

PHONESTHEMES IN SWEDISH

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ABSTRACT

The Swedish lexicon has been analyzed with emphasis on the sound symbolic properties of initial and final consonant clusters. Lexically infrequent clusters are utilized to a larger extent than lexically frequent clusters. The psychological reality of phonesthemes was tested in experiments of production and understanding. These show that every constructed word is interpreted correctly by at least some subjects. The most common sound symbolic initial consonant clusters found in the lexical analysis are also among the most successfully interpreted by subjects. For production, the experiments indicate that subjects tend to encode the semantic features in initial clusters rather than in final clusters and that they produce neologisms according to expectations, i.e. use the expected initial consonant clusters for certain semantic features. The most frequent semantic features were also the most successfully coded. The words produced also utilized dimensions such as lengthening, reduplication and illegal phonotactics. These spontaneously produced neologisms were also interpreted successfully by another group of subjects. Finally, cross language studies showed that Swedish sound symbolic words were often misinterpreted, but the interpretations were according to the semantic categories of Abelin [1].

1. INTRODUCTION

The area of sound symbolism has not been central in phonetics or linguistics, and Swedish, as well as many other languages, lacks a thorough description and theory of how the lexicon is structured with respect to sound symbolism. Saussure [5], who held the view that linguistic signs are arbitrary, wrote that ‘onomatopoeic words are never organic elements of a linguistic system’. Other works, e.g. Jespersen [4], Jakobson and Waugh [3] and Hinton, Nichols and Ohala [2], have shown that sound symbolism is indeed a central topic in the study of language. The present paper reports part of a larger study on phonesthemes in Swedish (see Abelin [1]). The study consists of two main parts: a lexical study of the Swedish phonestheme inventory and an experimental study of production and interpretation of neologisms, related to the lexical study. Some phonesthemes are clearly sound symbolic, and carry either one or several meanings. Other phonesthemes are not so clearly sound symbolic. The meanings of the phonesthemes are most often relatable to the senses: hearing, vision or tactile sensation.

2. GENERAL METHOD

The Swedish lexicon (comprising about 60 000 lexemes) has been analyzed with emphasis on the sound symbolic properties of initial and final consonant clusters. A word is judged to be sound symbolic when it is one of several words that have a common semantic feature and that begin or end with the same consonant cluster. Around 1 500 lexemes were judged to be sound symbolic and the outcome of the analysis is

approximately 250 tentative phonesthemes, i.e. motivated connections between meanings and consonant clusters.

In the next stage these phonesthemes were used for producing neologisms which were interpreted by 15 native speakers. The same speakers were also asked freely to produce sound symbolic neologisms, i. e. create new words that should be suitable for certain meanings. These neologisms were then tested on another group of native Swedish speakers who were to interpret them in context.

In addition to this, a number of Swedish sound symbolic words, and neologisms based on phonesthemes, were interpreted by non-native speakers of Swedish.

3. THE LEXICAL STUDY

3.1. Initial consonant clusters

Almost all Swedish initial consonant clusters and many of the final consonant clusters can carry sound symbolic meanings. Lexically infrequent clusters are utilized to a higher extent than lexically frequent clusters.

The following table (table 1) shows, in the left column, which the most common semantic features are irrespective of consonant cluster. The next two columns show the most common consonant cluster for a certain semantic feature, and proportions of lexemes with the actual feature for this cluster.

meaning	cluster	%	examples
'pejorative'	pj-	71	pjoller (babble), pjosk (coddling), pjunk (coddling)
'sound'	fn-	33	fnissa (giggle), fnysa (snort)
'long thin form'	spj-	33	spjut (spear), spjåla (lath)
'quick or strong movement'	fl-	19	fladdra (flutter), flamma (flame), flimra (flicker), fläkta (fan)
'wetness'	skv-	40	skval (gush), skvalta (ripple), skvimpa (splash)

Table 1. The most sound symbolic initial clusters proportionally.

Thus, table 1 shows, for example, that the semantic feature 'pejorative' is the most common semantic feature for phonesthemes of initial clusters, and that the most common final cluster with this semantic feature is pj-. The proportion of root morphemes beginning with pj- that has the meaning 'pejorative' is 71%.

Of these initial consonant clusters all but fl- are lexically very infrequent clusters. This indicates that lexically infrequent clusters are particularly useful for sound symbolism.

The next table (table 2) shows which consonant clusters are the most sound symbolic in absolute numbers.

meaning		freq	examples
'pejorative'	sl-	24	sladder (gossip), slok (bloke), slödder (riff-raff)
'sound'	kl-, kn-	15	klang (clang), klirra (jingle), knarra (creak), knittra (crackle)
'long thin form'	sp-	23	spant (rib), spett (spit), spö (twig)
'quick or strong movement'	fl-	18	fladdra (flutter), flamma (flame), flimra (flicker), fläkta (fan)
'wetness'	sl-	12	slask (slush), slem (slime), slipprig (slippery)

Table 2. The most sound symbolic initial clusters in absolute numbers.

Table 2 shows that the most sound symbolic clusters in absolute numbers for the most sound symbolic meanings are not the same as the percentually most common clusters, except for fl-: 'quick or strong movement'.

