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A synchronic perspective on the grammaticalization of Swedish Future constructions

Martin Hilpert

This paper is a corpus-based investigation of five Swedish constructions that are used to express futurity. The method of Collexeme Analysis (Stefanowitsch & Gries 2003) is applied to constructions with the auxiliaries *ska* 'will', *skall* 'shall', its past form *skulle* 'should', *komma* 'come', and *tänka* 'think'. All of these are future markers that have grammaticalized to varying degrees. The aim of this paper is to investigate semantic differences between constructions with these auxiliaries. By analyzing the main verbs that co-occur with a given auxiliary, it can be statistically assessed what verbs are significantly attracted to the construction. It thus becomes possible to analyze the constructional semantics in terms of co-occurring lexical material. Conversely, it is also insightful to consider what verbs occur significantly less often than expected with a given auxiliary. These procedures allow a fine-grained semantic description in both positive and negative terms.

Keywords Collexeme Analysis, collostructional analysis, future tense, grammaticalization, modality, Stockholm–Umeå Corpus, Swedish

Martin Hilpert, Rice University, 6100 Main Street, PO Box 1892, Houston, TX 77005-1892, USA.
E-mail: hilpert@rice.edu

1. INTRODUCTION

This paper is a corpus-based investigation of Swedish constructions that are used to express futurity. In her monograph on Swedish future constructions, Christensen (1997:9) characterizes her approach as purely theoretical, but suggests that an empirical study would be useful. The present study is intended to fulfil this function.

It is common for a language to have several grammaticalized future constructions (Bybee, Perkins & Pagliuca 1994:243). Swedish is no exception to this tendency. There is no morphological future construction, but futurity can be expressed periphrastically by means of the present tense in conjunction with a time adverbial, as well as with a range of auxiliaries, such as *ska* 'shall', *komma* 'come', and *tänka* 'think'. All examples used in this paper, unless marked otherwise, are taken from the Stockholm–Umeå Corpus, which will be described briefly below.

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(1) SAF:s och PTK:s förhandlingar fortsätter i nästa vecka.
SAF.GEN and PTK.GEN negotiations continue in next week
'SAF and PTK will continue to negotiate next week.'

(2) Om några minuter ska han åka iväg.
in some minutes will he drive away
'He will drive away in a couple of minutes.'

(3) Blomberg kommer att inviga museet.
Blomberg comes to inaugurate museum.the
'Blomberg will inaugurate the museum.'

(4) Men först tänker vi bjuda er på middag!
but first think we invite you for dinner
'But first we are going to invite you for dinner.'

A steady source of controversy in the literature on tense has been the question of whether a given form actually instantiates the category future tense (Comrie 1989:51). Usually, a construction expressing futurity has a number of other uses also. To illustrate this, a possible alternative reading of example (2) would be 'He has to drive away in a few minutes', which expresses obligation. In example (4), the meaning of futurity is coupled with a strong sense of intention on the part of the subject. The fact that a given language does not have a grammatical form with the sole function of future time reference could lead the researcher to conclude that the language has no future tense (see e.g. Fleischman 1982). Linguists with a wider definition of future tense tend to arrive at the opposite conclusion, namely that there are several expressions of future tense (e.g. Bybee et al. 1994).

To avoid this controversy, the present analysis does not aim at a full explanation of the grammatical category of future tense in Swedish. Instead, it will explore the meaning and use of five Swedish constructions which express, among other things, futurity. The constructions investigated consist of a future-marking auxiliary in conjunction with a main verb. The auxiliaries in question are *ska* 'will', *skall* 'shall', its past form *skulle* 'should', *komma* 'come', and *tänka* 'think'. It is clear that these do not constitute an exhaustive list of future expressions in Swedish. The future markers *ska* and *komma* have been chosen because they are generally viewed as the most common future constructions in Swedish (Teleman, Hellberg & Andersson 1999). The forms *skall* and *skulle* have been included because they are closely related to *ska*, but show different distributions, suggesting that they serve different grammatical functions. The marker *tänka* has been included as an emerging construction that is in an early stage of grammaticalization.

This paper takes the viewpoints of CONSTRUCTION GRAMMAR (Goldberg 1995) and GRAMMATICALIZATION THEORY (Hopper & Traugott 1993). Within these frameworks, constructions are understood as symbolic units that can have several conceptually interrelated functions. The present study uses the recent corpus linguistic methodology of COLLEXEME ANALYSIS (Stefanowitsch & Gries 2003).

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Collexeme Analysis measures the strength of association between lexical items and grammatical constructions, thus allowing a fine-grained semantic description of such constructions. The corpus used is the Stockholm–Umeå Corpus (SUC), which is a one-million-word corpus compiled by analogy to the English Brown Corpus (Francis & Kucera 1964).

The aim of this paper is to investigate semantic differences among the Swedish future constructions. It has been argued on theoretical grounds that syntactic constructions, such as the English ditransitive construction, are meaningful in themselves (Goldberg 1995). Through a Collexeme Analysis, this claim can be empirically refined. By examining the lexical items that occur within a given grammatical construction, it can be shown that some of these occur with much greater frequency than a random distribution would predict. On the basis of these statistical preferences, it is possible to investigate empirically the meaning of a given construction.

This paper uses the infinitive complements that occur within Swedish future constructions as a basis for a semantic description of these constructions. Hopper & Traugott (1993) observe that grammaticalized auxiliaries still carry some of their original meaning, a phenomenon which Hopper (1991:22) calls PERSISTENCE. Persistence of lexical meaning can be observed in the Swedish future constructions, since these encode a range of different meanings. Besides futurity, these constructions frequently express obligation, volition, intention, or epistemic modality. While the multifunctionality of auxiliaries is a phenomenon that often evades objective description, co-occurring main verbs provide empirical evidence to flesh out the claim made by Hopper & Traugott (1993). If an auxiliary has grammaticalized out of a verb of obligation, we expect it to co-occur with some main verbs that semantically relate to this lexical source, even in present-day usage.

