J. Linguistics **38** (2002), 313–345. © 2002 Cambridge University Press
DOI: 10.1017/S002222670200141X Printed in the United Kingdom

The directed motion construction in Swedish[1]

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(Received 8 February 2001; revised 31 October 2001)

This paper introduces a Swedish construction, called THE DIRECTED MOTION CONSTRUCTION (DMC). The DMC is parallel to the English WAY construction, which has recently received considerable attention in a debate comparing constructions to lexical rules. The DMC is very productive, and must therefore be taken seriously by any grammatical theory. This paper gives a detailed description of the DMC, and formalizes it in two ways: as a construction and as a lexical rule. Although both formalizations are possible, the construction more straightforwardly captures the most interesting aspect of the DMC: the fact that the overall meaning cannot be tied to any one of its individual parts.

1. INTRODUCTION

When we call something a construction, what do we mean? The word 'construction' can be used in at least two ways. It can be used as a purely descriptive cover term, which is not meant to have any theoretical significance in itself. For example, we could talk about a passive construction, without claiming that the construction is stored as such in our lexicon.[2] Instead, the passive construction can be considered an epiphenomenon derived by some grammatical process(es), such as movement or application of lexical rules or correspondence mappings. Another interpretation of the word 'construction' is that it refers to form-meaning correspondences, where the forms may be bigger than words. This is what has long been assumed in Construction Grammar (Fillmore 1988, Goldberg 1995, Kay & Fillmore 1999). These ideas have recently been incorporated into Head-driven Phrase Structure

[1] I would like to thank audiences at the SKY Symposium in Helsinki (August 1999) and at the 36th Annual Meeting of the Chicago Linguistic Society (April 2000), and also at Gothenburg, Lund and Manchester Universities for helpful suggestions. In addition, I want to thank Joan Bresnan, Adele Goldberg, Ray Jackendoff, Paul Kiparsky, Beth Levin, Joan Maling, Jeff Runner, Peter Sells and, especially, Ash Asudeh for providing many insightful comments on several drafts of this manuscript. Finally, I want to thank two anonymous *JL* referees. The comments I have received have greatly improved this work, but I, of course, take full responsibility for all the remaining imperfections, errors and misunderstandings.

[2] Here, I take the lexicon to be a stored list (organized or not) of unpredictable form-to-meaning correspondences. In the discussion here, it will therefore not make sense to think of the lexicon as necessarily only containing elements which are words or units smaller than words (i.e. bound morphemes).

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Grammar (Kathol 1995, Sag 1997), and Jackendoff (1990, 1997, 1999) also argues for this view of constructions.

A constructional approach certainly seems reasonable when we try to analyze phrasal idioms, such as *kick the bucket* or *take NP to the cleaners*. An approximation of the form-meaning correspondence of the latter example is given in (1).

(1) *form*: take NP_i to the cleaners
meaning: get all of NP_i's money/possessions

The idiom in (1) has several fixed words: only the subject and direct object can vary. The specific string of words (with variable subject and object) thus needs to be stored in the lexicon as a unit together with its meaning, which is something like 'get all of NP's money/possessions' (for further discussion of this particular idiom, see Jackendoff 1997: 161–162). Phrasal idioms are very difficult to analyze if we do not recognize that elements larger than words can be stored and connected to a specific meaning which does not (at least not completely) follow from the meaning of its parts. However, when we treat other kinds of phrases, such as regular transitive sentences, it is less clear that something is gained by treating them as idioms, which is the way they would be treated in Construction Grammar. In sections 1–3, the word 'construction' will be used in a pre-theoretical way.

There is an on-going debate concerning the formal status of grammatical constructions (Fillmore 1988; Jackendoff 1990, 1997; Marantz 1992; Goldberg 1995; Kay & Fillmore 1999). The debate has, until now, mainly focused on data from English, but this paper contributes a new piece of evidence from Swedish, in the form of a construction which I call the DIRECTED MOTION CONSTRUCTION (DMC). The skeletal structure of a DMC sentence is given in (2).[3]

(2) [SUBJ [V [REFLEXIVE] [OBLIQUE$_{directional}$]]]

The construction conveys the sense of directed motion: the subject moves by the means specified by the verb in the direction specified by the oblique. Some examples of the DMC are given in (3).[4]

(3) (a) Han återfann sin båge och **kravlade sig** upp
he again.found his.REFL bow and crawled SIG up
på avsatsen.
on ledge.the
'He found his bow again and crawled (his way) up onto the ledge.' (PAR)

[3] The reflexive is a 'fake' reflexive which is not a thematic object of the verb. It will be glossed throughout this paper with the Swedish form, since it is not clear that it is equivalent to English reflexives. See section 2.3 for a full discussion.

[4] The majority of examples in this paper are drawn from the Swedish PAROLE corpus, available on-line at http://www.lexilogik.se/Demonstrations/svecorpus.htm. The PAROLE examples are marked (PAR).

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(b) Det mörknade allt mer när han till sist **kravlade sig**
it darkened all more when he to last crawled SIG
uppför ravinens motsatta sida.
upwards.PREP ravine.the's opposite side
'It was getting darker when he finally crawled (his way) up to the opposite side of the ravine.' (PAR)

(c) Han lyckades med stor ansträngning **rulla sig** ner från
he managed with great effort roll SIG down from
sängen och börja krypa bortåt golvet.
bed.the and begin crawl away.towards floor.the
'With great effort, he managed to roll (his way) down from the bed and start crawling towards the floor.' (PAR)

(d) Magistratens samtliga ledamöter bröt upp och **armbågade**
city.council.the's all members broke up and elbowed
sig ut ur auktionslokalen.
SIG out of auction.facility.the
'All the members of the city council left and elbowed their way out to the auction rooms.' (PAR)

(e) … naturligtvis var det fel att **drömma sig** bort från
obviously was it wrong to dream SIG away from
den egna miljön, men …
the own environment, but
'… of course it was wrong to dream oneself away from one's environment, but …' (PAR)

(f) Han **ljög sig** ut ur armén.
he lied SIG out of army.the
'He lied his way out of the army.' (PAR)

DMC sentences have much in common with English WAY construction sentences (Jackendoff 1990, Marantz 1992, Goldberg 1995, Levin & Rappaport Hovav 1995). Both constructions involve the sense of directed motion, and that motion can be either literal (3a–d) or figurative (3e–f). We see that many (though not all) of the sentences in (3) translate well into English WAY sentences. I will argue below that the differences between the DMC and the WAY construction have to do with restrictions on the verb.

Section 2 investigates the DMC in detail. It will be shown that although the verb is not necessarily a motion verb, the DMC involves the sense of directed motion. The verb denotes the means by which the motion is performed, and the activity denoted by the verb must be performed voluntarily. Section 2 also shows that each element in (2) is necessarily present, even though the reflexive is not a thematic argument of the verb. A further characteristic of the DMC discussed in section 2 is that the oblique is obligatorily directional.

In section 3, I compare the DMC to Swedish resultatives. There are some

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similarities, but there are also important differences between the two, and I conclude that the two are indeed distinct phenomena.

Section 4 provides two different formal analyses of the DMC: a constructional analysis and a lexical rule analysis. The lexical rule analysis is compositional and makes use of the formal tools of Lexical-Functional Grammar (LFG). I conclude the section with a comparison of the two approaches.

