Elin Dofs

Onomatopoeia and iconicity
A comparative study of English and Swedish animal sounds

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Abstract

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The aim of this essay is to examine whether language is iconic or arbitrary in the issue of onomatopoeia, i.e. whether animal sounds are represented in the in different languages. In addition, I will also look at onomatopoeical words which have been conventionalised, when the meaning broadened and they finally became part of ordinary language.

It can be stated that arbitrary signs have slowly taken over as different languages have developed, but the reason why is a topic for discussion – is there a scientific cause, based on the theory of evolution, or an explanation found in religious myths? Whatever the reason is, it is not likely that iconicity will vanish totally. It is connected to human neurophysiology and an ancient part of language, a natural resemblance between an object and a sign which can exist in different forms. Onomatopoeia is one example of iconic signs, an object named after the sound it produces, and according to one theory conventionalised imitations is actually the origin of language. Nevertheless, there are two main categories – language being either iconic or arbitrary. Regarding onomatopoeia, my results suggest that language is only iconic to a limited extent. English and Swedish have some common representations of animal sounds, but the languages also differ in many ways. Conventionalising seems common in both languages and many of the words in my survey have been incorporated in dictionaries, representing more than only the sound of a certain animal.

Nyckelord: Iconicity, onomatopoeia, arbitrariness, sound symbolism, Ferdinand de Saussure, Peirce Sanders, conventionalising

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1. Introduction and Aims

The relation between meaning and sound has been discussed for many centuries. It is an issue for philosophers as well as linguists, and it is an issue that can be discussed from two perspectives: *arbitrariness* and *iconicity*. Are vocabulary items based on conventions or are they natural and universal? There seem to be arguments both for and against, but despite the debate it can be stated that all languages have instances of onomatopoeia, words which express a direct likeness between sign and referent.

Languages are in general arbitrary because the words that are used only have meaning for other speakers of the same language. The animal which is called "horse" by an Englishman would be "cheval" for a Frenchman and "häst" for a Swede, and none of these words would make sense for a speaker of German. One exception to arbitrariness, however, is onomatopoeic words; they are imitations of sounds, for example the sound of a horse. A word that directly reflects the concept it conveys is considered to be iconic. Iconicity is when sound and meaning are identical, when there is a natural resemblance between a sign and the concept it refers to. Full iconicity will be a word that can be recognized by everyone, despite language.

Many of the theories about the origin of language also address onomatopoeia, such as the idea of conventionalising – when the meaning of an iconic word broadens, and it finally becomes arbitrary. This would imply that it iconicity is a phenomenon which is more important for language than people in general think. Onomatopoeic words are a product of a deep-seated need to coordinate word and meaning; it is as if humans wanted language to be onomatopoeic. Many words in ordinary language began as imitations or mimicking and were later conventionalised (Bredin 1996:565). In that way, onomatopoeic words become a part of language, and the relationship between sound and meaning often begins to look more arbitrary. Nevertheless, a degree of iconicity, though not clear-cut, remains.

In this paper I will compare onomatopoeic words for animal sounds in Swedish and English. I will use the International Phonetic Alphabet to give an accurate representation of the words in both languages and compare the representations. The aim of this investigation is to see if they are represented in the same way. Different classes of sounds will be categorised and contrasted. I will also look at how many of the onomatopoeic words relating to animal sounds in each language have become conventionalised and part of the lexicon of the language.

2. Background

2.1 Arbitrariness

The development of arbitrary linguistic signs began around175,000 BP[1], at the time when the first humans started to spread from east Africa and around the world. Different cultures were created and when the nomadic hunter-gathering communities separated, the languages of the different groups underwent differentiation. This happened over time and during a period of separation the languages functioned to strengthen new group identities. Arbitrariness also made it possible for humans to develop more complex languages than animals. It is easier to learn sound-pairs of a certain speech community which can be combined in many different ways, than to develop an inherent system for communication in several different contexts (Fischer & Muller 2003:419).

Language began as a system of emotive signs, grunts, moans and cries, and as time passed it became less iconic. Finally today the arbitrary signs are dominating. It is a tendency which can be described as growing from more universal to more language-specific. Even though language tends to decrease in emotive and iconic quality, it is not likely that emotive and iconic signs will ever disappear and language will be totally arbitrary. They are part of instincts, emotions and intuition which represent ancient features of language, and they are also part of human neurophysiology. Language will probably continue to express this emotive and intuitive behaviour in child talk, religious language, comic strips and oral poetry also in the future (Fischer & Nänny 1999:74).

The diversity of languages that can be seen around the world, there are about 5000 languages spoken today and there were even more in the past, is sometimes used as evidence of arbitrariness. As a counter argument the linguists believing in iconicity claim that in the beginning there was only one, original language, one invention of language. Humans were created with an innate ability to understand language, no conventions or agreements between speakers were necessary (Vajda 2001).

The belief in a single, original language is the oldest hypothesis. It is called "monogenesis" and one explanation of the diversity of today can, according to the hypothesis, be found in

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[1] It is a time scale used to specify when events in the past occurred. The origin of the scale is "present" time, which is 1950 AD. For example, 1500 BP means 1500 years before 1950, i.e. in the year 450. (O'Neil 2005)

various religious traditions. The story about the tower of Babel in Genesis in the Judeo-Christian tradition is one well-known example. There are similar examples in other cultures around the world, such as the story in pre-Columbian Mexico about the great pyramid at Cholula, which was built in order to reach heaven and was destroyed by a God who confounded the language of the builders. The belief in a single, original language also has a nationalistic aspect. A German philologist claimed that German was the single ancestor tongue and all other languages were inferior versions. A Basque scholar regarded Basque as the original language. One Swedish philologist maintained that in the Garden of Eden God spoke Swedish, Adam spoke Danish and the serpent spoke French. Theories of monogenesis can also have a more scientific basis. According to the "Mother Tongue"-theory the origin of all languages spoken on earth today is a language spoken by a single group of Homo Sapiens, perhaps as early as 150 thousand years ago. As time passed and due to colonization and separation, the language differentiated and formed all the different languages that are spoken today (Vajda 2001).