2. METHODOLOGY

Collexeme Analysis (Stefanowitsch & Gries 2003) is a corpus-driven analysis of collocations (Sinclair 1991; Stubbs 1995; Hunston & Francis 2000), but assumes that grammatical constructions are the fundamental units of language (Fillmore, Kay & O'Connor 1988; Goldberg 1995), which is an assumption that is not shared by all corpus linguists.

The starting point of a Collexeme Analysis is the exhaustive extraction of all tokens of some grammatical construction from a corpus, such as Swedish *ska* with an infinitive complement. The auxiliary *ska* in conjunction with a main verb qualifies as a CONSTRUCTION in the technical sense of Goldberg (1995:4), because the meaning of the entire string is not fully predictable from the meanings of its parts. While Goldberg (1995) aims to characterize the meaning of constructions largely independently of the

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	vara	Verbs	TOTALS
ska	108	1,353	1,461
Other constructions	23,986	149,807	173,793
TOTALS	24,094	151,160	175,254

Table 1. Crosstabulation of *ska* and *vara*.

actual verbs that occur in them, the present study uses collocating verbs to analyze the meaning of a given construction.

With an exhaustive concordance of a construction, it can be determined what verbs occur most frequently in that construction. The raw frequencies of the verbs may already give a rough impression of the constructional semantics. However, a second step is necessary to establish whether a verb is actually attracted to a given construction. The overall corpus frequency of any given verb needs to be taken into account to calculate its expected frequency inside the construction investigated. As some verbs are highly frequent even in other constructions, these verbs will be less typical of the construction than some other verbs that are relatively less frequent, but more restricted in their dispersion.

To calculate the expected frequencies of the verbs in the future constructions investigated, all of their forms have been extracted from the Stockholm–Umeå Corpus. The observed frequencies of all verbs in the SUC and all verbs in the construction concordances can be interpreted through a statistical test of association strength, such as the FISHER EXACT TEST. Table 1 exemplifies the crosstabulation necessary for such a test with the main verb *vara* 'be' in the construction with *ska*.

To provide the statistical test with the necessary information, all cells in the crosstable need to be filled with the respective token figures. Four pieces of information are essential. The first is the number of instances of the string *ska vara*. A corpus search yields 108 tokens. In addition, we need to know how many instances of *ska* and *vara* respectively there are in the corpus. In the SUC there are 1,461 tokens of *ska*, and 24,094 instances of *vara*. The fourth piece of information is the total number of verbs in the corpus. The SUC as a whole contains 175,255 verb tokens, so that there are 175,254 sequences of two verbs, allowing for intervening elements. All this information accounts for the four figures in the outer corners of Table 1; the remaining five figures can be arrived at by subtraction.

To calculate the mutual attraction of *ska* and *vara*, the framed four inner fields of Table 1 are submitted to the Fisher Exact Test. This test is chosen for the matter in hand for three reasons. First, it does not make the assumption of a normal, bell-shaped distribution. That has been identified as a shortcoming of tests such as CHI-SQUARE, as elements in natural language data tend not to be normally distributed (Manning & Schütze 2000:175). Second, since it is an exact test, different p-values can be

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interpreted as different effect sizes, such that a ranked list of attracted elements can be produced. By contrast, the p-values of a chi-square test cannot be used for such rankings. Lastly, the test can operate on very small sample sizes, which would disallow the use of a chi-square test. When dealing with verbs in a given construction, frequencies below five are often encountered.

The methodology produces a list of verbs for each construction that are ordered according to their attraction to the construction. It thereby identifies not only those verbs that are most typical of a construction, but also verbs that are a-typical of that construction. Taking into account both attracted and repelled verbs, the investigated constructions can be characterized in both positive and negative terms. It is of course possible to take these lists as input for more sophisticated statistical processing such as, for example, cluster analysis (Gries & Wulff 2005). This paper aims at a qualitative description of the Swedish future constructions which is informed by the results of a Collexeme Analysis.

A necessary caveat concerns the nature of the corpus, which represents only written genres. It is well known that there are substantial differences between spoken and written language, such that the results presented in this paper can only be preliminary. As soon as tagged corpora of spoken Swedish of a sufficient size become available, it will be possible to investigate the usage of these constructions in speech.

3. SWEDISH FUTURE CONSTRUCTIONS

In this section, the methodology outlined in the last section is applied to five Swedish constructions. Bybee & Pagliuca (1987) identify the concepts 'desire', 'obligation', and 'movement' as the most common lexical sources of future markers. Two of these sources are found in the constructions investigated.

The common modal *ska* 'will' is a shortened form of *skall* 'shall'. Both forms derive from a common etymological source, from which also the English modal *shall* derives. Also the preterit-present modal *skulle* 'should' derives from this source. The three forms will be shown to differ substantially in their attraction of verbs, which is taken to reflect semantic and pragmatic differences in present-day usage. The form *skall* is usually viewed as belonging to an elevated register which is used in written Swedish, while *ska* is associated with conversational register. One distinctive function of the form *skulle* is used to refer to future events from a vantage point that lies in the past (Christensen 1997). The future auxiliary *komma* derives from the motion verb *komma* 'come'. The auxiliary *tänka* 'think' still retains many traits of its lexical source. Table 2 illustrates the token frequencies of the different constructions. Expressions with *skulle* constitute the most frequent type. Expressions with *ska* and *skall* are somewhat more frequent than *komma*, and expressions with *tänka* are much less frequent than all of the others.