2. The individual parts of the DMC

The DMC is very productive. As long as the skeletal structure of (2), [SUBJ [V [REFLEXIVE] [OBLIQUE$_{directional}$]]], is maintained, the choice of what actual lexical items are inserted into the DMC is fairly free (though not completely unrestricted, as we will see immediately below). Verbs of any valence are admitted into the construction:

(4) (a) … **banta sig** in i EMU.
diet SIG in in EMU
(approx.) '… to get into the EMU through saving.' (PAR)

(b) Varför skulle han **läsa sig** bort from det som
why would he read SIG away from that which
stod honom närmast?
stood him closest
'Why would he try to escape from that which was the closest to him through reading?' (PAR)

(c) Snart skulle ett barn kunna **slå sig** in i dem
soon would a child be.able beat SIG in in them
med ett träsvärd.
with a wood.sword
'Soon a child would be able to beat its way into them with a wooden sword.' (PAR)

The verb *banta* 'to be on a diet' is necessarily intransitive, whereas the verbs *läsa* 'to read' and *slå* 'to hit, to beat' are normally transitive. More examples of verbs of different valencies used in the DMC are given in section 2.3.2. below. However, although there are no valency restrictions on the verb, there are other constraints on the verb, as well as on the other parts of the DMC.

2.1 *The verb*

As mentioned above, the DMC is very similar in meaning to the English WAY construction. However, it is not the case that every DMC sentence translates well into an English WAY sentence. This difference seems to be connected to restrictions on the verb, which is the topic of this section.

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2.1.1 *Process*

Jackendoff (1990) and Goldberg (1995) point out that the verbs in the English WAY construction have to denote a process; that is, an unbounded or repeated action.

This constraint does not seem to hold for the Swedish DMC:

(5) (a) Kalle **sparkade sig** in genom dörren.
K. kicked SIG in through door.the
'Kalle got in through kicking the door open.'

(b) Kenny har **slängt sig** ut från sitt rymdskepp …
K. has thrown SIG out from his.REFL spaceship
'Kenny has thrown himself out of his spaceship …' (PAR)

The verbs used in (5) denote (or can be interpreted as) bounded, punctual activities. The verb *sparka* in (5a), for example, can be interpreted as referring to one single kick, but this does not prevent it from occurring in a DMC. Note that the examples in (5) do not translate well into the WAY construction.[5]

2.1.2 *Volitionality*

A DMC verb necessarily denotes a deliberate action. Compare (6a) and (6b).

(6) (a) Johan **rullade sig** ner på golvet.
J. rolled SIG down on floor.the
'Johan rolled (his way) down on(to) the floor.'

(b) Johan **rullade** ner på golvet.
J. rolled down on floor.the
'Johan rolled down on(to) the floor.'

The examples in (6) look identical, except for the fact that (6a) is a DMC sentence and (6b) is not. The only difference in meaning between them has to do with volitionality: in (6a), Johan is rolling on purpose, whereas in (6b), some external force may have caused Johan to roll. It is important to note that the reflexive *sig* is not in general tied to volitionality, as evidenced by its occurrence in expressions like *göra bort sig* 'to embarrass oneself'.

The performance of the action itself is necessarily voluntary, but the subject might reach the place denoted by the oblique without intending to do so. Consider (7).

(7) Mannen **dansade sig** av misstag in i fel rum.
man.the danced SIG in mistake in in wrong room
'The man danced his way into the wrong room by mistake.'

[5] Jackendoff (1990: 297–298) points out that the boundedness constraint might not be necessary for English WAY sentences where the verb denotes the means of motion.

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The subject of (7) got into the wrong room unintentionally, although he was not DANCING unintentionally.

2.1.3 *Means*

In the English WAY construction, the verb either denotes the means or the manner of motion, as illustrated in (8); (8a) is taken from Goldberg (1995: chapter 9), and (8b) is taken from Jackendoff (1990: chapter 10):

(8) (a) Sally drank her way through a case of vodka.
(b) Sue whistled her way through the tunnel.

In Swedish, the manner interpretation is not possible. The Swedish translation of a sentence like (8b) does not sound natural: it forces an interpretation where Sue got through the tunnel BY MEANS OF whistling, not WHILE whistling.

Plain motion verbs like *run* and *walk* cannot easily be interpreted as denoting the means of motion, and they are not felicitous in the DMC in (9):

(9) *Pojken **sprang/gick sig** hem.
boy.the ran/walked SIG home

Such verbs are not good in the WAY construction either, as illustrated by example (10), taken from Jackendoff (1990: chapter 10, footnote 1), who credits Donna Jo Napoli.

(10) *Bill went/walked/ran his way down the hallway.

Jackendoff (1990) and Goldberg (1995) point out that the plain motion verbs do not add enough to the meaning of the construction, and this might be the reason why (9) is infelicitous. This is supported by the fact that if a plain motion verb can be construed so as to denote the means of motion, a DMC sentence is allowed:

(11) Karin försöker **springa sig** in i Guinness Rekordbok.
K. tries to.run SIG in in Guinness Record.book
'Karin is trying to run her way into the Guinness Book of Records.'

The sentence in (11) means that Karin is trying to get a Guinness record by means of running. With this meaning, a DMC sentence is preferred to a non-DMC sentence:

(12) #Karin försöker springa in i Guinness Rekordbok.
K. tries to.run in in Guinness Record.book

The only possible interpretation of (12) is that Karin tried to run into the book, literally, and the means interpretation is not possible.[6]

[6] We could still ask the following question: why is (9) ungrammatical? One possible answer is that it is ruled out because of blocking: (9) is blocked because the construction does not

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2.1.4 *Summary*

The verbs in the DMC always denote the means of motion and the subject of the verb must be volitional. These constraints do not necessarily hold over the same verbs when they are used outside the construction (cf. (6)). Instead, these are necessary conditions on verbs specifically when they appear in the DMC. The differences between the English WAY construction and the Swedish DMC are all connected to the restrictions of the verb: first, the WAY construction only allows process verbs, but this constraint does not restrict the Swedish DMC; and secondly, the verb in the WAY construction denotes either the means or the manner of motion, whereas the verb in the DMC can only denote the means.

As noted above, the DMC does allow a great number of different kinds of verbs, regardless of their valence. The only verbs which are strictly ruled out are verbs which cannot possibly be conceived of as denoting the means of motion and as denoting volitionality.

2.2 *The oblique*

The meaning of the DMC construction is crucially directional, either towards a goal, along a path or from a source. Swedish morphologically distinguishes directional (DIR) obliques from locational (LOC) obliques which do not denote directionality. Interestingly, only directional obliques are allowed in the DMC:

(13) (a) Pojken **kravlade sig** dit/*där.
boy.the crawled SIG there.DIR/there.LOC
'The boy got there by crawling.'

(b) Flickan **armbågade sig** in/*inne i folksamlingen.
girl.the elbowed SIG in.DIR/in.LOC in crowd.the
'The girl elbowed her way into the crowd.'

Obliques occurring in DMCs can be contrasted with obliques used with ditransitive verbs which denote a change of location of the object. In the

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add enough to the meaning of the verbs. If grammatical, the sentence **Pojken sprang sig hem* would have the same meaning as *Pojken sprang hem*. If the sentences are identical in meaning, we can assume that the shorter one blocks the longer one. The notion of blocking can be expressed informally as in (i):

(i) If an expression A is more minimal than an expression B, and A and B are identical in meaning, then A blocks B.

For further discussion of sentence level blocking, see Andrews (1990) and Blevins (1995). See also Sadler's (1998) extension of Andrews's proposal. Blocking would have the following effect on the interaction between DMC sentences and non-DMC sentences with motion verbs and directional obliques:

(ii) If a DMC sentence is identical in meaning to a non-DMC sentence without *sig*, then the DMC sentence is blocked.

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ditransitive cases, the motion or change of location of the object is understood and is not necessarily marked in the oblique, as we see in (14a).

(14) (a) Johan **ställer** glaset på golvet.
J. stands glass.the on floor.the
'Johan puts the glass on the floor.'
(b) *Johan **armbågar sig** på golvet.
J. elbows SIG on floor.the

A plain PP which denotes a location without specifically encoding directionality can be used with a verb like *ställa* 'to stand, to put' (14a), but such a PP cannot be used in the DMC in (14b).

