Motivated language change: processes involved in the growth and conventionalization of onomatopoeia and sound symbolism

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The current paper takes its basis in onomatopoeia and sound symbolism and investigates the processes of language change that create these phenomena. Data has mainly been taken from the Germanic branch of the Indo-European language family in which the origin of onomatopoeic expressions, as well as sound symbolic clusters, or phonaesthemes, can be traced historically to Proto-Germanic and Proto-Indo-European.

Two main types of motivated connections between expression and content are distinguished: iconic and indexical. Iconic connections basically embrace onomatopoeic expression, in which there is an attempt towards creating a likeness between the sound created by the content and the linguistic form of the expression. These types of motivated expressions behave differently from the indexical, even though the boundaries to some extent are floating.

Phonaesthemes are regarded as predominantly indexically motivated and analyzed synchronically in the Germanic languages, in which there is considerable agreement on the meaning connected to some of them, e.g. fl-, gl-, bl- which are connected to LIGHT and similar semantic associations. Other phonaesthemes, such as fj-, are restricted to individual languages only. The all-Germanic phonaesthemes are traced back historically as well as into reconstructed stages of the proto-language, and the origin of words and groups of words are taken into consideration. The later phonaesthemes, occurring in individual languages only, are traced back historically, taking older sources and first occurrences into consideration.

The study shows that a number of different mechanisms of change, both on the form and the meaning side, are involved when sound symbolic clusters grow in a language. This shows that the general principles of change are disrupted or distorted by synchronically operative linguistic mechanisms, involving iconicity and indexicality.

Finally, motivated language change is compared to other similar changes such as analogical change, and the consequences for the classification of various types of iconicity are discussed.

Keywords:

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1. Theories on iconicity, language change and development of language

The idea of iconicity in language originates in pre-nineteenth-century thoughts on the nature of language, most clearly expressed in Plato’s Cratylus. A driving force behind the speculations was to solve the problem of naturalness and conventionality in language, in particular by looking for meaningful connection between form and function, often appearing in the form of speculative etymology (see Coseriu 1969: 29ff.). Speculative etymology had a serious backlash after the nineteenth-century systematic cataloguing of genetic relationship of languages. This led to a major change in focus in linguistics away from comparing meaning to systematic comparing of form. Thereupon followed the neogrammarian postulation of regularity of sound change and the “Saussurean dogma” of arbitrariness of the linguistic sign, where iconicity was considered a highly marginal phenomenon.

The downgrading of the importance of sound symbolism is later criticized by Jespersen (1922, 410), who admits sound symbolism as a structure of importance in language, giving a number of examples from basically Germanic languages (English, German), but concludes that most of these formations seem to be more common in later than in older language (see also Bynon 1977, 11, n.1; Marchand 1960, 313-55). This fact he attributes partly to writing, which is much “less conventional” in modern times, partly to the fact that “people [in recent times] speak in a more vivid and fresh fashion than their ancestors of hundreds or thousands of years ago” (Jespersen 1922, 411).

Jakobson (1965) relates back to the fundamental question of the function of language in Cratylus and continues the discussion on arbitrariness by Jespersen. He connects the question of the nature of the linguistic sign to Charles Peirce’s three-partite classification of sign relations as non-arbitrary (similarity-based), indexical (contiguity-based), and symbolic (rule-based) and gives a number of examples of various types of motivated connections between expression and content, which he labels “iconic”. Jakobson’s article has given rise to a rich literature on linguistic iconicity, above all by Haiman (1980) and his followers (Croft 2003; Givón 2001), where a number of types of iconicity in various languages, grammatical, syntactical, as well as lexical, are distinguished (see De Cuypere 2008 for an overview).

Most of these studies look at iconicity as from a synchronic perspective, i.e., non-arbitrary correlations are investigated in a language x or y, often with a cross-linguistic, typological perspective, but without taking into consideration the prehistory of the individual elements involved in the studied non-arbitrary structures. On the other hand, historical linguistic handbooks generally pay little or no attention to iconicity (e.g., Bynon 1977, Trask 1996). As noticed by Malkiel (1990, 9f.), sound symbolism is regarded as a marginal phenomenon in historical linguistic literature basically since it blurs the concept of inevitability of regular sound change and the arbitrariness of linguistic signs, two basic prerequisites for historical-comparative reconstruction in traditional historical linguistics.