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Auxiliary	*ska*	*skall*	*skulle*	*komma*	*tänka*
Tokens	1,461	1,324	2,332	953	105

Table 2. Token frequencies of the investigated constructions.

The following sections discuss each construction in detail, address previous work, and go through the steps of the Collexeme Analysis.

3.1 ska

Christensen (1997:170) characterizes *ska* as a polysemous verb which can express obligation, intention, futurity, and epistemic modality. These meanings are illustrated in the following examples from the SUC.

(5) Att patienten gett tillstånd ska antecknas i journalen.
that patient.the gave permission shall note.PASS in journal.the
'It must be noted in the journal that the patient gave permission.'

(6) Vad ska du göra i Berlin då?
what want you do in Berlin then
'So what are you going to do in Berlin?'

(7) Om några minuter ska han åka iväg.
in some minutes will he drive away
'He will drive away in a couple of minutes.'

(8) Tony Blair ska ha gjort sin frus bästa vän, Carole Caplin, med barn.
Tony Blair shall have done his wife's best friend Carole Caplin pregnant
'Tony Blair is said to have gotten his wife's best friend, Carole Caplin, pregnant.'

The notions of futurity, intention, and obligation are closely interrelated by CONCEPTUAL METONYMY. World knowledge tells us that intentions and obligations may eventually lead to future actions. Panther & Thornburg (2003) point out the OBLIGATION TO ACT FOR ACTION metonymy in examples like (9), which overtly expresses only an obligation, but which implies that the obligation actually led to an action.

(9) General Motors had to stop production. (Panther & Thornburg 2003:4)

Similarly, the OBLIGATION TO ACT FOR ACTION metonymy may, over time, have lead to the grammaticalization of Swedish *ska* into a future modal. In present-day usage, we find examples like (5), which mainly encode futurity, but also imply obligation.

Epistemic modality, as in example (8), is not a source of future meaning, but a development out of future meaning (Bybee, Pagliuca & Perkins 1991:26). As future events are uncertain by nature, the semantic shift from future to probability occurs naturally in a wide variety of languages. For obligation-based lexical sources, Bybee

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Swedish	Gloss	Tokens	Percentage	Swedish	Gloss	Tokens	Percentage
vara	be	108	7.39%	komma	come	20	1.37%
kunna	could	87	5.95%	ske	happen	19	1.30%
ha	have	66	4.52%	ge	give	16	1.10%
få	get	58	3.97%	finnas	exist	15	1.03%
bli	become	56	3.83%	försöka	try	14	0.96%
göra	do	49	3.35%	använda	use	13	0.89%
gå	go	37	2.53%	betala	pay	12	0.82%
ta	take	35	2.40%	stå	stand	12	0.82%
se	see	32	2.19%	behöva	need	11	0.75%
säga	say	21	1.44%	gälla	concern	10	0.68%

Table 3. Raw frequencies of verbs in the *ska V* construction.

Swedish	Gloss	p	Swedish	Gloss	p
bli	become	0.000000	åka	drive	0.000655
ske	happen	0.000000	gå	go	0.000780
göra	do	0.000001	kunna	could	0.000945
spara	save	0.000003	få	get	0.002219
betala	pay	0.000008	klara	cope	0.002333
gifta	marry	0.000015	ta	take	0.003456
försöka	try	0.000199	presentera	present	0.004402
hjälpa	help	0.000634	sluta	stop	0.009377

Table 4. Attracted collexemes of the *ska V* construction.

et al. suggest a cline of semantic development with four stages, which is shown in (10). As examples (5)–(8) show, all of these meaning components are present in actual usage.

(10) OBLIGATION > INTENTION > FUTURE > PROBABILITY (Bybee et al. 1991:32)

There are 1,461 examples of *ska* followed by another verb in the corpus. Table 3 shows the raw frequencies of the twenty most frequent verbs in this construction.

While Table 3 presents the verbs that speakers are most likely to read or write in the construction with *ska*, it does not indicate whether these verbs are particularly attracted to the construction. Table 4 lists the verbs that are significantly attracted to *ska*. The smaller the listed p-value of a given verb, the stronger its attraction. The table includes all verbs with a value of $p < 0.01$.

A comparison of Table 3 and Table 4 shows that the highly frequent verbs *vara* 'be', and *ha* 'have' occur in fact less often in the construction than expected, given their overall frequency. The three verbs that are most distinctive for the *ska*

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bli 'become'		*ske* 'happen'		*göra* 'do'	
animate	inanimate	animate	inanimate	animate	inanimate
9	47	0	19	40	9
16%	84%	0%	100%	82%	18%

Table 5. Animate subjects in examples with *bli*, *ska*, and *göra*.

V construction are *bli* 'become', *ske* 'happen' and *göra* 'do', general verbs that are unspecific with regard to the event that is denoted. Unlike *göra*, the verbs *bli* and *ske* strongly prefer inanimate subjects, thus ruling out the interpretations of intention and obligation in favor of a future interpretation. Table 5 compares animacy of subject referents across these verbs.

The fact that the two most distinctive verbs exclusively encode futurity suggests that the *ska V* construction is first and foremost a future marker, despite its pervasive polysemy. This contradicts the claim that the meaning of *ska* is always modal and that future meaning is a secondary phenomenon (Törnudd-Jalovaara 1991:527). Although it is the case that many examples have modal overtones, these results strongly suggest that future usage is not a marginal phenomenon. However, the third verb on the list, *göra* 'do', favors animate subjects and thus gives rise to interpretations in the way of intention and obligation. Of the remaining verbs, *spara* 'save', *betala* 'pay' and *hjälpa* 'help' are strongly linked to the notion of obligation. Example (11) shows a typical usage.