As we have seen above, some verbs which inherently encode motion may appear in the DMC (*rulla* and *kravla*, for example). When these verbs are used outside the DMC, the oblique is not necessarily directional:

(15) (a) Pojkarna var ena ögonblicket däruppe på takåsen
boys.the were one moment there.up on roof.ridge.the
– i det nästa **kravlade** de nere på marken
– in the next crawled they down.LOC on ground.the
i stickor och boss.
in splinter and chaff
'One moment, the boys were up there on the roof ridge, and the next moment they were crawling (around) down on the ground in the splinters and chaff.' (PAR)
(b) Yamahan **rullar** på vägarna.
Yamaha.the rolls on roads.the
'The Yamaha is rolling on the roads.' (PAR)

The examples above show that regular verbs of motion do not normally REQUIRE their oblique to encode directionality, although the oblique may, of course, encode directionality. Let us consider another example, (21).

(16) (a) Flickan **sprang** in i skogen.
girl.the ran in.DIR in forest.the
'The girl ran into the forest.'
(b) Flickan **sprang** inne i skogen.
girl.the ran in.LOC in forest.the
'The girl was running in the forest.'

The word *in* in (21a) is inherently directional and the word *inne* in (21b) is locational. Both can be used with the plain motion verb *springa* 'to run'. So it is clearly not the case that motion verbs generally require their oblique to be directional. The DMC, however, specifically imposes such a requirement on its oblique, as evidenced by (18)–(19).

The oblique is obligatorily present in the DMC:

(17) (a) *Efter en minut bör bilen **rulla sig**.
after a minute should car.the roll SIG

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(b) *Maria **armbågade sig**.
M. elbowed SIG

Contrast the DMC sentences in (17) with the non-DMC sentences with motion verbs in (18).

(18) (a) Eller jämngrå snarare, som när gråsuggor **kravlar**.
or even.grey rather as when woodlice crawl
'Or evenly grey rather, like when woodlice crawl.' (PAR)
(b) Efter en minut bör bilen **rulla**.
after a minute should car.the roll
'The car should roll after a minute.' (PAR)

No oblique is necessary in (18).

In sum, the data in this section show that the following facts hold for the oblique of the DMC: (a) it is obligatory present, and (b) it must denote directionality. These factors distinguish DMC sentences from sentences which denote motion due to the fact that they contain motion verbs.

2.3 *The reflexive element*

We will now take a closer look at the reflexive element of the DMC. The exact syntactic status of the reflexive is controversial, since it is a Scandinavian 'weak' pronoun, which undergoes Object Shift (see e.g. Holmberg 1986, 1997; Josefsson 1992; Kaiser 1997; Sells 1998, 2001; Bobaljik 1999). Some authors have argued that Swedish pronouns are clitics, others that they are phonologically independent non-projecting words (Sells 2001, Toivonen 2001). It is, however, clear that the reflexive in the DMC is not morphologically bound to the verb (as suggested by an anonymous *JL* referee), since the two can be separated:

(19) (a) På morgonen **sågar** motorsågspatrullen **sig** in igenom
on morning.the saw chain.saw.patrol SIG in through
barrikaden.
barricade.the
'In the morning the chain saw group saws its way through the barricade.' (PAR)
(b) Ensam i köket **smög** han **sig** bort till skafferiet.
alone in kitchen.the snuck he SIG awayto pantry.the
'Alone in the kitchen he snuck over to the pantry.' (PAR)

In the DMC examples in (19), the verb and the reflexive are separated by the subject. Since the verb and the reflexive need not be adjacent, the reflexive is clearly not a bound morpheme.

The exact structural status of the reflexive pronoun is thus controversial. I will assume here that it is a free NP, but both DMC analyses that will be

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considered below are also compatible with the hypothesis that the reflexives are clitics. This section examines other characteristics of the reflexives in the DMC: we will see that the reflexives agree with the subject in person and number, and also that they are not thematic objects of the verb.

2.3.1 *First and second person reflexives*

All the examples above have had a third person subject, and the reflexive element has always been *sig*, which is third person. Other subjects are also possible, as we see in (20).

(20) (a) Så jag fick **smyga mig** nerför trapporna igen …
so I got sneak MIG.1SG down.PREP stairs.the again
'So I had to sneak down the stairs again …' (PAR)

(b) … när du blir tvugen att **slå dig** fram genom
when you become forced to beat DIG.2SG forth through
trähundar, träkatter, trähästar och …
wood.dogs, wood.cats, wood.horses and
'… when it becomes necessary for you to beat your way through wooden dogs, wooden cats, wooden horses and …' (PAR)

(c) Sakta **arbetar** vi **oss** uppåt …
slowly work we OSS.1PL upwards
'Slowly, we work our way upwards …' (PAR)

(d) **Klicka er** fram och läs om den genom sidan
click ER.2PL forth and read about it through page.the
Finals.com.
Finals.com
'Click your way there and read about it on the page Finals.com.' (PAR)

The subject and reflexive object forms of all persons and numbers are given in table 1.

	Subject	Object
1SG	*jag*	*mig*
2SG	*jag*	*dig*
3SG	*du*	*sig*
1PL	*han*.M/*hon*.F	*oss*
2PL	*vi*	*er*
3PL	*dom*/*de*	*sig*

Table 1
Swedish subjects and reflexive objects

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The reflexive and non-reflexive object forms are homophonous in all persons except third. The non-reflexive object forms for third person are *henne* 'her', *honom* 'him' and *dem* 'them'.

Although each person and number can be used in the DMC, it is strictly required that the subject and the reflexive agree:

(21) (a) *Hon **drömde mig** bort från den egna miljön.
she dreamt MIG away from the own environment.the
(b) *Jag **kravlar dig** dit.
I crawl DIG there

The examples in (21) are unacceptable, since the subject and the reflexive do not agree in person.

2.3.2 *Objecthood*

The reflexive element in the DMC is not a thematic argument of the verb; it is a so-called 'fake reflexive' (Simpson 1983, Levin & Rappaport 1989, Jackendoff 1990, Carrier & Randall 1992). It is nevertheless possible that the reflexive is a syntactic object: it could be analyzed as some kind of expletive element, or an argument of the directional oblique (the latter option will be discussed below in section 4.2; see also Levin 1999). Whether or not it can be treated as a structural object, there are several pieces of evidence against treating *sig* as a thematic object of the verb. First of all, if *sig* was just a 'normal' object of the verb, we would expect it to be possible to exchange it for some other object, but this is not possible, as we saw in (21) above.

Secondly, several of the verbs used above are intransitive (e.g. *kravla*, *drömma*, *ljuga*), but they can still occur in the DMC with a reflexive element. More examples of intransitive verbs in the DMC are given in (22)–(23).

(22) (a) Däremot tog det Ali några år att **arbeta sig**
on.the.other.hand took it A. some years to work SIG
tillbaka mot toppen.
back towards top.the
'On the other hand, it took Ali a few years to work his way back to the top.' (PAR)
(b) *Ali **arbetade** något.
A. worked something

(23) (a) … naglar **letade sig** upp ur ärren …
nails searched SIG upp through scars.the
'… nails searched their way up through the scars …' (PAR)
(b) Olle **letade** efter Sara.
O. searched after S.
'Olle looked for Sara.'

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(c) *Olle **letade** Sara.
O. searched S.

The verb *arbeta* does not take a second argument. The verb *leta* generally takes a second argument, but it needs to be marked with the preposition *efter*. However, when *leta* is used in a DMC sentence, as in (23a), no *efter* is present.

Thirdly, many transitive verbs (when used outside the DMC) require their reflexive objects to be marked with *själv*, that is, a plain *sig* is not enough (see, among others, Vikner 1985, Hellan 1986):

(24) (a) Kvinnan älskar/hatar/sparkar/förlåter/respekterar sig
woman.the loves/hates/kicks/forgives/respects SIG
själv.
self
(b) *Kvinnan älskar/hatar/sparkar/förlåter/respekterar sig.
woman.the loves/hates/kicks/forgives/respects SIG

When such verbs are used in the DMC, *själv* is not required; in fact, *själv* is necessarily absent:

(25) Kvinnan **älskar/sparkar** sig (***själv**) hem.
woman.the loves/kicks SIG self home
'The woman loves/kicks her way home.'

