibility; Schäfer cf. 2008, 279–281). Crucially, the figure relation introduced by p is the same in both cases.

Appl differs from this. While there is a lot of speaker variation in case-marking patterns in modern Icelandic (cf. Jónsson and Eythórsson 2005, Árnadóttir and E.F. Sigurðsson 2012), indirect objects of the sort in (66) seem to be uniformly dative across speakers.[35]

(66) a. Fólk leyfði { ***þá** / **þeim** } alla hluti.
people.NOM allowed { *them.ACC / them.DAT } all things.ACC
'People allowed them all things.'

b. Jón gaf { ***hana** / **henni** } þetta tækifæri.
John.NOM gave { *her.ACC / her.DAT } this opportunity.ACC
'John gave her this opportunity.'

The generalization so far points to this: *-st* may externally merge in an argument postion if (a) that position is a specifier position, and (b) that position has no special

[34] http://vu2043.ispcp-01.zebra.is/gamli/frettir.php?id_teg=13&cmd=eldri&start=2009-10-01

[35] Thanks especially to Einar Freyr Sigurðsson and Höskuldur Thráinsson for discussing (66) with me.

case requirements. The syntactic properties underlying this distribution certainly require further elaboration, but the specific details are not strictly relevant here. The important point is that the theoretical claim that the thematic restrictions on reflexive *-st* verbs stem from restrictions on the syntactic distribution of *-st* is supported by the fact that *-st* verbs generally do not alternate with indirect object datives or plain direct objects, since these positions are describable in purely syntactic terms.

6 The roots of figure reflexives

For most of this article, I have been concerned with the mapping between syntactic structure and event structure for reflexive *-st* verbs, focusing primarily on figure reflexives. In this section, I address some lexical issues having to do with figure reflexives, which I claim stem from the post-syntactic integration of lexical roots into abstract event structure. As mentioned above, the reflexive meaning of figure reflexive *-st* verbs is distinct from the meaning derived from reflexive pronouns. I will show that there is no direct relationship between figure reflexive *-st* verbs and constructions with reflexive pronouns, and that we should not expect there to be one on the present analysis.

Some roots appear in *-st* marked figure reflexives and with reflexive pronouns, as illustrated with $\sqrt{\text{TROÐ}}$ 'squeeze' in (67); others appear in only the *-st* structure, as illustrated with $\sqrt{\text{SKREIÐ}}$ 'crawl' in (68); and still others may only occur with the reflexive pronoun, as illustrated with $\sqrt{\text{KASTA}}$ 'throw' in (69).[36]

(67) a. Hann tróð sér gegnum mannþröngina.
he.NOM squeezed REFL.DAT through crowd.the.ACC
'He squeezed through the crowd.'

b. Hann tróðst gegnum mannþröngina.
he.NOM squeezed-ST through crowd.the.ACC
'He squeezed through the crowd.'

(68) a. * Hann skreiddi sér fram úr rúminu.
he.NOM crawled REFL.DAT out of bed

b. Hann skreiddist fram úr rúminu.
he.NOM crawled-ST out of bed
'He crawled out of bed.'

(69) a. Markmaðurinn kastaði sér á boltann.
goal.keeper.the threw REFL.DAT on ball.the
'The goalkeeper threw himself onto the ball.'

b. * Markmaðurinn kastaðist á boltann.
goal.keeper.the threw-ST on ball.the

[36] I thank a reviewer for providing (69). (69b) has a somewhat unlikely, but grammatical, anticausative reading, for example if the goal keeper was thrown from a moving train and fell on the ball. The point here is that it has no figure reflexive reading.

Thus, knowing that a root can appear with a reflexive pronoun does not say anything about whether it will occur in an *-st* marked figure reflexive construction, and vice-versa. This might seem to be a problem at first glance, and warrants some discussion: if, for example, *skreiðast* 'crawl' is derived from a structure with $p_{\{D\}}$ and yields reflexive semantics, shouldn't a reflexive pronoun in SpecpP also be possible? On closer examination of the syntax and semantics proposed here, however, it becomes clear that the present analysis does not lead us to expect any direct relation between *-st*-marked and unmarked figure reflexives, on the one hand, and transitive verbs with reflexive pronouns on the other.