(11) På något sätt ska de betala för vad de har gjort.
on some way must they pay for what they have done
'In some way they will have to pay for what they have done.'

In the construction with *ska*, the meaning of intention is arguably weaker than the meaning of obligation, but it is still well-represented in the attracted collexemes. All the examples with *gifta* 'marry' express the intention to get married. Likewise, the examples with *försöka* 'try' always convey an intention, as illustrated in example (12). The fact that intention is often expressed in examples such as (12), taken from a ficticious dialogue from a novel, suggests that the association of *ska* with the meaning of intention might be even stronger in spoken Swedish than in the written variant.

(12) Okej, jag ska försöka ordna det på onsdag.
OK I will try fix that on Wednesday
'Alright, I will try to fix that on Wednesday.'

The general, highly frequent verbs *vara* 'be' and *ha* 'have' do occur in the *ska V* construction, albeit significantly less often than expected on the basis of their overall frequency. The stative meaning of these verbs forms a less than perfect match

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with the constructional semantics, which shows a preference for dynamic events. This mismatch is, however, not strong enough to result in unidiomaticity or even ungrammaticality.

3.2 *skall*

The close relation of *skall* and *ska* has motivated the proposal that the difference between the two is a matter of style and register (Christensen 1997:34). While the divergence of *ska* and *skall* is likely to have started as a purely stylistic difference, the fact that different types of verbs are conventionally associated with each form suggests that these pragmatic issues have developed into semantic differences. It is therefore warranted to treat *ska* and *skall* as distinct auxiliaries. Like its shortened counterpart *ska*, *skall* expresses futurity, intention, and, to an even stronger degree, obligation, as illustrated in following examples.

(13) Deng Xiaoping skall dö.
Deng Xiaoping shall die
'Deng Xiaoping shall die.'

(14) Skall vi åka, Kommissarien?
shall we drive detective.the
'Shall we drive, detective?'

(15) Vi skall inte blint acceptera en filosofisk eller religiös tradition.
we shall not blindly accept a philosophical or religious tradition
'We shall not blindly accept a philosophical or religious tradition.'

As in the examples with *ska*, it often cannot be unambiguously decided whether the primary meaning of an example in question is futurity, intention, or obligation. There are 1,324 examples of *skall* followed by another verb in the corpus. Table 6 shows the raw frequencies of the twenty most frequent verbs in this construction.

Swedish	Gloss	Tokens	Percentage	Swedish	Gloss	Tokens	Percentage
vara	be	98	7.40%	bli	become	19	1.44%
kunna	could	82	6.19%	se	see	19	1.44%
ha	have	50	3.78%	betala	pay	18	1.36%
få	get	39	2.95%	tillämpa	apply	16	1.21%
anse	consider	31	2.34%	gå	go	15	1.13%
ta	take	26	1.96%	göra	do	15	1.13%
ske	happen	24	1.81%	komma	come	14	1.06%
finnas	exist	21	1.59%	anmäla	report	12	0.91%
ge	give	20	1.51%	pröva	prove	12	0.91%
lämna	leave	20	1.51%	använda	use	11	0.83%

Table 6. Raw frequencies of verbs in the *skall V* construction.

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Swedish	Gloss	p	Swedish	Gloss	p
anse	consider	0.000000	vidta	begin	0.000004
ske	happen	0.000000	ordna	organize	0.000009
lämna	leave	0.000000	meddela	communicate	0.000033
betala	pay	0.000000	fördela	divide	0.000057
tillämpa	apply	0.000000	besluta	decide	0.000094
anmäla	report	0.000000	föra	lead	0.000397
pröva	examine	0.000000	avgöra	decide	0.001682
upphöra	stop	0.000000	behandla	deal with	0.001862
belasta	charge	0.000000	innehålla	contain	0.002246
gravsätta	bury	0.000000	bestämma	decide	0.003678
underrätta	inform	0.000000	ange	declare	0.005807
beakta	consider	0.000000	hjälpa	help	0.007369
avlämna	deliver	0.000000	ge	give	0.007448
avvisa	reject	0.000004	fungera	function	0.009213

Table 7. Attracted collexemes of the *skall V* construction.

Again, these figures have to be compared against the overall frequencies of the verbs to determine the mutual attraction. Table 7 lists the verbs that occur in the *skall V* construction significantly more often than elsewhere (Fisher Exact, $p < 0.01$). Taking corpus frequencies into account reveals that the three most frequent verbs *vara* 'be', *ha* 'have', and *kunna* 'could', are in fact actively repelled by the construction. The most distinctive verb of the *skall V* construction is the mental verb *anse* 'consider'. The examples with *anse* all constitute legal definitions from legal and commercial texts. Like (16), all examples are in the passive voice.

(16) I vilka fall en verksamhet skall anses som yrkesmässig
in what case an activity shall consider.PASS as professional
anges i kap. 4.
declare.PASS in ch. 4
'In what case an activity is considered professional is discussed in chapter 4.'

While this usage appears very specific and not prototypical, it is highly distinctive for the *skall V* construction. Additional evidence comes from examples with the synonym *beakta* 'consider', which show similar characteristics. The Collexeme Analysis thus corroborates conclusions of previous accounts (Ewerth 1996; Christensen 1997) that speakers associate the construction with a formal register, in this case a legal setting. However, beyond this conclusion the analysis shows that this association is not only pragmatic, but has become conventionalized. This conventionalization is evidenced by the semantic interrelations of verbs that are attracted to *skall*, which are discussed below.

The second verb on the list is *ske* 'happen'. As in *ska V*, this verb tends not to occur with animate subjects. But whereas *ska* with inanimate subjects mainly codes

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futurity, *skall* usually expresses obligation on the part of some unexpressed agent, as in (17).