Although *älskar* and *sparkar* normally take *sig själv* when the object is reflexive, only *sig* is possible in (25).

Fourthly, the activity performed by the subject of a DMC may be taken to be directed towards people other than the antecedent:

(26) Snart skulle ett barn kunna **slå** **sig** in i dem med ett
soon would a child be.able beat SIG in in them with a
träsvärd.
wood.sword
'Soon a child would be able to beat its way into them with a wooden sword.' (PAR)

In (26), the natural interpretation is not that the child is beating itself. Similarly, in (25) above, the woman is not loving or kicking herself, but rather somebody else.

The fifth reason to believe that the *sig* of the DMC is not a thematic object comes from the 'sloppy identity' test. Consider (27), which contains a real reflexive object.

(27) Johan beundrar sig själv mer än Stefan.
J. admires SIG self more than S.
'Johan admires himself more than Stefan.'

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All speakers get the following two readings:

- Johan admires Johan more than Stefan admires Stefan. (sloppy identity)
- Johan admires Johan more than Johan admires Stefan.

Some speakers can also interpret (27) in the following way:

- Johan admires Johan more than Stefan admires Johan. (strict identity)

Compare this to (28), where the only possible interpretation is the sloppy identity one.

(28) Johan **armbågade sig** in i folksamlingen snabbare än Peter.
J. elbowed SIG in in crowd.the quicker than P.
'Johan elbowed his way into the crowd quicker than Peter.'

The only possible interpretation of (28) is that John got into the crowd by way of elbowing quicker than Peter. For further discussion of 'sloppy identity' as an objecthood test, see Sells, Zaenen & Zec (1987).

Finally, the reflexive cannot passivize. Any attempt to passive (28) is ungrammatical (in (29) I have left out the comparative clause of (28)).

(29) (a) *[Johan/han/sig]$_i$ blev armbågad in i folksamlingen (av
J./he/SIG got elbowed in in crowd.the by
[Johan/sig]$_i$).
J./SIG

(b) *[Johan/han/sig]$_i$ armbågades in i folksamlingen (av
J./he/SIG elbowed.PASSIVE in in crowd.the by
[Johan/sig]$_i$).
J./SIG

The fact that the reflexive cannot be passivized lends further support to the claim that it is not a real object.

In sum, the following facts thus hold true of the reflexive element of the DMC: (a) it needs to agree with the subject in person and number; and (b) it is not a semantic argument of the verb.

2.4 *Summary*

This section has examined the individual parts of the Swedish DMC construction in detail. The results are summarized in (30).

(30)
- The meaning involves the sense of directed motion.
- The verb denotes the means by which the motion is performed.
- The motion is volitional.
- Each element is necessarily present.

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- The reflexive is not a thematic argument of the verb.
- The oblique must encode a path.

The characteristics in (30) are similar to the characteristics of the WAY construction, and I have argued here that the two only differ with respect to the restrictions on the verb.

3. The DMC and the resultative construction

Marantz (1992) and Levin & Rappaport Hovav (1995) consider the English WAY construction to be a kind of resultative. Some resultative examples are given in (31)–(32).

(31) (a) Denise hammered the metal flat.
(b) Sandy fried the bacon crisp.
(32) (a) Claudia laughed herself silly.
(b) Nora worked herself sick.

The examples in (31) involve real thematic objects, whereas the objects in (32) are fake reflexives.

If the WAY construction is a resultative, we would also expect the DMC to be similar to resultatives in Swedish, since the DMC corresponds to the English WAY construction, and Swedish has resultative constructions very similar to English, with a verb and object and an XP which denotes the result predicated of the object.[7] However, Swedish DMC sentences differ from Swedish resultatives in important ways.

Some Swedish resultative sentences are given in (33).

(33) (a) … hon skulle måla allting vitt.
she would paint everything white
'… she was going to paint everything white.' (PAR)
(b) Gertrud biter läpparna blodiga.
G. bites lips.the bloody
'Gertrud bites her lips bloody.' (PAR)
(c) … och samtidigt sprängde katten i bitar.
and simultaneously blew.up cat.the in pieces
'… and simultaneously blew the cat into pieces.' (PAR)

The direct objects in (33) can be thought of as arguments shared by the main predicate (the verb) and the secondary predicate (the result). In (33a), for example, the subject paints everything and everything becomes white. Compare the examples in (33) with the examples in (34).

[7] I refer to the postverbal NP (e.g. *the metal* in (31a)) as an object. It might be argued that the postverbal NP is not really an object when it occurs in the resultative and the WAY-sentences (see discussion in sections 2.3.2 and 4.2). However, nothing hinges upon this choice of terminology.

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(34) (a) …, när Foreman hade jobbat sig trött.
when F. had worked SIG tired
'…, when Foreman had worked himself tired.' (PAR)

(b) Nu dansar sig varenda människa svettig.
now dances SIG each person sweaty
'Now everybody dances himself sweaty.' (PAR)

(c) … för att kunna skrika sig hes på läktaren ikväll.
for to be.able scream SIG hoarse on bleachers.the tonight
'… in order to be able to scream oneself hoarse on the bleachers tonight.' (PAR)

(d) Jag måste ha gråtit mig till sömns.
I must have cried MIG to sleep
'I must have cried myself to sleep.' (PAR)

The examples in (34) are also resultatives, but they differ from the examples in (33) in that the direct objects are not true arguments of the verb. In (34a), for example, *sig* is clearly not a semantic argument of *jobba* 'to work'. The direct objects in (34) are thus fake reflexives, comparable to the English ones in (32). Recall that the DMC also involves fake reflexives (cf. section 2.3.2). However, this does not mean that the two constructions are identical. They differ with respect to word order, meaning and object restrictions; each of these factors will be considered in turn below.

3.1 *Word order*

Word order provides a first piece of evidence that the two constructions are distinct. In the examples we have seen thus far, the results and the directional expressions have generally been full phrases. However, when the result or the directional is expressed with a particle, there is an important difference in word order. Compare the resultatives in (35) with the DMC examples in (36).

Resultatives

(35) (a) Folk skulle ju kunna **skratta** ihjäl **sig**.
people would surely be.able to.laugh to.death SIG
'People could obviously laugh themselves to death.' (PAR)

(b) Olle **låste** in **sig** i huset.
O. locked in SIG in house.the
'Olle locked himself into the house.'

DMC

(36) (a) Flickan **drömde sig** bort.
girl.the dreamed SIG away
'The girl dreamt her way elsewhere.'

(b) Johan Rancke **armbågade sig** in.
J. R. elbowed SIG in
'Johan Rancke elbowed his way in.' (PAR)

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In the resultative sentences in (35), the particle precedes *sig* (Toivonen 1999, 2001), whereas in the DMC sentences in (36), the particle follows *sig*.

3.2 *Meaning*

Resultatives do not necessarily involve the sense of directed motion, whereas DMC sentences do.

(37) (a) Hon har **gasat** ihjäl **sig** i garaget
she has gassed to.death self in garage.the
'She has gassed herself to death in the garage.' (PAR)

(b) … började den långsamt **gnaga** **sig** ut …
started it slowly to.gnaw SIG out
'… it slowly began to gnaw its way out …' (PAR)

The sentence in (37a) is an example of a resultative and does not involve directed motion. (37b), on the other hand, is an example of the DMC and the subject is moving outwards by means of gnawing. I hesitate to refer to this as a solid piece of evidence, since it is largely definitional, and it could be considered a method for separating out a subtype of resultatives rather than a test showing that DMCs and resultatives are distinct constructions.