In the derivation of figure reflexives argued for here, the subject essentially receives a complex θ-role. That is, the semantic argument of the FIGURE relation and that of the AGENT relation co-vary before the external argument saturates both roles. Thus, an *-st*-marked figure reflexive forms a complex predicate, so that the semantics of Voice′ in (67b), is (simplifying greatly) as in (70b). (67a), on the other hand, has a semantics more like (70a) (cf. Sells et al. 1987, 215ff.; Labelle 2008, 854ff.).

(70) a. e is an event of x causing y to get through the crowd $\wedge \sqrt{\text{TROÐ}}(e) \wedge y = x$
b. e is an event of x causing x to get through the crowd $\wedge \sqrt{\text{TROÐ}}(e)$

In (67a)/(70a), a reflexive pronoun yields the semantics of a distinct figure argument, except that local binding identifies the figure argument and external argument as the same entity. In the case of long-distance binding (cf. 35a), the two arguments will be identified as distinct. By contrast, an *-st* figure reflexive identifies the two roles with the same variable, so those roles are automatically going to be saturated by the same entity. This is why figure reflexives and constructions with reflexive pronouns are both reflexive, even though they are not identical syntactically or semantically.

The next matter for (70) involves the root, $\sqrt{\text{TROÐ}}$. In the present framework (along with other frameworks, such as Borer 2005a,b) the interpretation of the root is determined post-syntactically on the basis of surrounding syntactic and semantic material, combined with the encyclopedic knowledge (i.e. world knowledge) that is associated with the root. The encyclopedic semantics of the root will be sensitive to whether the event it names is an event involving x and y or an event involving x and x. In the case of *troða(st)* 'squeeze', the semantics of the root is such that it is easy to find cases where *troða sér* and *troðast* are equally appropriate, and mutually entailing, as argued above.

However, there are contexts where *troða sér* and *troðast* differ with respect to the lexical contribution of the root $\sqrt{\text{TROÐ}}$, as shown in (71).[37]

(71) a. Hann tróð sér inn í holuna.
he squeezed REFL.DAT in to hole.the
'He squeezed (himself) into the hole.'
b. Hann tróðst inn í holuna.
he squeezed-ST in to hole.the
'He pushed his way around to squeeze into the hole.'

[37] I am grateful to an anonymous reviewer for constructing the pair in (71).

This difference is obscured in (67), where both events would naturally involve pushing one's way around. What this tells us is that the encyclopedic semantics of the root $\sqrt{\text{TROÐ}}$ is affected by the event-structural representation into which it is integrated.

The acceptability of a root in the abstract figure reflexive event structure depends somewhat idiosyncratically on the encyclopedic semantics associated with that root. In many, perhaps most cases, the meaning of the root that shows up in the figure reflexive construction will exist in the language independently. For example, the root $\sqrt{\text{SKOT}}$ 'shoot' in (22), repeated here, does not contribute the meaning associated with literal shooting events, but instead contributes the meaning 'quickly'; this meaning is seen independently in the language in expressions like *eins og skot* 'this second' (lit. 'like a shot') (Wood, 2012, 209).

(72) a. Ég ætla að skjótast í búðina.
I.NOM intend to shoot-ST in shop.the.ACC
'I'm going to pop over to the shop.'

b. Opnaðu skottið! **Eins og skot**!
open.you trunk.the like shot
'Open the trunk! This second!'[38]

Similarly, a reviewer asks why $\sqrt{\text{BROT}}$ 'break' can occur in the figure reflexive construction, since the verb *brjóta* is not a 'verb of motion'; in contrast, the verb *eyðileggja* 'destroy' cannot form a figure reflexive.