In theories of origin and development of language in general, where means and methods are very different from historical linguistics, iconicity has played a central role. Wescott (1971, 426-427) proposes the following evolutionary paths: 1) “language once consisted exclusively of icons, but that this pan-iconicity was shattered by the introduction of symbols, which have subsequently been replacing icons at a constant rate”, 2) “when primordial icons became symbolic (as a result of sound-shifts of visual stylizations), new icons are introduced at such a rate as to maintain the proportion of the two sign-types at a roughly constant level”, and 3) “the relative proportions of iconism and symbolism in language fluctuate slowly but rhythmically”. The first proposition, i.e., primitive language was highly (or maximally) non-arbitrary and became more and more conventionalized and arbitrary (because of language change), is defended by a number of contemporary linguists as Sadowski (2001) and Givón (2001). This is supported by evidence from restricted systems as homesigning children (Goldin-Meadow 2002) or the development of writing systems (Givón 2001). According to Heine and Kuteva (2007, 348-349), there is opposite evidence, among others in
communication systems of animals, and therefore this question requires much further research and “must remain unsolved at the present state of research”.

2. Preliminaries

2.1. Questions and problems

As we have seen in previous section, the assumptions on the role of iconicity in language development and language change are quite contradictory. Some scholars assume that iconicity is a linguistic “primitive” treat, which accordingly is replaced by arbitrariness, whereas others apprehend iconicity as something that is vivid and productive in language, gradually replacing arbitrariness. This discussion forms the basis for the questions postulated here:

- What role does iconicity play in language change?
- Does iconicity appear or disappear as a result of language change?
- Does iconicity has the capacity to prevent or reorganize language change?
- Can a study of the processes of growth and conventionalization have any influence on the knowledge of early language?

In general, a study of emergence of lexical iconicity is connected to problems. First, the detection of iconicity from a synchronic perspective, also in a historic language material, might be uncertain and the distinctions complicated. Second, when the historic dimension is added, including all the uncertainties connected to reconstruction of change of form and meaning, the distinctions become even more problematic.

Last, but not least: how reliable is the method of using etymology to make conclusions on emergence of iconicity? Motivated words are typical “outsiders” in etymological dictionaries and theories on their origin remain often more or less speculative (cf. the overview by Malkiel 1990, 7ff.). In etymological research, the origins of lexemes are traced back individually, taking into consideration regular sound change, semantic change and word derivation. All these aspects are connected with great uncertainty, as various types of exceptions can occur in regular sound change, as semantic change is often unpredictable and as the semantic and phonological aspects of word derivation are often difficult to reconstruct. However, these uncertainties do not rule out etymology as a tool to derive the emergence of lexical iconicity: the interest lies in tendencies and categorization of types, rather than in the hair-splitting of individual etymological proposals. The uncertainties should be expected to become “noise” in a larger amount of data.

2.2. Towards a taxonomy of iconicity

When scanning the literature on iconicity in language, a variety of definitions is presented. Many of them are concerned with grammatical and syntactic iconicity (cf. Haiman 1981). As concerns lexical iconicity, the terminology is often different depending on the object of study and languages studied, e.g., sound symbolism in Germanic, onomatopoeic words in various languages, or expressives or ideophones in Japanese, Mon-Khmer, African or Amerindian languages.

The term “iconicity” goes back to Jakobson (1965). This term is normally used in opposition to “arbitrary”, i.e., to cover all motivated connections between form and meaning, independent of whether they are truly iconic (i.e., imply likeness) or indexical (i.e., imply contiguity).

The distinctions used here will relate to Peirce’s three-partite distinction between icons, indexes and symbols and distinguish iconic from indexical iconicity. Since the sign concept, important both to de Saussure, Peirce and later semioticians (Sonesson 2009), is problematic when it comes to historical linguistics, we will use a more linguistic-oriented terminology and talk of words, lexemes, phonemes
or groups of phonemes (phonaesthemes) as being either motivated or arbitrary. The distinction between iconic and indexical is apparently important when it comes to language change and is thus maintained.

Here about Figure 1

For the purpose of the present study, we will apply distinctions as outlined in Figure 1 and in the following.

When it comes to the nature of the motivated connection, the following distinctions are made:

- **Iconic iconicity** implies that the connection is based on likeness between form and meaning. Here we typically find directly motivated mappings such as *atchoo, crash, boom, bang*.
- **Indexical iconicity** implies that the nature of the connection is based on contiguity rather than likeness. This type typically grows into clusters of motivated connections between words in a language, such as the sound symbolic clusters described under 3.2. or the form/meaning-based clusters as found in Figure 2.

When it comes to the realization of iconicity on the form side, the following distinctions are made:

- **Qualitative iconicity** implies that there is a motivated connection between meaning and qualitative aspects of linguistic form, e.g., phonematic or phonotactic structure. An example of a qualitative connection between form and meaning is the thee-partite coding of the size of the steps of the Agent in the Kammu expressives mentioned in example 1 below.
- **Quantitative iconicity** implies that there is a motivated connection between meaning and quantitative aspects of linguistic form, e.g., word-length, phonological quantity/complexity, or reduplication. An example of quantitative is the coding of the size of the action (‘go with long steps’) in the Kammu expressives in example 1.
- **Partial iconicity** implies that there is a motivated connection between meaning and parts of lexeme(s). Sound symbolism, e.g., the *gl*-words in Germanic, treated under 3.2., is typically partially motivated (initial phonemes).
- **Full-word iconicity** implies that there is a motivated connection between meaning and whole lexeme(s). Here, we typically find lexemes that imitate sounds, such as bird names (Carling to appear, Martilla 2011) or other onomatopoeic lexemes.