The diversity of languages can also be explained by a hypothesis which is similar to the theory of evolution. Humans developed in different places on earth and so did language; each group developed its own distinctive language, independently in different locations. This view of language development is called "polygenesis", a hypothesis of parallel evolution. The separate mother tongues are supposed to be the origin of the major language families of today (Vajda 2001).

2.2 Iconicity

A natural resemblance between a sign and the concept or object in the real world which it refers to can be classified as iconicity. That is the fundamental feature, but the definition of iconicity is not unambiguous. Iconicity is a likeness to a concept, and that includes our own impressions and ideas about something, and to an object in our own perception of the world, and we all perceive the world in different ways. This is something that implies a resemblance which is a product of a cognitive processing and not simply an objective fact (Fischer & Müller 2003:46).

Imagic iconicity is when the similarity between object and sign is a result of common characteristics which are integrated in them both. Portraits and onomatopoeia are examples of categories of iconic images; one can, by simply looking at the icon, get information about its

object. When it comes to the second kind of iconicity, **diagrammatic iconicity**, the resemblance is not as obvious. It is a relation between signs which reflects a similar relation between objects or actions. One famous example is Caesar's dictum "veni, vidi, vici", the similarity of the three verbs mirrors a similarity of the three actions they refer to. These two categories are not unambiguous and they form a scale from almost perfect mirroring to a relationship that becomes more and more language dependent. The highest degree of iconicity is a semiotic relation that is almost universal, a connection between meaning and sound which will be understood by everyone, despite language. (Fischer & Ljungberg. 2008).

2.2.1 Onomatopoeia

Onomatopoeia is a form of auditory icon sign, a name for an object which is made from an imitation of the sound it produces. Some languages are more iconic than others since the use of onomatopoeia is limited by the number of phonemes in the language. For example a word such as *crash* would not be possible in Japanese. That is because Japanese syllables cannot begin with a sequence like *kr* or end with a consonant like *sh* (Gasser 2006). Which kinds of phonemes that are available in a certain language varies but 70 percent of the languages of the world have between 20 and 37 phonemic segments. The largest recorded number in a single language is 141. How good different individuals are when it comes to imitating sounds also depends on the anatomical structure of the vocal organs. Nevertheless, the capacity to represent sounds and sound properties exists in every human language. Thus, onomatopoeia is a universal possibility in all languages (Bredin 1996:568).

There are three kinds of onomatopoeia, which reflects that the relation between meaning and sound can be expressed and interpreted differently. The first is **direct onomatopoeia**, words which are similar to the actual sound they refer to. Some typical examples are *zoom, bang, moan, cluck*, and *hiss*. The next category is words which are onomatopoeic because of associations, not because they resemble the object or the action they represent. *Whip* is the sound made by a whip, and *cuckoo* is the bird's name but the resemblance refers to the song it produces and does not have anything to do with the bird itself. These words can be classified as examples of **associative onomatopoeia**. The third kind of onomatopoeia is based on the amount and character of the physical work done by the speaker in uttering the word. It is called **exemplary onomatopoeia**. Different words require different muscular effort; words such as *nimble* and *dart* require less effort than, for example, *sluggish* and *slothful*. The resemblance between the sound and the concept it refers to is to be found in implications and

associated ideas and not in the actual meaning as specified in a dictionary. *Dart* has a quick darting sound and *nimble* exemplifies nimbleness since it is itself a nimble sound (Bredin 1996:557-563).

2.2.2 Sound symbolism

The idea of sounds having meaning in themselves is called sound symbolism and it is a relation of sound to specific semantic fields, such as weakness and strength. This is related to iconicity and can be used to explain the use of onomatopoeia. It is a natural association between sound and meaning, for example the correlation between high tones, front vowels, such as *i,* and words symbolising small size and brightness, e.g. *thin*, *light, petit*. In human language sound symbolism can be part of the explanation why the sound of small animals, like birds, is represented by *tweet-tweet* or *cheep-cheep*. On the other hand, low tones, back vowels, such as *u,* are often associated with words representing large size, darkness and coarseness, e.g. *gloom*, *hunk* and *muck*. In onomatopoeia, this is obvious in a word like *muu*, the word representing the sound of a cow. It is not that *i* is associated with weak and *u* is associated with strong, but the relation correlates to the relation between small and big. It is not a relation between meaning and sound, but between meaning-relations and sound-relations and it reflects patterns of iconicity in language (Bredin 1996:567f).

Sound symbolism can be connected to specific clusters of sounds as is obvious in the case of the English consonant cluster *sn*. The habit of associating a certain sound with a certain meaning can be seen between the initial consonant cluster *sn* and words connected to the nose, e.g. *snarl, sneeze, sneer, sniff, snivel, snort, snout* and *snuffle*. The coining of slang words referring to the nose also involves this cluster, as in *snoop* and *snook*. The sound combination spelled *–ash* also has its own pattern of associations. Speakers of English relate the sound to a sudden, loud sound or a rapid, turbulent, destructive motion. Some examples are *crash, splash, smash, flash, dash* (Nelson 1998:162).

2.2.3 Synaesthesia

A systematic interconnection between aural and visual perceptions, and maybe between sensations of all kinds, can be part of the explanation of sound symbolism –the phenomenon is called synaesthesia. One famous example is from Locke's "Essay", a blind man who said the colour scarlet was like the sound of a trumpet. There are different opinions about synaesthesia but if it dies exist then sound symbolism would be a necessary consequence and

a natural product of the human psyche, an inevitable fact and not a result of empirical observations (Bredin1996).