3.3 *Real objects*

DMC sentences cannot contain real, thematic objects, whereas resultatives can. The examples in (33) above contain thematic objects, and further examples are given in (38).

(38) (a) Stek den hackade löken gyllenbrun.
fry the chopped onion golden.brown
'Fry the chopped onion until it is golden brown.'

(b) Sommaren 95 sköts Bandidos president till döds.
summer 95 was.shot Bandidos' president to death
'In the summer of '95, the president of the Bandidos was shot to death.'

In (38a), *löken* is clearly a thematic object of the verb *steka*. Similarly, in (38b), *Bandidos president* is a clear object of the verb *skjuta*. Recall from section 2.3.2 that thematic objects cannot be used in a DMC sentence. Consider (39), for example.

(39) *Daniel armbågade flickan in i folksamlingen.
D. elbowed girl.the in in crowd.the

The verb *armbåga* 'to elbow' can normally be used easily in the DMC (see examples (3d) and (36b) above). In (39), *flickan* has been inserted in the position where the fake reflexives normally appear in the DMC. The example

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is ungrammatical, although one could perhaps expect the following interpretation to be possible: Daniel's elbowing caused the girl to move into the crowd. It is possible to say that Daniel elbowed the girl into the crowd, but then the resultative word order is forced (*Daniel armbågade in flickan i folksamlingen*).

3.4 *Summary*

The data in this section has shown that the DMC is distinct from the resultative construction. Three pieces of evidence were presented:

- When the oblique result/direction is expressed with a particle, the two constructions show a difference in word order.
- The two constructions differ in meaning.
- The resultative construction can contain a thematic object, whereas the DMC can only take a fake reflexive as an object.

A hierarchy of constructions where resultatives and DMCs are subtypes of a common super-type might be possible. However, the evidence in this section clearly shows that the two must be treated as separate constructions, at least at some level.

4. Putting the pieces together

Let us now return to the question of whether or not the DMC is a construction in the technical sense. All parts are exchangeable and contribute to the meaning (except for the fact that the reflexive might be semantically empty). There are, however, certain aspects of the meaning of the overall construction (the sense of directed motion, for example) that are not easily attributed to any one of its parts. The DMC can thus be seen as somewhere in between a fixed phrasal idiom and a regular, fully compositional clause type. This section will explore both a constructional and a compositional analysis. In section 4.1, the DMC will be modelled as a construction, drawing upon the formalism developed in Jackendoff (1990). In section 4.2, I will consider a compositional analysis, making use of a lexical rule in the formal framework of Lexical-Functional Grammar. Finally, in section 4.3, I will compare the two approaches.

4.1 *The DMC as a construction*

The main characteristics of the DMC are repeated in (40).

(40)
- The meaning involves the sense of directed motion.
- The verb denotes the means by which the motion is performed.
- The motion is volitional.

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- Each element is necessarily present.
- The reflexive is not an argument of the verb.
- The oblique must encode a path.

Any analysis of the DMC needs to account for all the facts listed in (40).

As has already been noted, the Swedish DMC construction is very similar to the English WAY construction. Many of the examples above correspond to English WAY examples, and the DMC meaning is very similar to the meaning of the WAY construction. Jackendoff's (1990) characterization of the English construction is given in (41).[8]

(41) *WAY Adjunct Rule* (constructional idiom)
(a) $[_{VP}\ V_h\ [_{NP}\ NP_j\text{'s way}]\ PP_k]$
may correspond to

(b)
$$\begin{bmatrix} \text{GO } ([\alpha]_j, [_{Path}\ ]_k) \\ \text{AFF } ([\alpha]_i, \ ) \\ [\text{WITH/BY} \begin{bmatrix} \text{AFF } ([\alpha], \ ) \\ -\text{BOUNDED} \end{bmatrix}_h] \end{bmatrix}_{Event}$$

The skeletal syntactic structure is given in (41a), and the semantic structure is given in (41b). In order to understand (41), it is necessary to know the basic features of Jackendoff's theory and notation. I will briefly explain some particulars of the notation here: for motivation and discussion, see Jackendoff (1983, 1990). Jackendoff takes Thing, Event, State, etc. to be members of a set of conceptual categories which are universally available. These are the 'semantic parts of speech'. The conceptual categories can be elaborated as different kinds of functions. GO is one of Jackendoff's Event-functions on the thematic tier. GO denotes motion along a path and it takes two arguments: the thing in motion and the path it traverses. AFF, *affect*, is a function on the action tier (as opposed to the thematic tier). The first argument of the action tier is (if present) the Actor and the second is the Patient, but both are optional. In Jackendoff's notation, AFF ([ ], [ ]) means that the word or construction has both an Actor and a Patient, AFF ([ ],) means that it has an Actor and no Patient, etc. The Roman lower-case subscripts show the correspondence between the syntactic and semantic elements, whereas the Greek letter indicates coreference.

The coindexation of the syntactic and semantic arguments is constrained by the Argument Fusion rule (Jackendoff 1990: 53), given in (42).

[8] Jackendoff gives three versions of the rule, but since (41) contains all the information that is relevant for our present purposes, I only show one of his formalizations. I have changed one detail in the representation: Jackendoff distinguishes binding arguments from bindees by putting the Greek letter inside and outside the brackets, respectively. For the sake of simplicity, I will not mark that distinction in this paper.

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(42) *Argument Fusion*
To form the conceptual structure for a syntactic phrase XP headed by a lexical item H:
(a) Into each indexed constituent in H's LCS [Lexical Conceptual Structure – I.T.], fuse the conceptual structure of that phrase YP that satisfies the coindexed position in H's subcategorization feature.
(b) If H is a verb, fuse the conceptual structure of the subject into the constituent indexed *i* in H's LCS.

The first argument of the Action tier is thus fused with the subject, according to (42b).

Let us now unpack (41). First, it is important to note that the subordinate manner/means (WITH/BY) function is coindexed with the verb, although such subordinate functions are normally denoted by adjuncts. The WAY construction is thus peculiar in that the verb, which is the syntactic head, has a subordinate function in the semantics. Jackendoff notes that the verb in the English WAY construction must be 'capable of being construed as a process' (Jackendoff 1990: 213; see also discussion in section 2.1.1 above). In that sense, the verb is either inherently a process verb or a REPEATED bounded event, but not a single bounded event. He marks the process requirement as [−BOUNDED], but notes that this requirement does not explain all the data. Jackendoff leaves the details of the unboundedness constraint for future research, but speculates that there is a requirement specifying that the verb must express a process with some kind of internal structure.

The WAY construction itself denotes a motion Event (GO). The thing that moves is denoted by the possessor and the path is denoted by the PP. The construction has an Actor, but no Patient. The Actor is the thing that moves (as indicated by the α-indexation). The verb also has an Actor (identified with the Actor of the whole construction) and is unbounded.

The Swedish DMC differs from the English WAY construction in certain respects, as has already become clear. The formalization in (43) captures the characteristics of the Swedish construction.

(43) *The Swedish directed motion construction*
(a) $[_{VP}\ V_h\ NP_j\ PP_k]$
may correspond to

(b)
$$\begin{bmatrix} \text{GO}\ ([\alpha]_j, [_{Path}\ ]_k) \\ \text{AFF}\ ([\alpha]_i,\ ) \\ [\text{BY}\ [\text{AFF}_{+vol}\ ([\alpha],\ )]_h] \\ _{Event} \end{bmatrix}$$

Compare (43) to (41). The syntactic frame in (a) dictates what pieces must be present. The main function is GO, which represents motion. The verb corresponds to the subordinate BY function. Note that only one argument

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(Actor) is present in the AFF tier of the verb. This forces suppression of the patient argument, in case the verb is transitive when it is used outside this construction.

