Iconicity

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1. Historical background

In 1965, Russian-American linguist Roman Jakobson published an article called "Quest for the essence of language", which can truly be said to mark the beginning of the study of iconicity in language. Jakobson rediscovered the "epochal significance" of philosopher Charles C. Peirce's semiotic work, which had gone unnoticed for almost 50 years. Since the main interest at that time was in formalist studies, it took almost another twenty years for the linguistic community to take note of Jakobson's pioneering work.

Jakobson recognized the far-reaching linguistic implications of Peirce's semiotic notion of the icon. Icons are signs that have qualities that 'resemble' those of the objects they represent and 'excite analogous sensations in the mind' (Peirce 1931-58: 2.229; quoted in Chandler 1994-2020). Peirce focused on two classes of icons: images and diagrams. Images represent 'simple qualities' of an object. Examples are drawings, photos, statues and, in language, words that imitate a sound, such as *baa*, *pop* and *tick-tock*. The similarity between an image and the thing represented is not objectively given but in the eye of the observer. The drawing by the author's six-year-old grandson in Fig. 1a represents the little boy's family. It consists of – from right to left – his father, his mother, the young artist himself and his younger brother wearing a pointed cap, and only an observer who knows the family might be able to recognize its "qualities", the persons, their different heights, the father's beard, etc. Diagrams involve relations of signs that represent relations of a thing. In Fig. 1b, the rising and falling curve resembles the corresponding increase and decrease in the world's population.

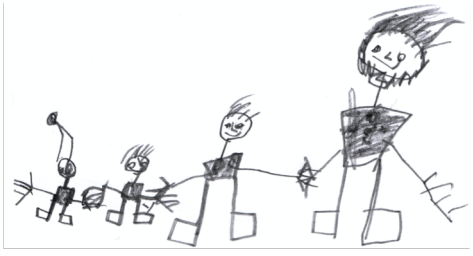

Figure 1a: Image

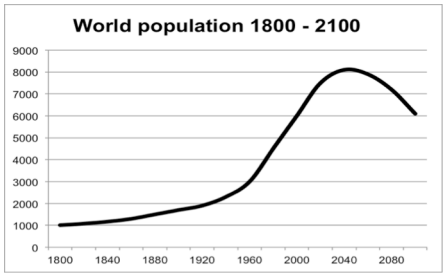

Figure 1b: Diagram

The third type of icon distinguished by Peirce is metaphor, which is usually not dealt with in connection with iconicity. Like iconicity, metaphor involves a relationship of resemblance, but not between a sign and an object it represents but between the object of a sign and another analogous object. In Hiraga's (1994: 15) example of metaphorical iconicity, *My love is a rose*, the

metaphorical icon signifies its object (‘my love’) by pointing to a parallelism between the object (‘my love’) and something else (‘a rose’).

Jakobson found extensive evidence for motivation and iconicity in language and thus challenged the prevailing view of his time, de Saussure’s (1916) dogma of arbitrariness. There has, of course, never been any doubt about the iconic motivation of words like *meow*. *Meow* is felt to echo the sound produced by the cat, just as the word *cuckoo* is felt to echo the call of the cuckoo. Jakobson convincingly demonstrated that not just a few words are motivated but a large part of language. His best-known illustration of iconicity is a dictum attributed to Caesar, *veni, vidi, vici* ‘I came, I saw, I conquered’. Here, the three verbs form a temporal diagram that mirrors the chronological order in which the events occurred.

Jakobson also pointed out that words with similar sounds are felt to convey related meanings, irrespective of their origin. For example, in de Saussure’s view, the three kinship terms *father*, *mother* and *brother* are completely arbitrary because they are morphologically indivisible. However, the three terms have in common the second syllable, *ther*, which is felt as “a kind of phonemic allusion to their semantic proximity” (p. 32). Speakers of a language thus see, or may see, systemic relationships between the meanings of words cued by their shared form. Similar systemic relationships are displayed by words such as *bash*, *mash*, *smash*, *crash*, *dash*, etc., where again genetic questions are quite immaterial for synchronic analysis. However, the two sets of words differ in one important respect. The shared syllable /ðə/ in *father*, *mother* and *brother* indicates a semantic affinity of these kinship terms, but the form /ðə/ does not relate to the meaning of ‘kinship’. The phoneme cluster /æʃ/ in *bash*, *mash*, *smash* and *crash*, by contrast, not only indicates the semantic affinity of these words but is also suggestive of their meaning. Thus, if we heard non-existing words such as *spash* or *blash*, we would intuitively assume that their meanings have to do with ‘forceful action’. We have extracted the general meaning of /æʃ/ from the many verbs of English that have similar meanings.