Synaesthesia can be explained scientifically in terms of neurological processes connected to certain cell clusters. After studying the blood flow to cortical association centra for vision-hearing-touch during a subject's synaesthetic experiences, Cytowic (1989) (Abelin 1999:43f) claimed that synaesthesia is a purely neurological phenomenon. By introducing electric stimulation during operations the boundaries between senses disappeared for some individuals. Persons with synaesthesia are unusual and the experiences can very from person to person. The differences in experiences are one of the problems with explaining and proving synaesthesia (Abelin 1999:43f).

2.3 The issue of arbitrariness and iconicity

2.3.1 Cratylus

One of the first contributions to the debate about iconicity and arbitrariness appears in "Cratylus", a work by Plato (c. 427-347 B.C). It presents a discussion about the language being either natural or conventional, and the issue has not really been resolved since. It is a dialogue between two men, Hermogenes and Cratylus, about the issue of language reflecting nature. Socrates (469-399 B.C) appears in the dialogue and he discusses the Greek letter *lambadia*, which represents *l*. He finds that it is natural, an example of iconicity, in words like *leios* which means slippery in Greek and that is because the tongue makes a gliding movement when making the *l* sound (Falk 1998:445). Finally, at the end of the dialogue, they all agree that they need to think it over – the true nature of language (Graham 1992:3f).

2.3.2 Ferdinand de Saussure

Ferdinand de Saussure is by far the most important name in modern linguistics and he claimed that all languages are arbitrary. Language is based on a process of naming, when things are associated with a specific word or name. This process consists of two elements, a sound image which is the **signifier**, and a concept, which is the **signified**. The sound image is the impression something makes, not the actual sound but rather the mental impress. It is almost like talking to yourself – you do not make a sound but you still have an idea of what you are saying. By combining the sound image and the concept, a linguistic sign is formed and this creates a meaning. A sign is a combination of a signifier and a signified. Later on, those signs that are agreed upon by speakers of the same language are included in ordinary language. The

fact that words which represent the same things are different in different languages shows that the relation between the signifier and the signified is arbitrary. There is no logical explanation for the combinations of sound images and concepts. Multiplicity of meaning is possible when one signified can have many signifiers, and vice versa, and this is what makes language ambiguous (Klages 2001).

The model of semiotics that Saussure represented, a certain way to use language to communicate, later became "Semiology". He claimed that arbitrariness made the formation of patterns and networks of differences in meaning possible and by focusing on the connection between the signifier and the signified, the researcher could find the structural network of meaning below the surface of sign relations. He considered languages as the primary, but not the only sign system (Shank 1995).

2.3.3 Charles Sanders Peirce

Charles Sanders Peirce represents the second branch of semiotics, beside Saussure, and he claimed that language is iconic. He made comprehensive studies and his accounts of signs are still referred to in different linguistic contexts.

His most famous account is the division of signs into icons, symbols and indexes. This classification goes beyond the classical dichotomy of arbitrariness versus iconicity, conventional signs defined as the opposite to natural signs. Peirce proposed a triadic system, a system where icons not only opposed arbitrary signs, which he called symbols, but also indexical signs. **Symbols** are conventional or arbitrary signs which stand for an object due to law and association of general ideas. When it comes to the **indexes**, the second category, the relation between a sign and its object can be defined as cause and effect, a chronological, local or physical connection. Weather signs and symptoms of diseases are examples of indexes and in language they constitute the class of deictic words, e.g. *I, here, now*. An **icon** is a sign which resembles or partakes in the character of its objects, for example a portrait or a painting. According to Peirce there are two kinds of icons: genuine icons and hypoicons. A genuine icon is more than similar to its objects. It does not make any distinction between itself and its object and is a self-referential sign. A hypoicon shares only some of its features with its object and can only be described as similar (Fischer & Nänny 1999:18f).

2.4 Theories of the origin of language

2.4.1 Iconicity

There are many theories about the origin of language. A great deal of those theories hold that language began through human mimicry of naturally occurring sounds or movements. These are theories which are similar and in line with Peirce's ideas of language being iconic from the beginning.

One is "the mouth-gesture"-theory which claims that the movements of the arm and hand are synchronised with movements of the speech organs when they are used in sign language and when using tools. If such a movement of the speech organs would be followed by vocalisation, then the sound would have the same meaning as the gestures and therefore be recognised by the hearer. He will understand the message because he unconsciously, in his mind, repeats the gestures which have made the sound (Abelin 1999:19).

The "ding-dong"-theory was suggested by Max Miller and is based on the sound of an object that is struck. After reconstructing 400-500 Indo-European roots, he concludes that humans tend to connect certain sounds to certain actions and objects, depending on the way it echoes inside their mind, similar to the tone from something that is hit. This is comparable to modern theories of sound symbolism, but Miller claims that the instinct to connect sound to semantic fields disappeared when language had developed (Abelin 1999:18).

Onomatopoeia is sometimes included in conventional language, and the "bow-wow"-theory explains how the imitation of sounds evolved into conventional language. Iconic words such as *bow-wow,* which was the imitation of a dog's bark, changed form and the meaning broadened, and finally *bow-wow* became the representation for *dog* (Corballis 1999).

2.4.2 Arbitrariness

There are also of theories about the origin of language which represent the second view, i.e. that language is arbitrary. According to these theories, language is based on mutual agreements between speakers. These are some suggested explanations for the origin of arbitrariness as discussed by Saussure.

Help, run, look, out, are words which are very common, and the "warning"-theory suggests that those were the base for human language. Language developed as a way of instructing

other members of the same tribe when it was time to hunt or perform other work, or as a warning signal when a wild animal approached. Thus, the first language was indexes used in daily life (Vajda 2001).