(17) Betalning skall ske före månadens slut.
payment shall happen before month.GEN end
'Payments must be made before the end of the month.'

The third verb is *lämna* 'leave'. Eighteen out of nineteen examples in the data display ditransitive usage. These examples are semantically very similar, coding the obligatory exchange of information. In example (18), a report must be sent from one institution to another. In the same vein, *anmäla* 'report', *underrätta* 'inform', *meddela* 'communicate', and *ange* 'declare' code communication in a formal setting.

(18) Före den första december skall fonden lämna
before the first December shall foundation.the leave
en årsredovisning till regeringen.
a year report to government.the
'The foundation shall deliver a yearly report to the government before December 1st.'

As in *ska V*, we find *betala* 'pay' being attracted to the construction. A verb from the same semantic field is *belasta* 'charge'. Both verbs express the obligation of some financial transaction in the *skall V* construction. The verb *tillämpa* 'apply' also evokes a legal register when used in this construction.

3.3 skulle

The verb *skulle* 'should', like English 'should', is the preterit-present counterpart to the previously mentioned forms. As in English, meaning and use of past tense modals are very different from modals in the present tense, which motivates a treatment of *skulle* in its own right. Bybee (1995:503) distinguishes HYPOTHETICAL, PRESENT TENSE and PAST TENSE uses of past tense modals. These types are illustrated in examples (19)–(21).

(19) If you'd help me, we should be done in an hour. (hypothetical)
(20) You should walk round the ramparts of the old city too. (present tense)
(21) 'I just cannot remember a time when I couldn't swim,' she told me. (past tense)

All these types are found in Swedish also, but there are several distributional differences. For example, past tense usage of English *should* is impossible unless accompanied by *have*. *I should go*, although formally past tense, never means 'I was obliged to go'. By contrast, Swedish *skulle* is frequently used to express obligation in the past (Christensen 1997:178).

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Swedish	Gloss	Tokens	Percentage	Swedish	Gloss	Tokens	Percentage
kunna	could	245	10.51%	säga	say	30	1.29%
vara	be	198	8.49%	behöva	need	29	1.24%
ha	have	191	8.19%	se	see	26	1.11%
bli	become	130	5.57%	ge	give	24	1.03%
få	get	99	4.25%	klara	cope	21	0.90%
komma	come	55	2.36%	innebära	imply	16	0.69%
gå	go	53	2.27%	leda	lead	16	0.69%
göra	do	50	2.14%	visa	show	16	0.69%
vilja	want	42	1.80%	dröja	delay	11	0.47%
ta	take	41	1.76%	tro	believe	11	0.47%

Table 8. Raw frequencies of verbs in the *skulle V* construction.

Swedish	Gloss	p	Swedish	Gloss	p
kunna	could	0.000000	leda	lead	0.000119
bli	become	0.000000	dö	die	0.000348
klara	cope	0.000000	gå	go	0.001000
dröja	delay	0.000000	tvinga	force	0.002056
behöva	need	0.000000	åka	drive	0.002385
få	get	0.000004	sluta	stop	0.002412
gifta	marry	0.000021	träffa	meet	0.003034
vilja	want	0.000034	innebära	imply	0.005006

Table 9. Attracted collexemes of the *skulle V* construction.

Like *ska* and *skall*, *skulle* codes (past) futurity, intention, and obligation. In addition, it is used epistemically to encode the possibility of an event. Again, the conceptual link from futurity to possibility is metonymically motivated. When reasoning about the future, people are considering different possible scenarios which may evolve from a present situation.

There are 2,332 examples of *skulle* followed by another verb in the corpus, making it the most frequent construction under investigation. Table 8 shows the raw frequencies of the twenty most frequent verbs in this construction.

Comparing these figures against overall verb frequencies in the SUC, Table 9 lists those verbs that occur in the *skulle V* construction significantly more often than elsewhere (Fisher Exact, $p < 0.01$). Unlike in the cases of *ska* and *skall*, the most frequent verb in the construction *skulle V* is also the most distinctive verb, namely the modal *kunna* 'could'. Such modal stacking occurs not only with *kunna*, but also with *behöva* 'need', *vilja* 'want', and *sluta* 'stop. The frequent verbs *vara* 'be', *ha* 'have', and *komma* 'come' are not significantly attracted to the construction.

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Examples with *kunna* encode the possibility of some event.

(22) Det innebär i korthet att 1 + 1 skulle kunna bli 3.
this implies in brevity that 1 + 1 should could become 3
'This means in brief that one plus one could equal three.'

In many examples with *bli* 'become', the modal is used epistemically, so that the overall meaning is that something is possible and even likely to happen in the future.

(23) Men det skulle ju bli bättre på alla sätt och vis.
but that should well become better on all ways and styles
'But that was bound to improve in all respects.'

The third verb is *klara* 'cope (with something)'. The examples with this verb are primarily about possible events. Speakers reason about events which may or may not take place in the future. The aspect of futurity is thus present, but less relevant than the epistemic stance that the speakers take to the envisaged events.

(24) Hur skulle jag klara en förlust i första matchen?
how should I cope with a loss in first match.the
'How would I be able to cope with a loss in the first match?'

The fourth verb, *dröja* 'delay', expresses perfect futurity in the *skulle V* construction. The events described are in the past, but the deictic center assumes a position that is even further in the past. This function of *skulle* has been widely discussed (Dahl 1985:107; Törnudd-Jalovaara 1991:491; Christensen 1997:43), but it needs to be pointed out that it is not the primary function of the modal, since examples such as (25) are restricted to narratives in which the speaker assumes the role of an omniscient narrator. As such, this function is very unlikely to occur in spontaneous discourse.

(25) Det skulle dröja innan vi fick höra att han skulle gifta sig.
it should delay before we got hear that he should marry
'We would not hear that he was getting married until much later.'