The construction in (43) is fairly similar to the representation of the WAY construction given in (41). The syntax is a bit different, of course, since there is no word 'way' in the Swedish DMC. I have chosen to represent the reflexive as a full NP. As was mentioned in the beginning of section 2.3, the reflexive undergoes Object Shift, and the exact syntactic status of shifted pronominals is controversial. The NP in (43) could easily be replaced by a plain N or Pro without any other consequences for the representation. Also, the subordinating function is marked only with BY, not with both WITH and BY as in the English WAY construction. This reflects the fact that the verb necessarily denotes the means of motion, it cannot denote only the manner. A third difference is the fact that the Action tier of the verb is marked [+vol(itional)]. The reason why the [+vol] feature is associated with the Action tier of the verb, and not the Action tier of the whole construction, was discussed in section 2.1.2 (see in particular example (7)). A fourth difference is that the verb is not specified as being [−BOUNDED]. It is interesting to note that the semantic differences all have to do with the subordinating means function, which is syntactically represented as a verb. The differences between the English WAY construction and the Swedish DMC thus all concern the constraints on what verb is allowed in the construction.

4.2 *The DMC as a lexical rule*

We saw in section 4.1 that a construction analysis can account for all the properties of the DMC listed in (40). However, do we really need to posit a construction in order to capture the data? A priori, an account which preserves compositionality might seem more attractive. This section investigates whether it is possible to formulate a compositional account.

Consider again a DMC sentence like (44).

(44) Flickan **armbågade sig** in i folksamlingen.
girl.the elbowed SIG into in crowd.the
'The girl elbowed her way into the crowd.'

The verb *armbåga* does not inherently denote directed motion, so where does this aspect of the meaning come from? Since the oblique denotes directionality, a hypothesis like (45) comes to mind.

(45) *Directional oblique hypothesis* (to be rejected)
If a PP denoting a path is added to a VP which does not inherently denote motion, the PP will add this component of the meaning.

But consider (46).

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(46) *Flickan **armbågade** in i folksamlingen.
girl.the elbowed in in crowd.the

The reflexive *sig* has been dropped in example (46) and the sentence is no longer grammatical. It is, therefore, not the case that the hypothesis in (45) alone accounts for the DMC pattern. Moreover, (45) cannot explain why the activity denoted by the verb is necessarily interpreted as being volitional.

In comparing (44) and (46) we saw that the presence of *sig* was crucial. In section 2.3.2 above, we also saw that *sig* is not a true semantic argument of the verb and it is, thus, unclear what its function in the sentence would be. Given these facts, it seems natural to posit a hypothesis such as (47).

(47) *Reflexive* sig *hypothesis* (to be rejected)
A reflexive object can be added to any verb to add the sense of directed motion.

This hypothesis also has some problems. First of all, it is intuitively odd that a reflexive should add the meaning directed motion. Second, hypothesis (47) does not explain why the oblique is obligatory:

(48) *Flickan **armbågade** **sig**.
girl.the elbowed SIG

In (48), the oblique has been dropped and the example is ungrammatical. Since regular motion verbs can normally be used without an oblique (if the direction or location is left unspecified), this fact is odd and does not square well with the hypothesis in (47). To complicate matters further, it would also be necessary to explain why the oblique is necessarily directional. Moreover, the hypothesis in (47) does not explain why the subject is necessarily volitional.

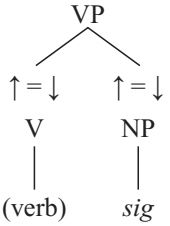
Neither (45) nor (47) accounts for all the relevant data. We cannot tie the meaning of the DMC to the reflexive or the oblique, since that would not explain why each part of the construction is obligatorily present. Let us instead try to capture the necessary generalizations with a lexical redundancy rule relating the base form of the verb to the DMC version of the same verb. The necessary machinery to do this will be provided by the formal framework of LFG (Bresnan 1982, 2001). It might be possible to account for the facts with some lexical mechanism other than a rule; in fact, lexical rules are no longer considered standard by many linguists working within LFG. However, since so many different facts are associated with the DMC, it is difficult to formalize a lexical account by referring solely to the Lexical Mapping Theory (LMT), for example, without any appeal to rules. I will, therefore, posit a lexical valence-changing rule.

In our rule, we could decide to treat the reflexive element as a piece of morphology, marking a DMC verb (similar to passive morphology, for example). Recall from section 2.3 that the reflexive cannot be a bound morpheme, since it is separable from the verb:

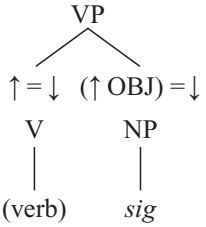
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(49) **Armbågade** hon **sig** in i mängden?
elbowed she SIG in in crowd.the
'Did she elbow her way into the crowd?'

In (49), which is a question, we see that the verb and *sig* are separated by the subject *hon*. The element *sig* is thus clearly not a bound morpheme of the verb. This does not make it impossible for *sig* to add information to the verb. In LFG terms, we could say that although *armbåga* and *sig* are separated at c(onstituent)-structure, they contribute information to the same f-structure (again, we could make use of alternative phrase structural representations of the reflexives – perhaps making use of non-projecting words as suggested by Toivonen 2001):

(50)


Alternatively, we could interpret *sig* as a c-structure and f-structure object, although it is not a thematic argument of the verb:

(51)


The lexical rule then affects the verb without changing the morphology; that is, *sig* is not seen as a mere marker of a new verb form. The solution in (51) is attractive since the reflexives seem to appear in the canonical direct object position, and they are also identical in form to the object forms of the pronouns. However, this solution leaves unexplained the general question of why the reflexives are present in the syntax at all, even though they are not thematic objects of the verbs. An explanation is offered by Levin & Rappaport Hovav's Argument-Per-Subevent (APS) condition (or Structure Participant Condition; Rappaport Hovav & Levin 1998, 1999, 2001; Levin & Rappaport Hovav 2000):

(52) *The Argument-Per-Subevent Condition* (RH&L 1999)
There must be at least one distinct argument XP expressed in the syntax per subevent in the event structure.

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According to (52), *sig* is present because a DMC sentence consists of two subevents (the motion event and the event denoted by the verb), each of which needs an overtly expressed argument. Since LFG allows arguments of the verbs to be expressed in ways other than full XPs (as bound morphemes of the verbs, for example), the formulation of the APS in (52) can be replaced with that in (53).

(53) *The Argument-Per-Subevent Condition* (modified version)
For each subevent (eventuality) in the event structure, there must be a [−r] argument in the a(rgument)-structure.

According to the LMT, a [−r(estricted)] argument is a core argument, that is, an argument which corresponds to a subject or an object (L. Levin 1986, Bresnan & Kanerva 1989, Alsina & Mchombo 1993, Bresnan & Zaenen 1990). The LMT dictates the following correspondence between a-structure and f(unctional)-structure:

Grammatical function	Features
SUBJ	[−r, −o]
OBJ	[−r, +o]
OBJ_θ	[+r, +o]
OBL_θ	[+r, −o]

Table 2
Lexical mapping

The a-structure feature [+o] stands for OBJECT.

The modified version of the APS in (53) is similar in spirit to the original in (52) in that it requires one participant per subevent. However, while (52) refers to c-structure constituents, (53) refers to a-structure arguments. This new formulation is more compatible with LFG, which divides the grammar into parallel structures, as seen in figure 1.

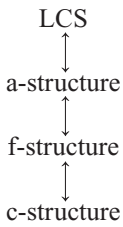


Figure 1
Levels of structure in LFG

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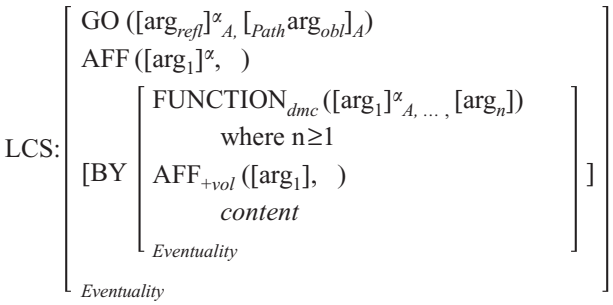
The condition in (53) is a condition on the correspondence mapping between the LCS (Lexical Conceptual Structure) and the a-structure. The LMT is a theory of the mapping between a-structure and f-structure. As mentioned above, [−r] arguments are either subjects or objects in the f-structure representation. The condition in (53) thus requires that each subevent needs a participant which is an f-structure subject or object. The mapping between c-structure and f-structure will then constrain the overt realization of subjects and objects.