Another approach to language was introduced by the Danish linguist Jespersen, and it is called "the sing-song"-theory. According to this theory, language developed from play, emotional mutterings, laughing and similar sounds. In addition, he also suggested that some of the first words uttered by humans were long and musical. This is a theory which opposes many people's opinion about short grunts being the first words ever spoken by humans (Boeree 2003).

A theory which is slightly different was introduced by E. H. Sturtevant, "the lying"-theory. Emotions and intentions are mainly expressed by gestures, sounds and looks, and therefore language must have been invented to deceive and lie. It was invented for the purpose of selfish ends and the need of deceiving was a social force for language development (Vajda 2001).

3. Methods and Materials

Onomatopoeia is mainly about sound, the representation of the dog's bark, is the representation of the sound of a dog. This can be hard to transcribe and in this case the pronunciation, and not the spelling, is the most important because my aim is to compare the representation of English and Swedish animal sounds. In order to do so, I have decided on two things to look at in particular, when comparing the pronunciation of words; firstly, spoken and written language do not always agree and secondly, letters are pronounced differently in different languages. Iconicity is when the symbol resembles its object and therefore it is important to compare the actual imitation. In order to do so I will use the International Phonetic Alphabet. This will make up for differences in spelling and it will provide a direct comparison between Swedish and English which is easy to follow.

A phonetic symbol represents, for example, a certain combination of point of articulation, manner of articulation and voicing. The two columns in appendix 1 show how vowel sounds are arranged in English and Swedish and how they relate to each other. The way they are categorised, the different classes of sounds, is my starting point. I will try to see if sounds are represented in the same way in Swedish and in English, if they contain symbols from the

same classes. Appendix 2 contains a similar chart for consonants, and it will be used for the same purpose.

The two languages do not have the exact same composition of phonemes and I will examine how that is reflected in the words representing animal sounds. I want to see if the language specific phonemes are often used and how that affects the degree of iconicity. In addition I will try to find a pattern among the differences by using the models of consonant and vowel sounds mentioned above.

In order to find out if a word is conventionalised, I will use ordinary dictionaries. The criteria I will use are: 1. the word must be part of standard language and 2. It must be a word which is normally used in more ordinary language, such as *coo*, used not only to refer to the sound made by a particular animal, such as *voff-voff*. I will only include words that can be associated to the original onomatopoeic word.

The number of animal sounds which have a phonological representation that can be agreed upon by many people is limited, and I have not been able to find too many, a fact which has affected my choice to some extent. However, mostly I have picked the examples best suited. I have chosen examples of onomatopoeia which are frequently used in everyday language. To include common animals makes it easier to find representations. They are used in different contexts and I have double-checked to find the correct and mostly used option. The words will also be easier to identify for the reader and the investigation more interesting to read because it comes closer to reality. Imitations of animal sounds have been a part of language for centuries which makes it more likely that they would mirror the typical phonological features of a specific language. The result of the investigation can thereby focus on similarities and differences between languages and the degree of iconicity in onomatopoeia.

I am aware of the fact that anyone can publish something on the internet and therefore I have only used material from web pages belonging to organisations that are recognized or from well established forums. I will try to present my interpretations in a way so the reader can follow and make his/her own judgment about my results and discover places where my methods might not fulfil the requirements of objectivity and relevance.

As for the results of this investigation it is important to remember that this study includes only a few of the total number of onomatopoeic words in English and Swedish and it is not a sufficient basis for generalisation. The results should be considered as a contribution to the debate and not as a conclusion.

4. Onomatopoeia in English and Swedish

I have gathered examples of onomatopoeia representing animal sounds, altogether 19 words in English and in Swedish (see **Appendix 3**).

4.1 Similarities and differences

There are some examples of imitations of animals which are represented almost the same in English and in Swedish. At first there is the sound of a cat. The spelling is different, in English *meow* and in Swedish *mjau*, but the pronunciation is the same [miau]. Then there is the sound representing a cuckoo, [kuku:], which is also identical in the two languages even though the spelling differs slightly, *cuckoo* and *ko-ko*. Those are the only words which have the exact same pronunciation, but there are other words which are very similar.

The sound of a dog is represented by [wu:f-wu:f] in English and [vuf-vuf] in Swedish. It is almost identical and the spelling is also very similar, *woof-woof* & *voff-voff*. The sound a duck makes is represented by [kwakkwak] in English and it is very similar to the onomatopoeic word used to represent ducks in Swedish, [kvakkvak]. Spelling becomes a problem when it comes to comparing the words representing the sound made by a sheep, because the English alphabet does not have as many letters as the Swedish (å, ä, ö), but the International Phonetic Alphabet makes it possible to transcribe the words. Therefore, despite the spelling, the pronunciations can be captured and seem to be rather similar, [ba:] & [bæ:]. Finally, the words representing the sound of a cow, in English [mu:] and in Swedish [mū], are only separated by diacritics.

A pattern which includes a majority of the Swedish words and almost half of the English words is reduplication. The syllables are repeated at least twice. The word which is reduplicated in one language often has an onomatopoeical counterpart in the other language which also is reduplicated.

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	English	Swedish		English	Swedish
Hen	[kləkklək]	[kakaka]	Crow	[kɔːwkɔːw]	[krakskraks]
Cuckoo	[kuku:]	[kuku:]	Duck	[kwakkwak]	[kvakkvak]
Mouse	[skwi:ki:k]	[pi:p pi:p]	Pig	[ɔɪŋk ɔɪŋk]	[nøf:nøf:]
Bird	[tʃi:ptʃi:p]	[pi:p pi:p]	Small dog	[jæp jæp]	[bjEb:bjEb:]
Medium dog	[wu:f-wu:f]	[vuf-vuf]			

There are two words which are reduplicated in Swedish but not in English. These words are purely onomatopoeical in Swedish, but their English counterparts also have a more general meaning and have been included as verbs in ordinary language (see section **4.3**).