When it comes to the occurrence or organization of motivated forms language-internally, following distinctions are being done:

- **One to one iconicity** implies that there is a motivated, but one to one correlation between form and meaning, as typically found in bird names or other onomatopoeic expressions.
- **Oppositional/reational iconicity** implies that there is a motivated connection between two or three (unusually four, five) meanings in language, being in an oppositional or relational semantic position, with a corresponding opposition/relation of linguistic forms. Examples are deictics, demonstratives, words for big-small, and terms for degrees of colour, smell or taste as found in some languages (see Johansson & Carling to appear).
- **Complex iconicity** implies that there is a motivated connection between complex networks of meaning(s) and linguistic form(s) as found in for instance sound symbolic clusters.

In the Kammu expressives under Example 1, size of the action (i.e., to go with long steps) is coded by means of complete and quantitative iconicity (whole-word reduplication). The size of the argument performing the action (father, mouse deer, child) is coded by means of relational iconicity, which is indexical, partial and qualitative (phonetic structure of the mid-vowel).
Example 1. Expressives in Kammu (Mon-Khmer) with information on size of Agent (fieldwork data from Arthur Holmer & Damrong Tayanin)

(1a) yòn ò yòh càac-càac
Father 1SG go EXPR
‘My father walks with long steps’

(1b) páan kéey yòh cèèc-cèèc
mouse deer go EXPR
‘The mouse deer walks with long steps’

(1c) kàon ò yòh clàc-clàc
child 1SG go EXPR
‘My child walks with long steps’

In the Semai examples under 2, degrees of sense representations (SMELL), brightness and quality of colour as well as quality of sound is represented by relational, partial and qualitative iconicity (change of quality of mid-vowel).
Example 2. Indexical variation in Semai (Austroasiatic, Mon-Khmer) expressives (data from Tufvesson 2011)

<table>
<thead>
<tr>
<th>SMELL</th>
<th>COLOUR</th>
<th>SOUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>gh—′p ‘acrid odour’</td>
<td>ch—er ‘red’</td>
<td>gr—′p ‘crispy sound’</td>
</tr>
<tr>
<td>ghu:p ‘acid; neutral’</td>
<td>che:r ‘red’</td>
<td>gre:p ‘of chewing fruit’</td>
</tr>
<tr>
<td>gho:p ‘acid; intense’</td>
<td>che:r ‘pink’</td>
<td>gra:p ‘of chewing crisps’</td>
</tr>
<tr>
<td>ghn:p ‘acid; very intense’</td>
<td>chi:r ‘orange’</td>
<td>grip ‘of chewing cassava’</td>
</tr>
</tbody>
</table>

2.3. Form/meaning relations and frequency code

The semantics of iconicity is a complicated issue. Since the semantic realization of iconicity in a language is a result of both synchronic associations and language history, the relations cannot always be seen clearly simply by looking at the synchronic state. As noticed by Jespersen (1922, 383), iconicity is typically found within certain semantic domains, which can be realized either as trees or networks (see Figure 2), or as degrees or oppositions (e.g., POSITIVE/NEGATIVE) of semantic qualities (see Table 1).

Here about Table 1

The realization of the forms in languages is then very different. Likewise different is the internal relations and internal clustering of domains, qualities and nodes in the realizations of iconicity in various languages.

The idea of frequency code as underlying motivated realizations on the form side has been proposed before (Ohala 1994, Diffloth 1994). The question whether this is a universal or culture-related feature will not be further discussed here (cf. Diffloth op.cit.).

The basic idea is that the frequency code relates to the attempt towards an imitation of large creatures’ low frequency voice. Due to the larger resonance chamber of big animals, the frequency created by the vibrating membranes (the vocal cords of animals and the syrinx of birds) is dependent on the body size of the individual and therefore indicates how powerful or threatening that individual is. Through manipulating the voice quality and/or intonation, an individual can imitate a certain size as well as attitudes.

Hence, a high and/or rising F0 could be used for indicating smallness but also associated characteristics such as deference, politeness, submission, lack of confidence, questions, familiarity, dependence, narrowness, and nearness, while a low and or falling F0 could be associated with largeness but also assertiveness, authority, aggression, confidence, threat, dominance, and large distance (cf. Bolinger 1964; 1978)
Here about Table 2

In the frequency code table of Table 2, the first distinction made is between voiceless and voiced sounds. The voiceless group is considered the most proximal since voiceless sounds generally have more energy on higher frequencies and no fundamental frequency. The voiced group consists of both vowels and voiced consonants. The 21 featured vowels are simply put on a row from highest F2, [i], to lowest F2, [u]. The voiced consonants positions in the scale are also determined by their F2, which is dependent on the place of articulation. The most proximal sounds are thus the voiceless sounds, followed by voiced sounds with a high frequency F2. The most distal sounds are voiced sounds with a low frequency F2 (Johansson & Zlatev 2013, Ahlner & Zlatev 2011).