3.2. Final consonant clusters

Approximately 3/4 of the Swedish consonant cluster phonestemes are pertaining to initial consonant clusters and the rest to final consonant clusters. Phonestemes of final consonant clusters partly focus on other meanings, i.e. a larger proportion of phonestemes of final consonant clusters than of initial consonant clusters have the meaning 'quick or strong movement' and a smaller proportion of the phonestemes have the meaning 'pejorative'.

The following table (table 3) shows, in the left column, which the most common semantic features are irrespective of consonant cluster. The next two columns show the most common consonant cluster for a certain semantic feature, and proportions of lexemes with the actual feature for this cluster.

meaning		%	examples
'quick or strong movement'	-N1	40	dingla (dangle), rangla (be lanky), skrangla (be rickety), ringla (coil)
'talking'	-dr	25	pladdra (babble), slabbra (chatter), sluddra (slur one's words)
'sound'	-lr	44	kvillra (ripple), bullra (rumble), mullra (rumble)
'pejorative'	-fs	59	hafsa (scamp a thing), slafsa (slop), tjafsa (talk drivl)

Table 3. The most sound symbolic final clusters proportionally.

Table 3 shows, for example, that the semantic feature 'quick or strong movement' is the most common semantic feature for phonestemes of final clusters, and that the most common final cluster with this semantic feature is -N1. The proportion of root morphemes ending with -N1 that has the meaning 'quick or strong movement' is 40%. The feature 'pejorative' is the 4th most common semantic feature. The proportionally most sound symbolic final consonant cluster with the feature 'pejorative' is -fs, which is pejorative to 59%.

A general result for both initial and final consonant clusters is that most of the consonant clusters can have several meanings, while others have only one or a few meanings. No two consonant clusters have exactly the same semantic profile.

The meanings of the phonestemes are most often relatable to the senses: hearing, vision or tactile sensation, or they are metaphorically or metonymically connected to the senses.

Phonestemes have different sound symbolic strength, i.e. some are clearly sound symbolic (i.e. a high percentage of the words beginning with a certain cluster are sound symbolic), and carry either one meaning or several meanings. Other (candidates for) phonestemes are weaker and not so clearly sound symbolic.

4. THE EXPERIMENTAL STUDIES

The psychological reality of phonestemes was tested in experiments of production and understanding in the following ways.

4.1. Interpretation of constructed neologisms

In the first test subjects were instructed to interpret neologisms constructed from phonestemes. The experiments show that, for interpretation, no constructed word is interpreted as expected by every subject, but that each of the constructed words are interpreted correctly by some subjects. The most common semantic features found in the lexical analysis, i.e. 'pejorative' and 'wetness', are also among the most successfully interpreted by subjects.

The following table (table 4) shows the results of the free interpretation of neologisms based on phonestemes.

	<u>pjotig</u>	<u>skratig</u>	<u>skvatig</u>	<u>fnotig</u>
mad	sharp	rancid	boring	
mawkish	happy	wet	irresolute	
childish	defective	tiring	-	
silly	giddy, crazy	wet	dry and flapping	
finical	bad	wet	chapped	
stupid	happy	cocky	crooked	
crabbed	sluggish	popular song	panting	
mawkish	angular	silly	ridiculous	
uneven	jerky	crazy	old	
splashy	narrow	wet	stupid	
troublesome	withered	sth angular and wet	sth difficult	
ridiculous	full of rips	pouring	shrunk	
small sweet	ragged	angular or hard	knobblly	
suitable	laughing	laugh	freeze	

ridiculous	a worn and haggard thin woman	half bad	crazy funny
10	7	6	5

Table 4. The results of the free interpretation test of four neologisms. Bold type show answers classified as belonging to expected semantic features, and figures below show number of expected answers.

The first word *pjotig* gives 10 out of 15 expected answers, i.e. words with a semantic feature 'pejorative'. The second word *skratig* gives 7 expected answers, i.e. words with the semantic feature 'destruction'. *Skvatig* gives 6 answers with the expected semantic feature 'wetness' and, finally, *fnotig* produced 5 words with the expected semantic feature 'pejorative'. In other words, no neologism was interpreted as expected by all 15 subjects, but all of them were interpreted correctly by many or most subjects. The percentages were, from left to right: 67%, 47%, 40% and 33% expected interpretation. This indicates that phonesthemes are non-arbitrary cues to the interpretation of meanings of words.

Three of these four successfully interpreted neologisms, namely *pjotig*, *skvatig* and *fnotig* begin with phonesthemes that are the most sound symbolic percentually according to the lexical study, cf. table 1.

4.2. Production of neologisms

In the test of free production, where subjects were instructed to construct new words for different meanings, usually of sense related semantic domains, the experiments indicate that subjects tend to encode the semantic features in initial clusters rather than in final clusters. Final consonant clusters seem to be of less importance than the initial clusters in new sound symbolic words in Swedish. The words produced also utilized dimensions such as lengthening, reduplication and illegal phonotactics.

The following table (table 5) shows the neologisms which 14 of the 15 subjects produced when presented with the meanings 'silly', 'angry', 'wet' and 'winding form'.