	English	Swedish
Dove	[ku:]	[u:hu:u:hu:]
Frog	[krəʊk]	[kvak:vak:]

There are some words which are totally different. The sound representing a pig, [ɔɪŋk ɔɪŋk] and [nøf:nøf:], a horse, [nei] & [gnɛg], and the sound representing a bee, [bʌz] & [sør:], do not have anything in common. [i:k] and [brø:l] represent the sound of a moose in English and Swedish; here, even though the vowels are quite close, the difference is obvious. The spelling of the three words, *oink* and *nöff-nöff, neigh* and *gnägg, eek* and *bröl*, is also completely different in the two languages. Finally *buzz* and *surr* have two features in common; the same vowel and double consonants at the end. However, the phonetic representations turn them into two different words.

4.1.2 Consonants and vowels

Every language has its own vocabulary, represented by a specific set of phonemes. The same sounds are used over and over again and combined according to mutual agreement between speakers. By listening to the people in their surroundings, children learn to contrast sound pairs of a certain speech-community, e.g. /p/ and /b/. The intonations which distinguish different languages are also learnt at an early age. Before the baby is able to form real words, she can make strings of nonsense words which have the correct intonation of a statement or a question (Moskowitz 1998:550f). As the child grows, her ability to pronounce words develops. At first focusing on pronouncing accurately, and later, on pronouncing

systematically. That is why adults have such a hard time learning a second language without the accent of their native language. The phonemic system is acquired at a very early age and the muscles of the vocal organs become so used to always performing the same movements that it is hard to learn new pronunciations (Moskowitz 1998:552). Accordingly, the phonemic system of a particular language constrains the representations of onomatopoeic words i.e. phonemes that are chosen from a phoneme inventory to represent certain sounds. Onomatopoeic words are created based on the sounds which exist in a language, and something cannot be described in terms of sounds a person has never experienced before.

That the number of phonemes constrains onomatopoeic representation can be seen in the representation of English and Swedish animal sounds (see **Appendix 3**). There are more vowel monopthongs in Swedish, 20, than in English, 12, a fact which becomes obvious. Swedish has 9 vowel sounds (/æ:/, /a/, /y: /, /Y/, /ɯ/, /ø: /, /œ/, /ɵ/, /o: /) which do not exist in English and English has 3 vowel sounds (/ʌ/, /ɒ:/, /ɜ/) which cannot be found in Swedish.

Some of the words representing animal sounds which seem very arbitrary, are a product of those differences. 16% of the English words (3/19) and 42 % of the Swedish words (8/19) consist of at least one phoneme which is specific for the language in particular, see below. By using vowel sounds that cannot be found in other languages, the onomatopoeic words can only be iconic for speakers of the same language.

	English	Swedish		English	Swedish
Hen	[klʌk]	[kakaka]	Bee	[bʌz]	[sɵr:]
Rooster	[kɒkʌdu:dldu:]	[kɯkɛlikū:]	Elk	[i:k]	[brɵ:l]
Pig	[ɔɪŋk ɔɪŋk]	[nøf:nøf:]	Horse	[nei]	[gnɛg]
Frog	[krəʊk]	[kvak:vak:]	Crow	[kɔːwkɔːw]	[krakskraks]

The closed vowels are much more common in both English and Swedish than the open ones, for example the sound of a mouse [skwi:ki:k] and [pi:p pi:p] and the sound of a bird [tʃi:ptʃi:p] and [pi:ppi:p]. Front vowels, like [bœ:] and [bæ:] are more frequently used in Swedish than in English. Moreover Swedish has more rounded vowels, like [nøf:nøf:]. Front vowels, [nei] & [gnɛg], and back vowels, [krəʊk], are used equally in English. Central vowels are not common in either of the two languages.

Consonant sounds also differ among languages. Swedish has one more consonant sound, 25, than English, 24 (see **Appendix 2**). The two languages have many phonemes in common, but English has seven consonant sounds which are not in Swedish, (/θ/, /ð/, /z/, /tʃ/, /w/, /dʒ/, /ʒ/) and Swedish has seven which have no counterpart in English, (/ʈ /, /ɳ/, /ɭ/, [ʀ], [ɧ], /ç/, /ɖ/).

The consonant phonemes which are particular to Swedish are not used in any of the words representing animal sounds. Thus, the onomatopoeical words in Swedish have consonant sounds that exist in both languages, sounds that can be recognised and pronounced by native speakers of both Swedish and English.

The consonant sounds which are typical for English are used in some of the English onomatopoeical words (see below). These phonemes, and these words, would seem very unfamiliar to a native speaker of Swedish. Because of the constraints due to certain phonemes, these words cannot be iconic for everyone, they are language-dependent.

	English	Swedish		English	Swedish
Bird	[t͡ʃi:pt͡ʃi:p]	[pi:p pi:p]	Duck	[kwakkwak]	[kvakkvak]
Bee	[bʌz]	[sør:]	Crow	[kɔ:wkɔ:w]	[krakskraks]
Mouse	[skwi:ki:k]	[pi:p pi:p]			

The consonant phonemes which occur in the words above are separated into different groups according to place and manner of articulation (see **Appendix 2**). The phonemes which are specific to Swedish can be placed in groups which do not correspond to the model for English consonants. *retroflex* (/ʈ/, / ɳ/, /ɭ/, [ɧ]) and *uvular r* ([ʀ]) are special categories in Swedish. The English model of consonant phonemes has two groups for the special phonemes, *semivowels* (/w/) and *affricates* (/tʃ/, /dʒ/). The other phonemes are all *fricatives*, a group which exist in both languages.

There are consonants from most of the other groups used in both languages, both voiced and voiceless. Neither English, nor Swedish, use a glottal phoneme, /h/, in any of the onomatopoeic words I have included in my survey. Finally, the selection is too small to show

any further differences or similarities when the variation is so big in the use of different consonants and vowels.