The distribution of frequency code and related semantic associations is easiest to measure on oppositional/relational iconicity (deixis, big-small, sense reproduction terms). When it comes to other types, e.g., complex sound symbolism, the issue is more difficult. Here, the number of combinations of vowels and consonants on the one side and the number of semantic associations is in principle endless, even though, as shown in 2.3., complex networks are often formed by means of small, oppositional/relational pairs. When considering semantic networks such as in Figure 2 (from Swedish), it seems apparent that the oppositional/relational distinction often lies in the vowel variation, whereas the more associative, qualitative distinction lies in the consonantal variation. This is supported by the result of deictic terms by Johansson & Zlatev (2013), where deictic opposition more often is coded on the vowel variation than the consonantal variation.

Here about Table 3

3. Growth and change of iconicity

In the following section, the growth and change of iconicity, will be investigated from a historical perspective with a focus on sound symbolism. Data is mainly taken from the Germanic branch of the Indo-European language family.

3.1. Complex sound symbolism: phonaesthemes in Germanic

Complex sound symbolism has a number of alternative names in the literature (cf. Hinton et al 1994, 4). Here, a phonaestheme, e.g., a phonemic cluster or a given sound structure, is related to a certain meaning based on an association with similar clusters/sound structure relations in other words (cf. de Cuypere 2008, 113). This means, that the occurrence is based either on frequency (cf. Abelin 1999) or other indexical associations (cf. Reay 1994, Masuda 2002). Complex sound symbolism, which is more productive in some languages, usually tends to form itself into networks, based on, on the form side, phonetic likeness (rhyme, alliteration) and, on the meaning side, semantic associations or connotations. Complex sound symbolism is unusually full-word iconic; the iconicity is either initial (consonantal), medial (vocalic), or final (consonantal) or combined of two of these. Further, the
boundaries between iconic and indexical iconicity often becomes floating. In Swedish *flaxa* ‘flutter, flap’ a likeness to an acoustic signal is understood, whereas in *flimra* ‘shimmer, flicker’, no sound is produced (both group QUICK/STRONG MOVEMENT, Abelin 1999). A sound symbolic network (following the principle of Reay 1994), based on data from Swedish, is given in Figure 2. Here, the basic lexemes of departure are the words *klimp* ‘nob’ and *klump* ‘lump, blob’. The paths are connecting the lexemes both on the form and on the meaning side and lexemes are plotted into a scheme against semantic domain and degrees of semantic quality (see 2.3.). This kind of networking is typical for complex sound symbolism, something which makes it difficult to investigate. Further, oppositional/relational iconicity often hides within networks of this kind: they could somehow be regarded as built up by small oppositional/relational units. Within the network in Figure 2, we find pairs as *klimp – klump, klinga – plinga – ringa*, or *knistra – knirka*.

Here about Figure 2

The Germanic languages are productive in creating and spreading sound symbolic clusters, or phonaesthemes, something that has synchronically systematized in a number of studies (e.g., Jespersen 1925, 386ff., Abelin 1999, Marchand 1960, Masuda 2002, Sadowski 2001). The vocabulary of the Germanic languages is also very well investigated historically. An overview of prehistory of sound symbolic networks therefore reveals a number of different principles of emergence and spread of iconicity. The present study is based on a systematization of etymological proposals for the following Germanic phonaesthemes: initial *gl-, bl-/LIGHT, fl-/MOVEMENT* (Swedish, (Old) English, German, Icelandic), Swedish final *-mp/ROUND FORM*, and Swedish initial *fj-/PEJORATIVE*.

At first, some phonaesthemes occur in all Germanic languages (e.g., *gl-/LIGHT, bl-/LIGHT*) and the association should be ascribed to Proto-Germanic, even if they may continue to be productive in individual languages. Other phonaesthemes are restricted to individual Germanic languages (e.g., Swedish *fj-/PEJORATIVE*). The study of the latter is particularly interesting, since their emergence and spread can be followed in historical time and thus gives useful information on the emergence of sound symbolism (cf. Table 4, on Swedish fj-).

The Germanic phonaesthemes are of two kinds: initial or final. Initial phonaesthemes are normally composed by (fricative) + plosive + lateral approximant/nasal. Final phonaesthemes are normally composed by (vowel) + lateral approximant/nasal/fricative + stop. Considering the etymologies, there are two main types: *non-etymological*, i.e., words with etymologies (Indo-European, Proto-Germanic, loanwords, lawful derivations) and *non-etymological*, i.e., words without etymologies (“probably onomatopoeic, related to x and y”). These two types co-occur constantly within sound symbolic networks.