(73) a. Hann braust inn í húsið.
he broke-ST in to house.the
'He broke into the house.'

b. * Hann eyðilagðist inn í húsið.
he destroyed-ST in to house.the

Here, the reason is that the encyclopedic semantics of the root of 'destroy' is incompatible with the abstract figure reflexive event structure. As noted in footnote 13 above, the root $\sqrt{\text{BROT}}$ 'break' does not contribute a literal breaking event; nothing is necessarily literally broken in (73a). A use of $\sqrt{\text{BROT}}$ similar to (73a) is attested outside of the figure reflexive construction in expressions like *brjóta lög* 'break a law'; there is no similar expression **eyðileggja lög* 'destroy a law' with the same kind of meaning.

It should now be clear that the existence of contrasts such as (68-69) is entirely expected. The root $\sqrt{\text{SKREIÐ}}$ 'crawl' is not compatible with the event structure involving x and y, and $\sqrt{\text{KASTA}}$ 'throw' is not compatible with the event structure involving x and x. There may be interesting semantic properties of these roots which can predict this a priori; but they may also only be tendencies which are listed with the roots.[39] In this domain, as with (most, maybe all) other aspects of argument structure,

[38] This example comes from the television series *Næturvaktinn* 'The Night Shift', episode 6, 12 minutes, 17 seconds.

[39] That is, similar to morphological readjustment rules on roots, which seem to involve analogous issues. For example, some English verbal roots with the vowel [ai] in the present tense instead have [o] in the past

there is speaker variation for particular verb roots in these structures. Some speakers, for instance, have started to use the inherent reflexive verb *drífa sig* 'hurry oneself' as a figure reflexive *-st* verb. Árnadóttir et al. (2011) provide the following example of this, taken from the web.

(74) % svo drifumst við heim til hans og fengum vöflur!!
then hurried-ST we home to his and got waffles
'then we hurried to his house and got waffles!!'[40] (Árnadóttir et al., 2011, 83)

Árnadóttir et al. (2011) write that the use of *-st* with the root $\sqrt{\text{DRIF}}$ "is neither known to us nor most people we have asked" (83, fn.41). They continue: "There are only a few examples of this use found on the Internet. Most of those are from bloggers in the East of Iceland. An informant, b. 1986, who was raised in this area says this use is common there."

In the present system, this kind of variation involves differences in the encyclopedic semantics of particular roots, specifically with respect to how they are integrated into abstract event structure which is generated in a systematic way in the mapping from syntax to semantics. It does not, however, raise any special issues since all speakers of Icelandic have roots which are compatible with the figure reflexive structure, roots which are compatible with the reflexive pronoun figure structure, and roots which are compatible with both (or neither). For further discussion of roots, see Arad (2003, 2005), Borer (2005a, 9ff.), Ramchand (2008, 12ff.), and Wood (2012, 206ff.), among many others.

One final lexical issue I will mention has to do with the fact that there exist 'unmarked' figure reflexives, such as the example in (75). Like *-st* marked figure reflexives, these pass agentivity tests.

(75) a. Hann labbaði inn í herbergið.
he.NOM strolled in to room.the.ACC
'He strolled into the room.'

b. Þá var labbað heim til kennarans.
then was strolled home to teacher.the.GEN
'Then people strolled over to the teacher's house.'

c. Bjartur labbaði heim til kennarans, þótt Baldur hefði sagt
Bjartur strolled home to teacher.the.GEN though Baldur had told
honum að gera það ekki.
him to do that not
'Bjartur strolled over to the teacher's house, though Baldur told him not to do so.'

d. * Það sem Jón lenti í var að labba heim til kennarans.
that which John landed in was to stroll home to teacher.the.GEN

tense, such as *drive/drove*, *rise/rose*, *write/wrote*, etc.; in many varieties of English (including mine), but not all, this extends to *dive/dove*. For such readjustment rules, there is a systematic tendency for roots with certain phonological properties to readjust, but the roots to which readjustment rules apply must be listed as such (Albright and Hayes, 2003; Embick, 2008). The same could ultimately hold for the semantics of roots.