The event structure will be characterized here in the LCS of the verb, which will be formalized with the notational tools developed in Jackendoff (1983, 1990). (Jackendoff's LCS representations have previously been incorporated into LFG by Butt 1995, Wilson 1999, Broadwell 2000, and others.) This notation was discussed above in connection with (41) and (43), but a few new symbols need to be introduced. A subscript 'A' on an argument ('conceptual constituent') in the thematic tier in the LCS means that the argument in question necessarily corresponds to an a-structure argument.[9] An 'A' in parentheses, '(A)', means that the argument is optionally realized. This is the way Jackendoff treats the verb *eat*, since this verb has a theme argument which is optionally realized syntactically (Jackendoff 1990: 253). Another thing to note is that in the rule below, I use FUNCTION as a cover term for any kind of thematic function.

The lexical rule is given here. Figure 2 represents the input (the base verb) and figure 3 is the output (the DMC version of the verb).

$$\text{LCS:}\begin{bmatrix}\text{FUNCTION}\,([\text{arg}_1]_A, \ldots, [\text{arg}_n]_{A\ or\ (A)}) \\ \quad \text{where } n \geq 1 \\ \text{AFF}\,(\ldots, \ldots) \\ \quad \textit{content}\end{bmatrix}$$

argument structure: '*verb* <arg_1 … arg_n>'
$\quad\quad\quad



argument structure: '*verb*$_{dmc}$ <arg$_1$ arg$_{obl}$ arg$_{refl}$>'
–o –o

Figure 3
DMC rule: output

a main participant in that way. The DMC rule takes as an input a verb of any argument structure, and the corresponding output has three arguments. In figure 3, arg$_1$ corresponds to the subject, arg$_{obl}$ corresponds to the directional oblique, and arg$_{refl}$ corresponds to the reflexive argument. The presence of the reflexive argument is forced by the APS: the LCS of figure 3 consists of two subevents (here labeled EVENTUALITY, to make clear that 'event' here is meant in a different sense than Jackendoff's event), the means event (where the means is understood as the activity denoted by the idiosyncratic meaning of the verb, the CONTENT) and the motion event. The directional oblique corresponds to the secondary predicate in the motion event, which is the superordinate event. According to the APS, this event needs a participant and, thus, the presence of arg$_{refl}$ is forced. The overt realization of the arguments then follows from the Lexical Mapping Theory of correspondence between a-structure and f-structure.

The [−o] feature on arg$_1$ is carried over from the input of the rule, since the two arguments are coindexed. The lexical DMC rule ensures that the arg$_{obl}$ is marked [−o] so that it will correspond to an oblique grammatical function, and not an OBJ$_{\theta}$ function. Arg$_1$ will be assigned [−r] by default, since it has the highest theta-role. The APS ensures that arg$_{refl}$ is also [−r]:

'*verb*$_{dmc}$ <arg$_1$ arg$_{obl}$ arg$_{refl}$>'
–o –o
–r –r

Figure 4
Argument structure of DMC verbs

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Since LMT allows at most two [−r] arguments, arg_{obl} is [+r]. Similarly, arg_{refl} gets the feature [+o] since LMT allows at most two [−o] arguments. Figure 5 displays the complete a-structure representation of the output of the DMC rule.

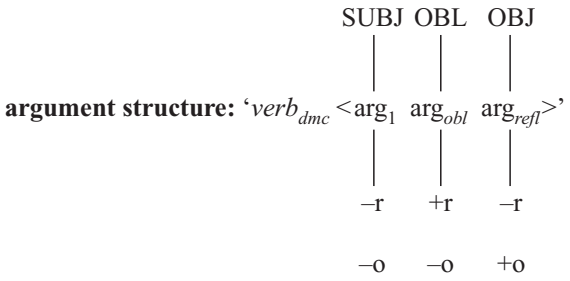


Figure 5
Complete argument structure of DMC verbs

Note that the only feature that needs to be specified by the lexical rule is the [−o] on arg_{obl}; the rest follows by the LMT and the APS.

Within the subordinate BY function, [arg_n] corresponds to the non-subject semantic arguments of the base verb. Since it is not marked with a subscript A, it does not correspond to an a-structure argument. This has the desired effect: in a sentence like *John sparkade sig in folksamlingen* 'John kicked his way into the crowd', for example, it is clear that John is kicking someone, but who he is kicking is left unexpressed.

Note that the constraints on the verbs are not specified in the input to the rule. An alternative to the lexical rule in figures 2–3 would be to constrain the input so that only verbs which are felicitous in DMC sentences could be inputs to the rule. My solution allows any verb to be inserted. However, since the output verb is restricted to a certain meaning, namely a means reading modifying a directed motion event, only verbs whose contents are appropriate in such a context will be allowed. There are several reasons why I have chosen the solution of figures 2–3. First, no matter what verb is inserted, the right interpretation is forced. This is true whether or not the sentence makes sense or sounds like a possible Swedish sentence. The examples in (54) serve as illustration.

(54) (a) Mannen **smorde** in **sig** med den här solkrämen.
man.the smeared in SIG with this sun.lotion.the
'The man put sunscreen on.'

(b) #Mannen **smorde** **sig** in med den här solkrämen.
man.the smeared SIG in with this sun.lotion.the
'The man smeared his way in(to something), using this sunscreen as a tool.'

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The sentence in (54a) is the idiomatic way of saying that someone put sunscreen on. Since the verb *smörja* and the noun *solkräm* are quite specific words, one might imagine that the normal interpretation (the one in (54a)) would be forced no matter what. However, with the DMC word order in (54b), the sentence has the bizarre interpretation that the man is entering something by means of smearing sunscreen lotion. A second reason for leaving the input unconstrained is the fact that there is plenty of speaker variation concerning the unclear cases. Making up a plausible context where a means interpretation makes sense often influences the intuitions. Third, DMCs with the wrong kind of verb are normally ruled out as semantically implausible, and not as ungrammatical. These factors have led me to adopt a rule whose input is fairly unspecified.[10]

4.3 *Discussion*

This section has presented two different formal approaches to the Swedish DMC. Both approaches manage to capture the data in a general enough way to generate all grammatical sentences, and yet they are both constrained enough to explain why some sentences are not felicitous. These are usually the criteria by which we can decide whether or not a formal analysis fulfills its function. In this section, I will discuss some conceptual and empirical differences between the two accounts.

The lexical rule analysis is compositional, whereas the constructional analysis is not. The lexical rule ties all the action to the verb and each part of the 'construction' can, therefore, be inserted into the syntax separately. The constructional approach instead allows for the COMBINATION of certain constituents to be associated with a specific meaning. In this way, the construction is similar to a phrasal idiom.

More importantly, the lexical rule (as stated here) can be seen as less stipulative than the construction. This is because the reflexive argument is not merely stipulated as necessarily present; instead, it is there as a consequence of the APS condition. However, the APS could be said to hold over constructions as well (although I am not aware of any such previous proposal).