Looking at the non-etymological, “true iconic” words, the possible emergence can be classified into various types:

- **Direct emergence.** This implies that there is an obvious association with an acoustic signal which has served as the basis for the emergence. To this group we can count most iconic sound symbolic words, as English *crack, tap, smack, plop, warble, wheeze* or Swedish *klicka, kurra, ploppa* and so forth. Often, these iconic terms have equivalents in several Germanic languages, e.g., Swedish *klicka, MLG klucken, OE cloccian, ME cluck*, Gm *glucksen*.

- **Structural emergence.** This implies that the sound symbolic lexeme is coined following a more general, pre-conditioned structure, which is not directly related to other linguistic material within the language. Here, the frequency code and associated semantic notions, described in 2.3., are underlying the outcome. This type is of more general nature but overlaps language-internally with the analogical emergence below, which is more directly related to
other, existing linguistic associations within the language. As structural emergence we can count the vowel variation in Swedish klimp ‘lump, clod’ (lighter), klump ‘lump, clod’ (heavier), kloss ‘log’.

- **Analogical emergence.** Here, words are created by means of an association to other sound symbolic words within the language, formally and semantically. Analogical emergence is similar to structural emergence above, in which more general preconditions as the frequency code underlie the outcome. However, in analogical emergence we might point out other linguistic material, which might have served as the basis for the creation, examples be English flit, flip, flicker, fleet or Swedish flimra, fladdra, flaxa and so forth. Lexemes are created by means of association with other phonaesthemes, which can be either initial (consonantal), medial (vocalic) or final (consonantal). In most cases, the emergence is only partially motivated but in a word like Swedish fjompig ‘show off’, composed by ff- (association PEJORATIVE) and -omp (association ROUND FORM) the emergence can be regarded as complete (cf. Table 4). Even here, there is often considerable agreement between the Germanic languages, e.g., Swedish klump, Middle Low German klumpe, Low German klump, Modern English clump.

Etymological sound symbolic words constitute a second type. These words have a traceable prehistory which can be of several kinds: either they are ancient (Indo-European, Proto-Germanic) words, or they are more recent derivations, or they are loanwords. However, when looking at sound symbolic networks as such, it becomes apparent that there are a number of processes that contribute to the growth of the networks (for networks and definitions see Abelin 1999):

- **Productivity of derivation.** Considering some wide-spread phonaesthemes in Germanic, as initial gl-, bl- or fl-, it turns out that a majority of the lexemes are lawfully derived from a common ancestor. In initial gl- (associated with LIGHT), most forms are derived from Indo-European *gel- ‘shine’. This phonaestheme is extremely productive in network-building. Derivations of the root (cf. Jóhannesson 1956, 375ff.) in various Germanic languages gives a map of semantic derivations that corresponds well to a synchronic associative semantic network of gl-words in any Germanic language (Figure 4, and further below).

- **Sporadic phonetic substitution or retention.** This type of change, which is common among the onomatopoetic words (cf. 3.1.) occurs also in sound symbolic words, though less frequently. The distinction between retention and substitution is vague, an example of both would be, e.g., (Old) Swedish/Old Norse/Norwegian glam ‘noise’, from *hlam, as in Old English hlinman, hlymman ‘sound, noise’ (vb.).

- **Influx and adaption of loans.** A number of words in sound symbolic networks are loan words. Several are borrowed within Germanic, e.g., Swedish glas ‘glass’ ← Middle Low German glas ‘glass’ (inherited form Old Norse gler), Swedish glans ‘brilliance’ ← (Middle High) German glanz, (derivations from the same root) (all group gl/LIGHT), or Swedish kloss Danish klods from Low German klotz, MHG kloz, OE clott < Germanic *klutta- (in Swedish klot ‘ball, globe’) (network kl-/ROUNDNESS) whereas others are borrowed from outside Germanic, e.g., English glair ‘white of egg’, glairy ‘wisced, slimy’ ← Old French glaire, Latin clárus.

- **Semantic change.** This is the tendency to extend or change the meaning of a word to adapt to non-arbitrary groups, e.g., Swedish knöl ‘node, knob, bump’ (ROUND FORM) => “bad person, bastard” (PEJORATIVE). Semantic change of loanwords, as English glair in previous example, should also be counted to this group.

The processes of growth of sound symbolic networks are complex. If synchronic data (for one language, e.g., English, Swedish, Icelandic) of productive sound symbolic clusters as gl- or bl- are brought together, they can be organized into semantic associative networks with a top domain, several
parent nodes and a number of leaves. This has been done for Old, Middle and Modern English \textit{gl}- by Sadowski (2001).