The verb *behöva* 'need' forms a group with *vilja* 'want'. Here the deictic distance which is inherent in the preterit-present *skulle* is used modally to render a speech act less direct, and hence more polite. The same strategy is applied in the English expressions *I should like to* or *I wanted to*, where past forms are used for polite indirect speech acts.

(26) Hejsan Nisse, jag skulle behöva låna en halv miljon.
hi Nisse I should need borrow a half million
'Hi Nisse, could I borrow half a million from you?'

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(27) Vi skulle vilja be om en liten tjänst.
we should want ask for a small service
'We would like to ask you for a small service.'

Much like the examples with *kunna* and *klara*, examples with the verb *få* 'get' refer to possible events in the future, thus adding to the group of verbs that display mainly epistemic usages of *skulle*.

(28) Han undrade vilket straff han skulle få.
he wondered what punishment he should get
'He wondered how he would be punished.'

The *skulle V* construction repels the verbs *vara* 'be' and *finnas* 'exist'. These verbs are semantically close, describing a stative, ontological state. This meaning forms a mismatch with the constructional semantics of *skulle V*, as the modal overtone of the construction are epistemic. Most examples express the mere possibility of event, not its factuality.

3.4 komma

The auxiliary *komma* 'come' is regarded as the most fully grammaticalized future marker in Swedish grammar, although the first attested examples are no older than the 17th century (Dahl 2000:320). Consider example (29) from 1636, which is mentioned by Christensen (1997:48).

(29) Hvadh skeppen medh behörlig stycken … och ammunition kommer
what ships.the with equipment and ammunition comes
till att kosta …
to INF cost
'What the ships with equipment and ammunition will cost …'

The meaning of the lexical source has been bleached out thoroughly, so that *komma att V* future in present-day Swedish primarily codes prediction (Christensen 1997:190). Despite the high level of grammaticalization, Christensen (1997:45) finds that the *komma att V* construction is less frequent than *ska* or futurate uses of the present tense. The figures from the corpus data for *ska* and *komma att* corroborate this (cf. Table 1).

The English *be going to* future is a similar example of a motion verb grammaticalizing into a future marker, but the deictic center is reversed in the two constructions. Whereas the English construction is egocentric, the deictic center of Swedish *komma att V* future is on the event that is going to happen. Another difference between *be going to* and *komma att V* is the fact that early uses of *be going to* required intention on the part of the subject (Bybee & Pagliuca 1987). For Swedish *komma att*, Christensen (1997:17) notes that there are early examples such as (29) that do not encode intentionality. Dahl compares several European futures with verbs of coming

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Swedish	Gloss	Tokens	Percentage	Swedish	Gloss	Tokens	Percentage
bli	become	59	6.19%	ge	give	13	1.36%
få	get	43	4.51%	öka	increase	12	1.26%
kunna	could	33	3.46%	ske	happen	12	1.26%
vara	be	29	3.04%	tänka	think	12	1.26%
se	see	19	1.99%	finnas	exist	10	1.05%
göra	do	17	1.78%	behöva	need	9	0.94%
påverka	influence	17	1.78%	kalla	call	9	0.94%
ta	take	17	1.78%	spela	play	9	0.94%
gå	go	15	1.57%	innebära	imply	8	0.84%
ha	have	14	1.47%	stå	stand	8	0.84%

Table 10. Raw frequencies of verbs in the *komma att V* construction.

Swedish	Gloss	p	Swedish	Gloss	p
bli	become	0.000000	kalla	call	0.000804
påverka	influence	0.000000	klara	cope	0.000970
öka	increase	0.000008	diskutera	discuss	0.001728
dominera	dominate	0.000020	omfatta	contain	0.001827
förändra	change	0.000025	skilja	differ	0.002510
ske	happen	0.000052	tänka	think	0.004715
spela	play	0.000220	glömma	forget	0.005444
överleva	survive	0.000273	bilda	form	0.005885
äga rum	happen	0.000415	ställa	put	0.008851
få	get	0.000710	ingå	enter	0.010884

Table 11. Attracted collexemes of the *komma att V* construction.

and finds that none of these involve the notion of intentionality (Dahl 2000:321). This poses a problem for a claim made in Bybee et al. (1994:270), namely that 'all modal and movement future sources begin with human agents and move from the expression of the intentions of that agent to the expression of prediction'. Even in example (29), which is a very early example, the subject is inanimate.

The *komma att V* construction implies neither intention nor obligation on the part of the subject; nor is there an epistemic reading. The absence of the implicature of obligation can be explained through the fact that the meaning of the lexical source verb *komma* is about self-propelled motion towards some goal. The action of coming does not presuppose a physical or social force that obliges the agent to act.

There are 953 examples of *komma att V* in the corpus. Table 10 lists the twenty most frequent verbs and Table 11 lists the significantly attracted verbs (Fisher Exact, $p < 0.01$). Again, the most frequent verb, *bli* 'become', is also the most distinctive verb. As pointed out before, *bli* disprefers animate subjects. This tendency holds for the six most distinctive verbs of the *komma att V* construction. Table 12 illustrates the frequency of animate and inanimate subjects with these verbs.

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bli 'become'		*påverka* 'influence'		*öka* 'increase'	
animate	inanimate	animate	inanimate	animate	inanimate
11	52	0	17	0	12
17.46%	82.54%	0.00%	100.00%	0.00%	100.00%
dominera 'dominate'		*förändra* 'change'		*ske* 'happen'	
animate	inanimate	animate	inanimate	animate	inanimate
2	4	0	5	0	12
33.33%	66.67%	0.00%	100.00%	0.00%	100.00%

Table 12. Animate subjects in examples with distinctive verbs.