However, many of the words which may seem arbitrary at a first glance have a particular sound in common, usually the initial and/or the final sound. The words which seem different often have some common features, like the words below. They have a cluster of sounds in common, but the combinations make them differ from each other and even though the consonants are the same, the vowels can be from groups of sounds that are not even close, and vice-versa. For example the sounds of a crow, which have the same consonant, but the vowels come from different groups [k☐wk☐w] & [**kraksk**raks]. It is more a question of what sound cluster is the most important, the most characteristic. If a certain sound is actually mainly represented by its vowels, then the similarity in that case would be more obvious.

	English	Swedish		English	Swedish
Hen	[**k**l**ə**kk**l**ək]	[**k**a**k**aka]	Dove	[k**u:**]	[**u:**h**u:u:**h**u:**]
Raven	[**k**ɔ:]	[**k**ɔr:p]	Bird	[tʃ**i:**ptʃ**i:p**]	[p**i:**pp**i:p**]
Rooster	[**k**ɒk**ʌ**du:dldu:]	[**k**ɯ**k**ɛlikū:]	Mouse	[skw**i:**k **i:**k]	[p**i:**p **i:**p]
Small dog	[j**æp** j**æp**]	[b**j**Eb b**j**Eb]	Crow	[**k**ɔ:w**k**ɔ:w]	[**kraksk**raks]
Frog	[**kr**əʊ**k**]	[**k**vak:vak:]			

The special meaning of vowels is an issue for sound symbolism – when language can be taken into pieces and certain tones, the difference between front and back vowels, becomes important.

4.2 Sound symbolism
There are traces of sound symbolism to be found in both languages. High tones, such as *i*, often correlate to weakness and small sizes and lower tones, such as *u*, are often associated with large size (see section **2.2.2**). These phenomena can be seen in some of the onomatopoeic words I have studied.

A *chick* and a *mouse* are examples of very small animals and their sounds are represented with high tones, front vowels, [tʃi:ptʃi:p] & [pi:p-pi:p], in both languages. *Cats* are also relatively small and the sound they make is represented identically in English and Swedish,

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[miau], a word with a high tone, a high front vowel. An example of sound symbolism when it comes to bigger animals is the sound made by a *cow*, which is represented by a low tone, a back vowel, [mu:] & [mū], in both languages. In my study I have included two versions of sounds of *dogs*, a small, [jæp] & [bjEb:], and a bigger, [wu:f-wu:f] & [vuf-vuf]. The sound of the bigger dog has a low tone and contains a back vowel, and that of the small dog has a higher tone and contains a front vowel in both English and Swedish.

There are similar traces of sound symbolism in English and Swedish animal sound representation. This may seem obvious, as in the case with the mouse and the chick, but there are also examples where the theory of sound symbolism does not hold. The sounds representing the *cuckoo*, [kuku:] & [kuku:], are identical in English and Swedish, i.e. both contain a back rounded vowel, but the animal is not big. *Doves* are also quite small birds and small animals and they are represented by a low tone in both languages, [ku:] & [u:hu:u:hu:]. One of the biggest animals is the *moose* and it is represented by a high tone, a front vowel in English, [i:k], and a central rounded vowel in Swedish, [brø:l]. Front vowels are also used to represent the sound of a horse in English, [nei], as well as in Swedish, [gnɛg]; the horse is the second largest animal in my survey.

4.3 Conventionalization

Language is constantly developing, new words are coined and sometimes words change meaning. This kind of evolution is also the case with onomatopoeia: new words are constantly being formed for new phenomena and the meanings of existing words broaden. Words which represent the sound of, for example, an animal come to refer to the act of making the sound of that animal and become part of ordinary language. For example the sound the horse makes, *neigh*, becomes a verb referring to the act of making the sound, to *neigh*. The same example can be applied to Swedish, *gnägg* and *gnägga*. However, such words still retain their onomatopoeic character.

The majority of the English onomatopoeic words I have looked at, 63% (12/19), have been conventionalised. They are mostly used as verbs, describing the articulation of the specific sound of an animal. *Meow, cheep, moo, quack, neigh, baa, yap* and *squeak* are imitations of sounds which at the same time represent the act of making a certain sound. Although these words are limited to certain kinds of animals, there are some others which have developed a more general meaning. The representation for the sound a frog makes, *croak*, can also be used

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to describe "a low rough sound made in a person's or animal's throat" (Longman Dictionary of Contemporary English 2005:374). The word can also be used as an adjective, *croaky*. The opposite of croak may be the sound made by a dove, *coo*, which can also be "to make soft quiet sounds, or to speak in a soft quiet way" (Longman Dictionary of Contemporary English 2005:345). *Buzz* is a word which can have different meanings in different contexts, but the meaning of the word associated to onomatopoeia, the sound of a bee, has broadened. It can also mean "to make a continuous sound" (Longman Dictionary of Contemporary English 2005:203). Finally *cluck*, which is the short low sound a chicken makes, and also the act of making the sound, can as well be "to express sympathy or disapproval by saying something, or by making a short low noise with your tongue". (Longman Dictionary of Contemporary English 2005:284). It can also be used as an adjective to describe a certain kind of sound, *clucking*.