However, when the data set is increased as to include more genetically related languages and the diachronic dimension, i.e., attested semantic change within the data, is added, both the complexity and accuracy of the sound symbolic semantic networks increase.

Figure 4 shows an associative semantic network of words with initial \textit{gl}- which is based on data from four Germanic languages: English, Swedish, German, and Icelandic. Taken as a whole, the network has been based on data from all four languages. However, the network has not been generated in accordance with, as is usual, semantic associations in a synchronic state of a language, but on attested semantic change within the data. This means that associative lanes have been based on either:

- Attested semantic change (with or without morphological derivation)
- Polysemy within a language

The organization of top and parent nodes as well as the semantic paths in this network are therefore \textit{diachronic} rather than \textit{synchronic}. This procedure has resulted in including further lexemes with initial \textit{gl}-, as compared to earlier studies (Abelin 1999, Sadowski 2001), such as Swedish \textit{glada} 'kite', \textit{glögg} 'glogg' or \textit{glänta} 'glade' which otherwise would have been regarded as non-motivated.

Sound symbolic clusters like these reveal much of the processes of the emergence and spread of iconicity. First, the various associations and changes on the meaning side, showing in the form of networks with super and subdomains, nodes and a never-ending number of new semantic sprouts. Second, the realization on the form side, where a number of language mechanisms are active in creating new lexical material (see also Carling to appear).

Here about Figure 4

Another interesting complex is initial \textit{fj}- in Swedish, denoting \textbf{PEJORATIVE}. Table 4 lists words in standard Swedish, \textit{beginning} with \textit{fj}- and denoting \textbf{PEJORATIVE} (about half of the total amount of words beginning with \textit{fj}-), their etymologies and earliest attestations. If we continue to dialects (cf. Rietz 1962[1867], 141-144) or vernacular language (cf. Kotsinas 1998, 52-54), the list would be much longer. However, origin and earliest attestation is more difficult to trace on this type of material. Most other non-motivated words beginning with \textit{fj}- have their origin in Old Norse and Proto-Germanic, e.g., \textit{fjord} (Old Norse \textit{fjørdr}, Proto-Germanic *\textit{feruþi}), \textit{fjäll} (Old Norse \textit{fjall}, Proto-Germanic *\textit{felza}), \textit{fjäder} (Old Norse \textit{fjödr}, Proto-Germanic *\textit{fedrō}), and the initial \textit{fj}- has emerged from the Germanic sound change known as “breaking”. Apparently, there is no such connection between \textit{fj}- and \textbf{PEJORATIVE} in Icelandic. The connection is an innovation in Swedish, most likely emerging and active around the 18\textsuperscript{th}-19\textsuperscript{th} century.
So, what conclusion can be drawn from the above-mentioned examples? First, that complex sound symbolism is connected to linguistic productivity involved in the derivation of new words. If the gl- or bl- initial clusters are productive as signals for LIGHT and connected meanings in Germanic languages, there is a great number of derivations with various connected meanings containing these initial clusters. Second, complex sound symbolism has an influence on the influx of loan-words as well as the pathways of semantic development of the loanwords, selecting among loanwords in order to arrange them into motivated association networks. Thirdly, complex sound symbolism plays a role in sporadic sound change or retention.

3.2. The process of conventionalization

Apparently, as we have seen in the previous sections, iconicity is a linguistic feature that renews itself continuously. As assumed already by Jespersen and others, the reason is most likely the human cognitive apparatus: we tend to create or look for meaningful connections between form and function in language, which in the long run actually affects the form as well as the function of the language. However, most parts of any language consists of conventionalized, symbolic material (“arbitrary” in the Saussurean sense) which we use without further thinking and the contrary of motivated change - conventionalization - is a linguistic process to be counted upon, as important as motivated change or iconic/indexical emergence. On iconic forms, i.e., words that imitate acoustic signals, the process is easier to follow: iconic forms become adapted, conventionalized and subject to language change (erosion, sound change, etc.) and the connection between form and function is gradually bleached: in the Swedish word for ‘owl’ *uggla*, only the *u*- reminds of its imitative, non-arbitrary past (see Carling to appear on bird names).

When it concerns the indexical forms, the reconstruction of the process is very complex. First, we have to count upon change both on the formal and on the functional side. In indexical iconicity we might find phonaesthesmes are connected to semantic fields or networks, sometimes very general in nature (e.g., SWIFT MOVEMENT, HOLLOW FORM). By semantic change, the originally motivated meaning might become more and more specialized and distant from the original, indexical meaning. Therefore it is difficult to establish when the once indexical connection has become more or less lost. Should, e.g., a word like Swedish *glada* ‘kite’, derived from *glad* ‘happy’ from the complex of LIGHT, be counted as indexical? The answer would be no: there are no other parallels as concerns acoustic signal, form and meaning of ‘kite’ that makes it relevant to connect the word synchronically to the gl-network, in spite of the diachronic connection. The word has become, on the functional side, de-iconized.