Along with the preference of inanimate subjects, we observe semantic similarities between these and other verbs in Table 11. A first group clusters around the verb *ske* 'happen'. The verbs *bli* 'become', *ske* 'happen', *äga rum* 'happen', and *hända* 'happen' form a group of general verbs denoting some event. All of these favor inanimate subjects. Example (30) illustrates this group.

(30) All försäljning kommer därför att ske via bolaget i Tyskland.
all sale come therefore to happen via company.the in Germany
'All sales will be handled by the company in Germany.'

A second group codes 'change'. The verbs *påverka* 'influence', *öka* 'increase', and *förändra* 'change' likewise favor inanimate subjects, as they denote abstract processes developing over time, as illustrated in example (31).

(31) Datoriseringen kommer att påverka arbetsinnehållet.
computerization.the comes to influence work.content
'Computerization will influence the content of our work.'

A third group is about mental activity. The verbs *tänka* 'think' and *glömma* 'forget' encode cognitive processes; hence examples such as (32) require animate subjects.

(32) Sent kommer jag att glömma en scen vid en besinstation i Skellefteå.
late come I to forget a scene at a gas station in Skellefteå
'I will never forget a scene at a gas station in Skellefteå.'

An isolated verb that is distinctive of the *komma att V* construction is *spela* 'play (a role)'. In all examples, *spela* is complemented by *en ADJ roll*, which makes it similar to the verbs in the 'happen' group. Similar to the examples in that group, the examples express abstract events with inanimate subjects.

(33) Alexandria skulle därför komma att spela en underordnad roll.
Alexandria would therefore come to play a minor role
'Alexandria would therefore get to play a minor role.'

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Swedish	Gloss	Tokens	Percentage	Swedish	Gloss	Tokens	Percentage
göra	do	11	10.48%	försöka	try	2	1.90%
gå	go	5	4.76%	fortsätta	continue	2	1.90%
se	see	5	4.76%	köpa	buy	2	1.90%
ge	give	3	2.86%	lägga	lay	2	1.90%
höra	hear	3	2.86%	lämna	leave	2	1.90%
ta	take	3	2.86%	sälja	sell	2	1.90%
behålla	keep	2	1.90%	skriva	write	2	1.90%
berätta	tell	2	1.90%	ställa	put	2	1.90%
flyga	fly	2	1.90%	åberopa	refer	1	0.95%
föreslå	suggest	2	1.90%	acceptera	accept	1	0.95%

Table 13. Raw frequencies of verbs in the *tänka V* construction.

Interestingly, only half of the subjects in the examples with the verb *överleva* 'survive' are actually animate in the first place. Again, this fits with the constructional meaning of some abstract process happening.

(34) Några av dessa plan kommer till och med att överleva sekelskiftet.
some of these plans come even to survive century.turn.the
'Some of these plans will survive the turn of the century.'

As for the repelled verbs, *vara* 'be' and *ha* 'have' are found in the *komma att V* construction significantly less often than expected. These highly frequent verbs express states, which clashes with the dynamic constructional meaning. The core meaning of the *komma att V* construction, at least in the written genres which are represented in the used corpus, denotes an abstract process that is independently developing over time.

3.5 tänka

The usage of *tänka* 'think' as a modal coding futurity must be considered a fairly recent development in Swedish grammar, since the modal retains many traits of its lexical source. Inanimate subjects are ruled out; the example sentences are almost invariably about some human being planning a future action. The meaning extension from 'planning to do something' to 'future action' is again a case of conceptual metonymy. Accordingly, the *tänka V* construction strongly implies intentionality on the part of the subject while obligation is clearly not at issue. The data do not show any epistemic usage.

As a future marker, *tänka* occurs much less frequently than the other constructions. There are only 105 examples of *tänka V* in the SUC. Tables 13 presents the twenty most frequent verbs occurring with *tänka V*.

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Swedish	Gloss	p	Swedish	Gloss	p
göra	do	0.000001	se	see	0.020213
flyga	fly	0.000813	fortsätta	continue	0.023417
behålla	keep	0.001406	ställa	put	0.026715
föreslå	suggest	0.005753	skriva	write	0.033960
sälja	sell	0.009000	berätta	tell	0.035386
höra	hear	0.009106	lämna	leave	0.039256
köpa	buy	0.010124	försöka	try	0.041041

Table 14. Attracted collexemes of the *tänka V* construction.

Table 14 lists the verbs that occur in the *ska V* construction according to their attraction. Due to the low number of examples, the used statistical test can not make predictions with the same confidence as in the previous sections. Given an α-level of $p < 0.01$, the test only judges six verbs to be significantly attracted to the construction. In order to characterize the construction semantically, a wider range of verbs is needed. Table 13 thus assumes a lower α-level and includes all verbs with a value of $p < 0.05$.

As with *skulle V* and *komma att V*, the most frequent verb is also the most distinctive verb. In this case, it is *göra* 'do'. Ten of the eleven examples have a personal pronoun in subject position. The examples are about animate subjects planning to do something in the future.

(35) Det tänker vi inte göra när vi flyttar till Umeå.
that think we not do when we move to Umeå
'We're not going to do that when we move to Umeå.'

The next verb is *flyga* 'fly'. The two examples occur right next to each other in the same text file, which is a poem. Again, the examples mean that someone intends to do something.

(36) Tänker du flyga långt, långt härifrån och komma aldrig tillbaka?
think you fly long long from.here and come never back
'Are you going to fly far far away and never come back?'

The verbs *behålla* 'keep', *sälja* 'sell', and *köpa* 'buy' form a group that has 'exchange of objects' as its semantic frame. This frame fits well with the overall constructional meaning, because exchange of objects is done by individuals who have to make conscious decisions for or against the transaction in question.