Most of the Swedish words, 63% (12/19), only exist in their onomatopoeic forms, as representations of the sounds of a certain animals. However, there are some words which have been conventionalised, and most of them have achieved a more general meaning. They are all connected to "sound", but not only the sound of an animal. *Mu,* the representation of the sound made by a cow, can be used as a verb to describe the act of making the sound, *mua*. *Gnägg*, the representation for the sound made by a horse, is a word which can be used as a verb not only for making the sound of a horse, but also for laughing very loud. In addition, it occurs as an adjective, *gnäggande*, describing laughter which is loud and inappropriate. *Bröl* is not only the sound of an elk in particular, but also the sound of bigger animals in general, and *bröla* is a word representing an animal groaning, moaning. The sound of a crow represented as *krax* has become conventionalised as the verb *kraxa* and the meaning has broadened to include speaking in a hoarse voice. *Pip* has been transformed into the verb *pipa,* representing the articulation of a high pitched noise, for example the sound made by small birds or mice. It can also be used as an adjective, form *pipig,* which refers to something which makes a very high pitched sound. *Surra* can be used to describe insects as well as motors and it also refers to a monotonous, buzzing sound. It is derived from the representation of the sound of a bee, *surr. Bjäbb* is the sound of a small dog and the word representing the actual production of the sound is *bjäbba. Bjäbbig* can also be used as an adjective describing a person who is impudent and nagging, though it usually refers to the behaviour of a small dog, thus losing its iconicity since it no longer indicates a resemblance between sign and sound. The same lack of actual resemblance exists between *korp* and *korpa*. It is the word

representing the sound made by a raven and the verb, *korpa*, refers to the behaviour of the bird. It means to grab and plunder, like the thieving bird is infamous for.

The general arbitrariness of language becomes clear when words from different languages are compared but it does, however, also exist in the connection between onomatopoeic words and words for their sources. The relation between *horse* and [nei] is totally arbitrary, and there is no associative connection between *häst* and [gnɛg]. The same lack of correlation includes all of the cases of onomatopoeia I have studied, except for two: there is one animal from each language which is named after the sound it produces. The bird called *korp* in Swedish has a sound which is represented as [kɔr:p]. It is a name which is now part of language and it is originally formed from an imitation of the sound of the bird, *"bildat med anslutning till fågelns läte"* (Svenska Akademiens ordbok 2008). The bird called *cuckoo* in English has a sound which is represented as [kuku:]. The imitation of the sound has been conventionalised and transformed into the name of the bird, and the entry in the dictionary firstly refers to the bird, "makes a sound that sounds like its name" (Longman Dictionary of Contemporary English 2005:380).

5. Summary and Conclusion

Animals of the same species will communicate by making the same sound, no matter in what country, but the way of representing their sounds may differ. In my comparison I have found examples of iconicity, such as the sound of a cat, [miau] & [miau]. Other words differ totally and are proof of arbitrariness, such as the sound of a rooster, [kɒkʌdu:dldu:] & [kɯkɛlikū:]. The spelling is different in all cases and that reflects special patterns in each language. The words that are most similar are very simple, like [mu:] & [mū], and that could be one reason for iconicity. There is less room for variation with fewer syllables. On the other hand, the sound representing a pig, [ɔɪŋk ɔɪŋk] & [nøf:nøf:], is not complex in either of the two languages, but the representation is totally different.

English and Swedish have different phonemes, and 16% of the English words and 42 % of the Swedish words contain examples of these phonemes. This makes full iconicity impossible, because the sound does not even exist in the other language, although the sound could be iconic to speakers of the same language, who are used to hearing a certain phoneme.

The use of vowels is similar but not identical in English and Swedish among the onomatopoeical words in my survey. When is comes to consonants it is hard to draw any conclusions. I cannot see any pattern among the words I have chosen. The words all have some common features, but the combinations of vowels and consonants from different groups make them differ.

Finally, one last remark: the frequency of reduplication is something which reflects iconicity. Words in English and Swedish are reduplicated, more or less, to the same extent, a feature which makes language more iconic. It means that the speakers of both Swedish and English have found a common characteristic in the way sound and referent are connected.

Traces of sound symbolism connect English and Swedish. It is a pattern of high and low tones, small and big animals, which is parallel in the two languages There are also examples in both languages which go contrary to the theory.

Many of the words which are used to represent animal sounds, both in English and in Swedish, can also be found in dictionaries in each language. Conventionalization is obvious when looking at the words in my survey, and it seems to be more common in English than in Swedish. A majority of the English words have been conventionalised, and some of them have also taken on a more general meaning. Among the Swedish onomatopoeical words, the ones that have been conventionalised have mostly taken on a more general meaning, and no longer only represent the sound of an animal. Some of the words from both languages that have also been incorporated into language represent a certain behaviour which can be related to the animal that makes the sound.

The result of my study shows that onomatopoeia is not totally iconic. Sound and meaning are not identical when comparing examples of English and Swedish animal sounds. The representations of animal sounds are to an extent conditioned by the phonology of each language. One problem here is that only two languages were examined. If one would look at other languages, the result might be different. It would also be interesting to look closer at some of the words which are in fact iconic, to compare with other languages.

New onomatopoeic words are coined all the time by people using different phonemes and the question of whether language from the beginning was arbitrary or iconic will probably never be settled. Finally, I conclude that onomatopoeia represents both sides of that issue.

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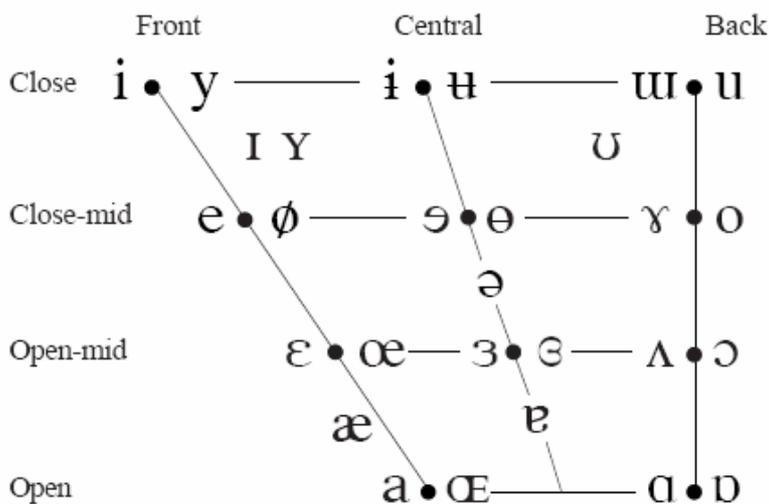
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Appendix 1. Vowels (Rönnerdal & Johansson 2005:24)