4. Concluding remarks

To sum up, we should turn back to the questions posed at the beginning: What role does iconicity play in language change? Does iconicity disappear or appear as a result of language change? Does iconicity has the capacity to prevent or reorganize language change? Can the postulation of a theory on iconicity in language change have consequences for the discussion on the origin and evolution of language?

As we have seen from the data presented above, the processes of creating iconicity and conventionalization are continuously interplaying in language change. It is highly likely that this tendency also has relevance for other communicative systems, be it primate calls, restricted systems or
sign language. This process ought to be connected to factors as our cognitive processing of the world around us, the change and development of the communicative systems as well as the learning of the system.

To try to conclude what is more primordial is problematic: emergence of iconicity and conventionalization continuously renew themselves, maybe on the whole creating an even amount of motivated and conventionalized forms, but on the individual level creating an uneven amount of motivated and conventionalized forms in language.

However, if you look at any language from a synchronic perspective, making a typological analysis of motivated forms in a language, it becomes obvious that some languages have a larger amount of iconicity than others. This has naturally to do with the processes of iconization and conventionalization and how these processes are or have recently been active in language. Some languages might be in a phase of building up categories of ideophones whereas others might be in a phase of expanding sound symbolic clusters, and so forth.

Motivated forms might be given a particular position in language (as onomatopoeics) and become fossilized or otherwise resistant to language change, either as groups (e.g., ideophones) or as individual words (e.g., onomatopoeics). On the other hand they might also be adapted to the language system and natural components in language change and accordingly affected by sound change, erosion and semantic change. This process could be described as a conventionalization.

The growth of iconicity can thus be characterized by three main processes:

- **Direct emergence.** This principle implies that there is no previous linguistic material, which the motivated expression relates to. This type is most typically found among non-arbitrary words as onomatopoeic words, but it is also to be counted upon as being involved in the emergence of complex sound symbolism.

- **Structural emergence.** This principle implies that there is a given structural precondition in the language, according to which a motivated expression is coined. This structural precondition might be both of qualitative and quantitative nature, e.g., a certain given combination of phonemes correlates with a certain semantic domain, a repetition of a phoneme implies intensification, a more fronted vowel implies smaller size or here-deixis, and so forth. The emergence, spread and change is basically governed by indexical rather than non-arbitrary associations. Here, general preconditions as the frequency code and cross-modalities play an important role.

- **Analogical emergence.** This principle implies that a motivated expression is related directly to other linguistic material within the language, lexical or phonemic, from which an association is created, either on the form or on the meaning side. Like with structural emergence, the spread is governed rather by indexical than non-arbitrary associations.

It is possible that this three-partite distinction has further consequences for the question of innateness, cross-modalities, as well as origin of early language. The notion of direct emergence has implications for the correlation between language and the outside world, structural emergence of language and other related multimodal capacities, whereas analogical emergence is related to correlations within language per se.

**Notes on contributors**

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Niklas Johanson has an MA degree in general linguistics from Lund University, Sweden.
References


<table>
<thead>
<tr>
<th>Semantic domain</th>
<th>Semantic quality</th>
<th>Example, semantic node</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACOUSTIC/SOUND</strong></td>
<td>LOUD SOUND</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RINGING SOUND</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOISE</td>
<td></td>
</tr>
<tr>
<td><strong>PHYSICAL PROPERTY</strong></td>
<td>HOLLOW FORM</td>
<td>cave-like</td>
</tr>
<tr>
<td></td>
<td>SLACKNESS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LONG THIN FORM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WETNESS</td>
<td>slimy</td>
</tr>
<tr>
<td></td>
<td>LIGHTNESS</td>
<td>light, glowing</td>
</tr>
<tr>
<td></td>
<td>DARKNESS</td>
<td>gloomy, blind</td>
</tr>
<tr>
<td><strong>SIZE/DISTANCE</strong></td>
<td>BIG/SMALL</td>
<td>big, small</td>
</tr>
<tr>
<td></td>
<td>PROXIMAL/DISTAL</td>
<td>proximal, medial, distal</td>
</tr>
<tr>
<td><strong>TYPE OF EVENT</strong></td>
<td>SWIFT MOVEMENT</td>
<td>running, flying</td>
</tr>
<tr>
<td></td>
<td>ITERATIVE MOVEMENT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DESTRUCTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FALLING</td>
<td></td>
</tr>
<tr>
<td><strong>SENSE REPRESENTATION</strong></td>
<td>SMELL</td>
<td>acid, sharp, soft</td>
</tr>
<tr>
<td></td>
<td>TASTE</td>
<td>pleasant, unpleasant</td>
</tr>
<tr>
<td></td>
<td>COLOUR</td>
<td>darker, reddish</td>
</tr>
<tr>
<td><strong>EVALUATIVE ATTITUDE</strong></td>
<td>PEJORATIVE</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Semantic aspects of iconicity, organized into domains, qualities and examples of semantic nodes or realizations.
<table>
<thead>
<tr>
<th>Voicing</th>
<th>Voiceless sounds</th>
<th>Voiced sounds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F2 frequency</strong></td>
<td>-</td>
<td>&gt;2000 Hz</td>
</tr>
<tr>
<td><strong>Vowel quality</strong></td>
<td>-</td>
<td>i</td>
</tr>
<tr>
<td><strong>Consonant quality</strong></td>
<td>Voiceless consonants</td>
<td>Palatal voiced consonants</td>
</tr>
</tbody>
</table>