[40] http://nattfatagellur.blogcentral.is/blog/2006/12/5/er-kominn-timi-a-mig-i-blogg/

e. Það sem Jón lenti í var að þurfa að labba heim til kennarans.
that which John landed in was to need to stroll home to teacher.the.GEN
'What happened to John was he had to stroll to the teacher's house.'

Halldór Sigurðsson (p.c.) points out to me that colloquially, an overt reflexive in the accusative or dative is also sometimes possible (depending on the verb).

(76) Ég er að hugsa um að labba { **mig** / **mér** } niður í bæ.
I am to think about to stroll { REFL.ACC / REFL.DAT } down to town
'I'm thinking about taking a stroll into town.'

I will not discuss this class of verbs in much detail, except to note that this is expected, given the parallelism between Voice and p which is drawn on here. Specifically, Schäfer (2008) has shown that even in languages which mark anticausatives morphologically, there exist anticausatives which are unmarked. Two examples include Italian, which marks anticausatives with the reflexive clitic *si* but also has anticausatives without *si* as in (77b), and Greek, which marks anticausatives with non-active morphology but also has anticausatives without non-active morphology as in (78b).

(77) a. Gianni ha diminuito la temperatura.
John has decreased the temperature
'John decreased the temperature.'

b. La temperatura (*si) è diminuita.
the temperature (*REFL) is decreased
'The temperature decreased.' (Schäfer, 2008, 13)

(78) a. O Janis adiase ti sakula.
the John.NOM emptied.ACT the bag.ACC
'John emptied the bag.'

b. I sakula adiase.
the bag.NOM emptied.ACT
'The bag emptied.' (Schäfer, 2008, 25)

The same holds for Icelandic, which, as we have seen, marks anticausatives with *-st*, but also has anticausatives without *-st*, as illustrated in (79).

(79) a. Þeir dýpkuðu skurðinn.
they.NOM deepened ditch.the.ACC
'They deepened the ditch.'

b. Skurðurinn dýpkaði.
ditch.the.NOM deepened
'The ditch deepened.' (Thráinsson, 2007, 299)

Since there are anticausatives with no special morphological marking, there should be figure reflexives with no special morphological marking, and there are. In the analysis of *-st* verbs presented here, *-st* serves a syntactic function, while the semantics behaves as if the position it has merged in is empty. Thus, *-st* is not 'semantically

necessary' to achieve these results; it only appears when the syntax requires it. Unmarked anticausatives and figure reflexives can be accounted for by assuming that Voice and p need not always carry the D-feature requiring a specifier, but can remain specifierless. As mentioned in section 4 above, this is actually a standard assumption for Voice, but it extends naturally to p. The lexical relationship between marked and unmarked anticausatives and figure reflexives is a complex one, and need not concern us further here; see Wood (2012, 162–169, 206–211) for an in-depth analysis.

7 Conclusion

Assuming a line of research in which argument structure alternations are derived entirely by constraints on the mapping from syntax to semantics, I have focused in this article on two questions that arise in the analysis of reflexive *-st* verbs: what is the relationship between expletivization and reflexivization, and where does lexical idiosyncrasy arise? For the first question, I have proposed that as an argument expletive, *-st* fills a position in the syntax but is basically invisible at semantics. Reflexive meaning is derived when it merges low enough in the structure that semantic composition allows a higher argument to receive two θ-roles. Turning to the question of productivity, I argued that there are two issues that need to be treated separately. First, the syntactic distribution of *-st* restricts the kinds of reflexive *-st* verbs that can exist. Second, lexical roots are associated with a web of possible semantic contributions, and their integration into abstract semantic structure is constrained in a partly idiosyncratic, though not unsystematic way. The results of this study support the view that the interpretation of roots needs to be considered separately from the interpretation of functional structure; doing so reveals that structures which were previously thought to be lexically idiosyncratic may nevertheless by syntactically productive.

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