(37) Jag tänkte köpa en spis till.
I thought buy a stove more
'I was thinking of buying another stove.'

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(38) Far hade behållit alla, han tänkte förmodligen sälja dem.
father had kept all he thought apparently sell them
'Father had kept them all, presumably in order to sell them (one day).'

Three other verbs refer to 'exchange of ideas'. The verbs *föreslå* 'suggest', *berätta* 'tell', and *skriva* 'write' can be situated in this semantic field.

(39) Han tänker föreslå Göran som Harrys efterträdare.
he think suggest Göran as Harry's successor
'He is going to suggest Göran as Harry's successor.'

(40) Hon tänker aldrig berätta något mer konkret än så.
she think never tell something more concrete than so
'She will never tell you something more concrete than this.'

The verb *höra* 'hear' does not seem to fit with the rest of the verbs, since 'hearing' is less of an activity than 'buying something' or 'doing something'. In the examples, however, 'hearing' is construed as an activity by way of metonymy. In example (41) 'hearing an answer' stands for 'asking someone a question' in an EFFECT FOR CAUSE metonymy.

(41) Jag tänkte höra om du tycker som jag
I thought hear if you think as I
'I wanted to ask you if you think the same as I do.'

In summary, the *tänka V* construction shows a preference for an intentional, planned exchange of either ideas or objects. This preference is semantically compatible with the lexical meaning of *tänka*, but it must be viewed as an idiosycratic trait of the constructional semantics.

4. DISCUSSION

The Collexeme Analysis has brought to light some distributional differences between the five Swedish future constructions.

The *ska V* construction typically goes along with the general verbs *bli* 'become' and *ske* 'happen', which favor inanimate subjects and thus mainly encode futurity. So despite the many modal uses of *ska*, it has to be conceded that it has become a fully grammaticalized future marker. Another highly distinctive verb is *göra* 'do', which goes along with animate subjects and thus communicates the modal meanings of obligation and intention. The verbs *betala* 'pay' and *spara* 'save' also point to the fact that the meaning of obligation, which derives from the lexical source, strongly persists in the *ska V* construction. It is thus inadequate to say that the meanings of intentionality and obligation have been bleached from the verb, since we find them present in a large number of examples. Rather, these meanings remain inactive when they are semantically incompatible with the subject in question.

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	ska	*skall*	*skulle*	*komma*	*tänka*
Active	80.1%	64.9%	88.8%	74.4%	96.2%
Middle	3.5%	2.6%	3.2%	5.5%	1.9%
Passive	16.4%	32.5%	8.0%	20.1%	1.9%

$df = 8, \chi^2 = 400.55, p \leq 0.001$

Table 15. Distribution of voice in the future constructions.

The *skall V* construction occurs most distinctively with verbs that are used in a formal setting. The verbs in question are *anse* 'consider', verbs of communication, verbs of exchange of money and goods, *tillämpa* 'apply', and verbs of handling things that are used in a formal register, such as *vidta* 'begin', *ordna* 'organize', and *behandla* 'deal with'. The *skall V* construction has an undertone of obligation which is also found in *ska V*, but which is much more pervasive with *skall V*. Another fact pointing to the formal register of the *skall V* construction is the high percentage of passive constructions (32.5%), which a chi-squared test judges to be significantly higher than with the other constructions; see Table 15.

The *skulle V* construction also codes intentionality and obligation besides futurity, but its most distinctive function is the epistemic sense of possibility. The most distinctive verbs are *kunna* 'could', *bli* 'become', and *klara* 'cope', which in this construction express the possibility of some event. Another distinctive verb is *dröja* 'delay', which describes events in the past perfect. This function is unique to the *skulle V* construction, as well. A last function of *skulle V* is exemplified in the distinctive verbs *behöva* 'need' and *vilja* 'want'. Here, the construction serves as a downtoner to make a potentially face-threatening speech act more acceptable.

The *komma att V* construction occurs most distinctively with a group of general verbs that require inanimate subjects and denote abstract events. A large group of co-occurring verbs describe abstract developments over time. The only coherent group of verbs that require animate subjects consists of the mental verbs *tänka* 'think' and *glömma* 'forget'. The constructional meaning *komma att V* is that something abstract is going to happen, usually not planned, but spontaneously. Independent evidence for this characterization is that the *komma att V* construction displays the highest percentage of middles of the three future constructions in Table 11. In examples like (42), an event happens by itself, without any force exerted by an agent.

(42) 90-talet kommer att skilja sig betydligt från 70-talet.
90-decade comes to differ self much from 70-decade
'The 1990s will differ a lot from the 1970s.'

The auxiliary *tänka* retains much of its lexical meaning in the *tänka V* construction. The construction favors verbs like *göra* 'do', which describe conscious,

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deliberate actions. A semantically coherent group of verbs deals with the exchange of goods, another group can be subsumed under the domain of communication. On the basis of these chosen verbs, the constructional meaning can be delimited as the deliberate planning of future actions.

The main finding of this paper is that the Swedish future constructions investigated display an intricate division of labour. The *ska V* construction is the most general and unbiased with respect to animacy and state of mind of the subject, despite its being less frequent than *skulle*. The *skall V* construction is used in formal contexts, and whenever obligation is strongly in focus. The *skulle V* construction is used in contexts where the possibility of a future event is at issue. The *komma att V* construction is used for abstract processes and spontaneous events happening in the future. Finally, *tänka V* is used for deliberately planned future actions. These characterizations largely corroborate previous findings on future constructions in Swedish (Christensen 1997; Dahl 2000), but also challenge some positions (Törnudd-Jalovaara 1991), thus demonstrating the viability of Collexeme Analysis as a useful empirical approach to the study of grammaticalization.

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