Table 2. Realization of the frequency code (for explanation see text).
<table>
<thead>
<tr>
<th>Semantic domain</th>
<th>Typical quality High frequency</th>
<th>Typical quality Low frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EVALUATIVE ATTITUDE</strong></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td><strong>FORM</strong></td>
<td>Small, light</td>
<td>Round, heavy</td>
</tr>
<tr>
<td><strong>LUMINOSITY</strong></td>
<td>Light</td>
<td>Dark</td>
</tr>
<tr>
<td><strong>WEIGHT</strong></td>
<td>Light</td>
<td>Heavy</td>
</tr>
<tr>
<td><strong>MOVEMENT</strong></td>
<td>Light, swift</td>
<td>Heavy</td>
</tr>
<tr>
<td><strong>CONSISTENCE</strong></td>
<td>Light, thin</td>
<td>Heavy, thick</td>
</tr>
<tr>
<td><strong>SOUND</strong></td>
<td>Bright</td>
<td>Deep, noicy</td>
</tr>
<tr>
<td><strong>SPATIAL POSITION</strong></td>
<td>Close</td>
<td>Distal</td>
</tr>
<tr>
<td><strong>SIZE</strong></td>
<td>Small</td>
<td>Big</td>
</tr>
<tr>
<td><strong>SMELL</strong></td>
<td>Pleasant</td>
<td>Unpleasant</td>
</tr>
</tbody>
</table>

Table 3. Frequent semantic associations connected with high versus low frequency as involved basically in oppositional/relational iconicity (based on Ohala 1994, Diffloth 1994, Abelin 1999).
<table>
<thead>
<tr>
<th>WORD</th>
<th>MEANING</th>
<th>ETYMOLOGY</th>
<th>Earliest attestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>fjant</td>
<td>Busybody</td>
<td>from Rotwelsch/Bavarian <em>fant</em> ‘Knabe, Bube’</td>
<td>attested from end of 19th C.</td>
</tr>
<tr>
<td>fiasko</td>
<td>Failure</td>
<td>from Italian <em>fiasco</em> ‘bottle with flat bottom and long neck’</td>
<td>attested from end of 19th C.</td>
</tr>
<tr>
<td>fjollig</td>
<td>Foolish</td>
<td>from Old French <em>fol</em></td>
<td>attested from end of 18th C.</td>
</tr>
<tr>
<td>fjompig</td>
<td>show off</td>
<td>variant of <em>fjollig</em>?</td>
<td>unknown</td>
</tr>
<tr>
<td>fjuttig</td>
<td>Insignificant</td>
<td>variant of <em>futtig</em> (same meaning), probably from German <em>futsch</em> ‘away, in vain’ (onomatopoeic)</td>
<td><em>futtig</em> from end of 18th C.</td>
</tr>
<tr>
<td>fjäsa</td>
<td>fawn on</td>
<td>earlier meaning ‘hurry without doing anything’, probably variant of <em>fjäsa</em> (same meaning) of uncertain origin</td>
<td>attested in this meaning since 18th C.</td>
</tr>
<tr>
<td>fjärta</td>
<td>fart</td>
<td>Germanic word with Indo-European roots, Old English <em>feortan</em>, etc.</td>
<td>attested from 16th C.</td>
</tr>
<tr>
<td>fjoskig</td>
<td>dotty</td>
<td>variant of <em>fnoskig</em>, uncertain origin</td>
<td>attested from 18th C.</td>
</tr>
<tr>
<td>fjälla</td>
<td>girlfriend, prostitute</td>
<td>from argot (knoparmoj), origin unknown</td>
<td>attested from early 20th C.</td>
</tr>
</tbody>
</table>

Table 4. Standard Swedish words beginning with *fj-* denoting PEJORATIVE

Figure 1. Terminological definitions of iconicity used in this paper
Figure 4. Syn- and diachronic semantic network of words beginning with gl- in Germanic, based on data from four Germanic languages, English, Swedish, German, and Icelandic. The associative lanes are based on: 1) attested semantic change, based on etymological proposals for individual lexemes (with or without morphological derivation), 2) polysemy of individual lexemes in the data (network expanded from Abelin 1999 and Sadowski 2001).