	English		Swedish	
Front:				
	/i:/	b*ea*t	/i:/	n*i*
	/I/	b*i*t	/I/	v*i*tt
	/e/	b*e*t	/e:/	v*e*t
	/æ/	b*a*t	/ɛ:/	v*ä*g
	/ʌ/	b*u*t	/ ɛ /	v*ä*gg
			/æ/	f*ä*rg
			/a/	h*a*tt
(rounded):				
			/y:/	n*y*
			/Y/	n*y*tt
			/ɯ:/	n*u*
			/ø:/	h*ö*
			/œ:/	h*ö*r
			/œ/	d*ö*rr
Central:				
	/ɜ:/	h*er*	/ɵ/	h*u*nd
	/ə/	*a*bove	/ə/	goss*e*
Back:				
	/u:/	m*oo*d	/u:/	b*o*
	/ʊ/	p*u*t	/ʊ/	b*o*tt
	/ɔ:/	s*aw*	/o:/	s*å*
	/ɒ/	g*o*t	/ɔ/	g*å*tt
	/ɑ:/	f*a*ther	/ɑ:/	f*a*r

(The international Phonetic Association 2006)

Appendix 2. Consonants (Rönnerdal & Johansson 2005:48f)

English		Bila bial	Labio-dental	Labi o-velar	Apico-dental	Predorso palato-alveolar	Apicoal veolar	Dorso-palatal	Dorso-velar	Glottal
Plosives	voiceless	p					t		k	
	voiced	b					d		g	
Nasals		m					n		ŋ	
Lateral							l			
Frictionless continuant							r			
Fricatives	voiceless		f		θ	ʃ	s			h
	voiced		v		ð	ʒ	z			
Affricates	voiceless					tʃ				
	voiced					dʒ				
Semi-vowels				w				j		

/p/	*p*en	/v/	*v*an	/h/	*h*ence
/b/	*b*end	/θ/	*th*ink	/tʃ/	*ch*ange
/t/	*t*en	/ð/	*th*en	/f/	*f*an
/d/	*d*en	/s/	*s*end	/r/	*r*ent
/k/	*c*an	/z/	*z*inc	/l/	*l*et
/g/	*g*ive	/ʃ/	ship	/dʒ/	*g*eneral
/m/	*m*en	/ʒ/	rou*ge*	/w/	*w*ent
/n/	*n*et	/j/	*y*et	/ŋ/	lo*ng*

Swedish		Bila bial	Labio-dental	Apic o-dent al	Apico alveol ar	Uvu-lar	Apico/ Predorso -alveolar	Retr oflex	Dors o-palat al	Dorso-palat al/velar	Glottal
Plosives	voiceless	p		t				ɖ		k	
	voiced	b		d				ʈ		g	
Nasals		m		n				ɳ		ŋ	
Lateral				l				ɭ			
Trills/fricatives					r	R					
Frica-tives	voiceless		f				s, ʃ	ʂ	ç	ɧ	h
	voiced		v						j		

/p/	*p*å	/n/	*n*å	/s/	*s*å
/b/	*b*åda	/ɳ/	to*rn*	/ʂ/	fo*rs*
/t/	*t*å	/ŋ/	lå*ng*	/ʃ/	*skj*orta
/d/	*d*å	/l/	*l*ång	[ɧ]	*skj*orta
/b/	bo*rt*	/ɭ/	so*rl*	/ç/	*kj*ol
/ʈ/	bo*rd*	/r/ [r]	*r*å	/j/	*j*ord
/k/	*k*åda	[ʁ]	*r*å	/h/	*h*orn
/g/	*g*å	/f/	*f*å		
/m/	*m*å	/v/	*v*åda		

Appendix 3. Animal sounds

	English	**Swedish**
Cat	meow	mjau
	[miau]	[miau]
Hen	cluck-cluck	kakaka
	[kləkklək]	[kakaka]
Rooster	cock-a-doodle-doo	kuckeliku
	[kɒkʌdu:dldu:]	[kɯkɛlikū:]
Cow	moo	mu
	[mu:]	[mū]
Crow	kra-kra	krax-krax
	[kɔːwkɔːw]	[krakskraks]
Cuckoo	cuckoo	ko-ko
	[kuku:]	[kuku:]
Duck	quack-quack	kvack-kvack
	[kwakkwak]	[kvakkvak]
Mouse	squeak-squeak	pip-pip
	[skwi:ki:k]	[pi:p pi:p]
Sheep	baa	bä
	[bɑ:]	[bæ:]
Pig	oink-oink	nöff-nöff
	[ɔɪŋk ɔɪŋk]	[nøf:nøf:]

(Abelin 1999:203f)

Bee	buzz	surr
	[bʌz]	[sør:]
Chick (baby chicken)	cheep-cheep	pip-pip
	[tʃi:ptʃi:p]	[pi:p pi:p]
Small dog	yap yap	bjäbb-bjäbb
	[jæp jæp]	[bjEb: bjEb:]
Medium dog	woof-woof	voff-voff
	[wu:f-wu:f]	[vuf-vuf]

Dove	coo	oo-ho oo-ho
	[ku:]	[u:hu:u:hu:]
Frog	croak	kvack-kvack
	[krɔʊk]	[kvak:vak:]
Horse	neigh	gnägg
	[nei]	[gnɛg]
Moose	eek	bröl
	[i:k]	[brø:l]
Raven	caw	korp
	[kɔ:]	[kɔr:p]

(Abbot 2004)

(Longman Dictionary of Contemporary English 2006)

(Nygren 2003)

(Svenska Akademiens ordbok 2008)