<u>silly</u>	<u>angry</u>	<u>wet</u>	<u>winding</u>
smurk	gurp	slish	slirv
spjal	kral	subl	islig
flong	orn	svåsk	plyr
fjän	vrag	plat	ril
koos	faaby	tripp	pis
flutt	grol	svurp	sjling
floppig	börr	slasli	siloln
pjöl	vram	svomm	krel
fjutt	burr	mollo	kril
krumpig	trossk	schjaflig	vrinlig
fnölp	rark	splass	tirori
-	furn	splurr	slio
loup	hram	paupe	evans
knork	dramm	blu	vrom

Table 5. The results of the free production test for four meanings.

The main results are the following: The semantic features that to the greatest degree were expressed according to the

model, were 'pejorative', 'bad mood' and 'wetness'. Less successfully expressed was 'winding form'. There is thus a tendency for frequent features to be more successfully coded (cf. table 1). The initial consonant clusters of 'pejorative' are all, except one, according to expectations. The most commonly produced initial consonant clusters for 'bad mood' are in accordance with the phonesthemes vr-, tr-, gr-. Of the rest of the words produced all, except one, have an /r/. For the initial consonant clusters of 'wetness' there is a majority of the phonemes /l/, /s/ and /p/. The feature 'winding form' is standing out in that it uses the non expected phonemes /s/ and /l/ in different positions of the words. This could be an effect of the trigger word 'slingrig form' ('winding form').

4.3. Interpretation of spontaneous neologisms

The neologisms produced in the production experiment were submitted to another test, where a new set of nine subjects were instructed to interpret the neologisms. The subjects were told to match the different columns of neologisms with the different semantic features. (In fact there were 6 columns of neologisms that were to be matched with 6 semantic features.) This test produced 100% correct results. This result probably in part depends on the possibility to compare the words in the different columns, i.e. an effect of context.

4.4. Cross-language interpretation

In order to test the universal aspect of sound symbolism a number of Swedish sound symbolic words were tested on speakers of six different languages: Arabic, Spanish, German, Dutch, Ibo and English. They had little or no knowledge of Swedish. The words were carefully chosen so as to begin with consonant clusters which, according to the lexical study, have sound symbolic meanings. The words tested were *fladdrig* (fluttering), *skrälle* (ramshackle), *trumpen* (glum), *blank*(ig) (shiny), *fjompig* (foolish), *grubbel* (brooding), *skvalpa* (lap), *slabbig* (slushy), *vresig* (cross), *glansig* (glossy), *kladdig* (sticky), *stripig* (lank) and a few neologisms: *pjalitg*, *pladdig*, *bjaltig*. The phonesthemes tested were thus fl-: 'quick or strong movement', skr-: 'destruction', tr-: 'bad mood', bl-: 'light', fj-: 'pejorative', gr-: 'bad mood', skv-: 'wetness', sl-: 'pejorative', vr-: 'bad mood', gl-: 'light', kl-: 'wetness', str-: 'long thin form', pj-: 'pejorative', pl-: 'pejorative' and bj-: 'pejorative'.

Interpretation of sound symbolism, by these non-native speakers of Swedish, went wrong in most cases. The most obvious explanation for this is that expressions differ in different languages. However, the semantic categories guessed on are most often one of the expected semantic features discussed in Abelin [1]. This is very interesting insofar as that even when subjects guess in an unconventional way, they still guess within the semantic categories of the model. The answers that can not be classified within the semantic categories of the model are fewer and most of them were produced by the Arabic and Ibo speaker, which suggests an influence of cultural (or linguistic) differences, i.e. European vs. non-European.

5. CONCLUSION

The conclusion of these studies of Swedish phonesthemes are the following. The initial consonant clusters that are the (proportionally) most sound symbolic are lexically low frequent, i.e. marked consonant clusters. These initial consonant clusters

are successfully interpreted in the experimental study; three of the four tested, and successful, neologisms begin with phonesthemes that are the most sound symbolic percentually according to the lexical study, cf. table 1. In the experimental study of production of neologisms the main results are that there is a tendency for the most frequent semantic features (cf. table 1) to be successfully coded, i.e. expressed with expected initial consonant clusters or with phonemes being parts of these. These neologisms proved to be interpreted with a success rate of 100% in a test with another group of subjects..

In a crosslinguistic interpretation test of Swedish sound symbolic words and of neologisms modeled on Swedish phonesthemes, non-native speakers of Swedish were not successful in interpretation of Swedish phonesthemes. However, the semantic features suggested by the subjects were almost all within the expected range.

Thus, for initial consonant clusters the results were the following: Lexically low frequency (marked) clusters were the most sound symbolic in the lexical study. A large part of the subjects were also successful in the interpretation and production tests. Final consonant phonesthemes seem to be less important in the production of neologisms.

Considering these results from the perspective of the model for semantic features presented in Abelin [1], we can note the following: There is a tendency for semantic features frequently encoded by phonesthemes to be successfully coded in the interpretation experiments (including the cross-linguistic experiment) and in the production experiment..

REFERENCES

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