[10] In this section, I have argued that a compositional account is possible, and I have made use of the formal tools provided by LFG in order to show this. However, I have not argued that a constructional account is in principle impossible within LFG. Constructional approaches are problematic within traditional LFG, since LFG adopts the principle of Lexical Integrity, formulated as follows in Bresnan (2001: 92): 'Morphologically complete words are leaves of the c-structure tree and each leaf corresponds to one and only one c-structure node.' A lexical construct is a 'word' of sorts, and should be inserted under a single c-structure node. Whether or not lexical integrity is problematic hinges on the interpretation of what a WORD is. For discussion of how to incorporate constructions within LFG, see e.g. Ackerman & Webelhuth 1998, Butt, King, Niño & Segond 1999, Webelhuth & Ackerman 2001, and also Andrews & Manning 1999.

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It is difficult to find empirical evidence which would rule in favor of one of the two analyses. One fact that seems relevant is that there are certain verbs which are never used outside the DMC. The verb *åla* is an example:[11]

(55) (a) … i skrynkliga kläder **ålade** jag **mig** ur baksätet.
in wrinkled clothes eeled I MIG out.of back.seat.the
'… in wrinkled clothes, I eeled my way out of the back seat.' (PAR)
(b) *Flickan ålade genom buskarna.
girl.the 'eeled' through bushes.the

The fact that there are verbs which are only used in the DMC seems to favor the construction analysis, since the DMC rule takes an existing verb as an input. However, this is not a crucial problem for the rule analysis, if we take the view that lexical redundancy rules are not relevant for the derivation of lexical entries, but rather for their evaluation (Jackendoff 1975). On this view, it is unsurprising that certain verbs (*åla*, for example) only exist in the DMC form. This is similar to the treatment of verbs which are only used in passive sentences and never in active sentences (*chagrined*, for example), or verbs like *kill*, which only exist in the causative.

There is another empirical fact that could be called upon as evidence, and this fact seems to favor the rule analysis over the construction analysis. Consider the examples in (56).

(56) (a) Alla har brått, stressar, **knuffas**.
everybody has hurry, rushes, pushes.DEPATIENTIVE
'Everybody is in a hurry, rushes, pushes.' (PAR)
(b) Nu när krubban är tom **bits** hästarna.
now when manger.the is empty bite.DEPATIENTIVE horses.the
'Now that the manger is empty, the horses bite.' (PAR)

The verb forms that end in an *-s* and are glossed as depatientive are (at least arguably) derived verb forms in Swedish. Adding an *-s* to a verb can turn it into a kind of passive, but the verbs in (56) are not passives; they are intransitive verbs derived from transitive verbs. I refer to them as depatientive here (see Lichtenberk 1994 for a cross-linguistic discussion of the depatientive function). In (56a), everybody clearly pushes somebody, but who they push is not mentioned in the sentence. Similarly, in (56b), it is understood that the horses bite, but who they bite is left unspecified.

Depatientive verbs cannot be inserted in the DMC:

(57) (a) Isbrytaren Ymer **knuffar sig** fram bland isflaken
icebreaker.the Y. pushes SIG forward among ice.floes.the
i Bottenviken.

[11] Some speakers can use it outside the DMC, apparently. For most of these speakers, *åla* can only be used to denote a particular swimming technique.

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in Bothnia.gulf.the
'The icebreaker Ymer pushes its way forward among the ice floes in the Gulf of Bothnia.' (PAR)

(b) *Isbrytaren Ymer **knuffas** **sig** fram bland
icebreaker.the Y. push.DEPATIENTIVE SIG forward among
isflaken i Bottenviken.
ice.floes.the in Bothnia.gulf.the

(c) *Isflaken blev **knuffade** **sig** fram i Bottenviken
ice.floes.the got pushed SIG forward in Bothnia.gulf.the
av isbrytaren Ymer.
by icebreaker.the Y.

In (57a), the verb *knuffa* is in its 'normal', indicative form, and the DMC sentence is grammatical. However, *knuffas* in (57b) is the depatientive form of the same verb, and the example is ungrammatical; it is not possible to use a depatientive verb form in a DMC. The ungrammatical example (57c) shows that periphrastic passives are also impossible in DMCs.

We can formulate a constraint against derived verb forms in the lexical rule by adding a constraint which only allows verb forms that have not already undergone any valence changing operation to be referred to as the 'input' in the lexical redundancy rule. This is formalized below with a subscript *underived* to the input of the DMC. The modified version of figure 2 is given in figure 6.[12]

$$\text{LCS:} \begin{bmatrix} \text{FUNCTION } ([\text{arg}_1]_A, \ldots, [\text{arg}_n]_{A \text{ or } (A)}) \\ \text{AFF } (\ldots, \ldots) \\ \quad \textit{content} \end{bmatrix}$$

argument structure: '$verb_{underived}$ <arg_1 … arg_n>'
$\quad\quad\quad

constructional analysis. We can add a constraint on the syntactic part of the construction (cf. (48) above) which prohibits derived forms:

(58) *The Swedish directed motion construction*
(a) $[_{VP}\ V_h^{underived}\ NP_j\ OBL_k]$
may correspond to

(b) $\left[\begin{array}{l} GO\ ([\alpha]_j, [_{Path}\ ]_k) \\ AFF\ ([\alpha]_i,\ ) \\ [BY\ [AFF_{+vol}\ ([\alpha],\ )]_h] \\ Event \end{array}\right]$

With the additional notation in (58), the construction captures the same facts as the rule.

I have been unable to find any other empirical facts that would bear upon the difference between the rule approach and the construction approach to the DMC. I conclude that it is possible to formalize the DMC both as a lexical rule and as a construction, and there is no empirical evidence which clearly favors one approach over the other.

5. Conclusion

This paper has argued for the existence of a construction in Swedish labelled the DIRECTED MOTION CONSTRUCTION. The DMC has the form SUBJECT–VERB–REFLEXIVE–OBLIQUE and is very similar to the WAY construction, which has sometimes been claimed to be nothing but a peculiar quirk of English. The existence of the DMC proves this claim incorrect.[13]

The DMC has several interesting characteristics, the foremost being that it is difficult to pin its meaning to any one of its individual parts. No particular word or morpheme is uniquely associated with the construction. This is a difference between the DMC and the English WAY construction, which is, of course, signalled by the morpheme *way*. The sense of directed motion seems to come from the combination of the parts: the subject, the verb, the reflexive (which is non-referential), and the oblique (which must be directional). Each element is obligatory, and the word order is fixed, even when the oblique is expressed as a verbal particle. Since the very COMBINATION of the parts of the DMC corresponds to its specific semantics, a constructional analysis seems appropriate. Within the theoretical framework of Construction Grammar, it has long been argued that a given syntactic frame is generally associated with a given semantics: no special morphological marker (such as *way*) is necessary. The question of whether the DMC actually forces a constructional analysis has been posed in this paper.

[13] Seland (2001) discusses a similar Norwegian construction.

https://doi.org/10.1017/S002222670200141X Published online by Cambridge University Press

Two different types of analysis have been explored above: a constructional approach and a compositional approach. The formal tools for the constructional analysis are borrowed from Jackendoff (1990), and the compositional formalization is developed within the framework of LFG, making use of a lexical rule. Formalizing the DMC in two separate ways provides the means to explicitly compare the two approaches, and it also shows that it is not trivial to capture all the intricate details of the data.

I have not been able to find any empirical evidence which can be appealed to in order to definitely rule out one of the two approaches. The aesthetic advantage of the lexical rule is that it preserves compositionality. However, the construction captures in a straightforward way the fact that the particular string of words which makes up the DMC (rather than the verb in particular) corresponds to the sense of directed motion. Two important facts should be considered here. The first one concerns the formalization of our lexical rule. In order to account for all the facts that were described in sections 1–3, we need a very elaborate rule. In fact, we have incorporated a construction within a rule. So, in a sense, the lexical rule given in figures 2–3 above can be seen as a construction with the added complexity of a lexical rule. The second important fact to consider is that even within the lexical rule approach, phrasal idioms (such as *take NP to the cleaners*) are likely to be treated as constructions. Once we allow constructions as possible lexical entities, I do not see any reason to favor compositional analyses of the DMC and WAY constructions over constructional ones.

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