Phoneme clusters like /æʃ/ are known as *phonesthemes*. Words that contain phonesthemes are particularly expressive, and their meaning is even felt to somehow correspond to their sound quality. When somebody is telling us that “the burglars smashed the door”, the word *smash* makes us see in our mind a scene of violent vandalism. The sound shape of the word is felt to accurately reflect the event it describes, i.e. we perceive an iconic relationship between the form of a word and its meaning.

Iconicity can be defined as referring to the perceived resemblance between aspects of the form and meaning of a sign.

2. Kinds of iconicity

The examples of iconicity looked at can be assigned to three kinds of iconicity: imagic iconicity, diagrammatic iconicity and associative iconicity.

Imagic iconicity, also described as imaginative and absolute iconicity, applies to a directly perceived similarity between the form and meaning of a sign or its referent. In spoken language, the form of the sign is its phonetic shape and its meaning is its acoustic image and meanings related to it. Thus, the phonetic form [mɪ'aʊ] is felt to be a close imitation of the acoustic image we have in our mind when we hear a cat meowing.

Diagrammatic iconicity applies to the perceived similarity between two kinds of relationship: a relationship between signs and a relationship between meanings or referents in conceived reality. Jakobson's (1965) example of Caesar's dictum *veni, vidi, vici* mentioned above is a perfect illustration of diagrammatic iconicity. The iconic similarity does not reside in the lexical expressions but in their relational structure. In this example, the ordered relationship of the clauses reflects the temporal sequence of events. Other diagrammatic relations pertain to the relative proximity or quantity of signs.

Associative iconicity is also a kind of relational iconicity. The words *bash*, *smash* and *crash* are related by their final phonestheme /-æʃ/ and their similar meanings. Other words may be related by their initial phonestheme. For example, the words *glitter*, *glisten*, *gleam*, *glare*, *glimmer* and *glow* share the onset /gl-/ and meanings related to 'light' and 'vision'. The words associated by a phonestheme form a paradigm (see Sections 3.4 and 5). The paradigm of /gl-/ words also includes *glamor*, *glitz* and *glory* and their figurative sense of 'shining' (see Bloomfield 1933; Bolinger 1950; Sadowski 2000). The more words there are that share a particular phonestheme, the stronger their semantic affinity and their iconic meaning are felt to be. In *Webster's 7th Collegiate Dictionary*, 39% of the word types and 60% of the word tokens starting with /gl-/ have meanings related to 'light' or 'vision' (Bergen 2004: 293). The phonestheme /gl/ thus very strongly evokes the meanings of 'light' and 'vision'. There is nothing, or only very little, inherently meaningful in the phonemes themselves: /-æʃ/ does not mean 'forceful action', nor does /gl-/ mean 'light' or 'vision'. The general meaning associated with a phonestheme arises from the collective meaning of the words that are linked together in a paradigm.

The three kinds of iconicity distinguished above are diagrammed in Fig. 2. The arrows indicate iconic relationships and the dashes associative links.

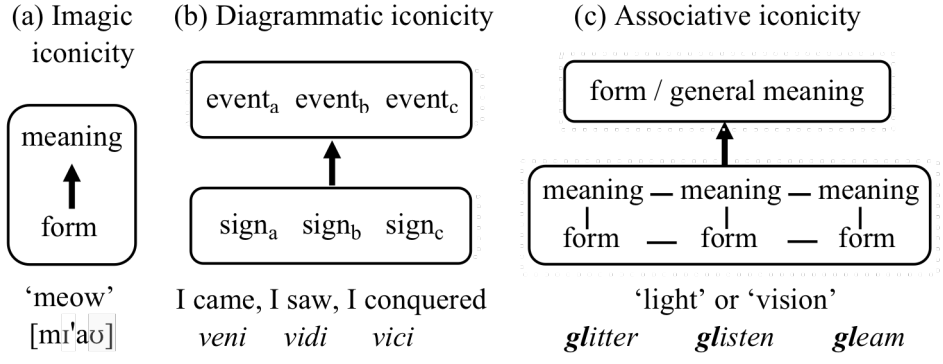

Figure 2: Kinds of iconicity

The three kinds of iconicity diagrammed in Fig. 2 are far from being clear-cut categories in language. Especially imagic and associative iconicity cannot be strictly separated because both mainly involve phonological forms. Likewise, diagrammatic and associative iconicity may be hard to keep apart because both involve relations between signs. The following discussion of the three kinds of iconicity takes instances of overlap into consideration.

3. Imagic iconicity

> Today, I realized that the word "bed" actually looks like a bed.
> (Fred Lavner 2016, *Off the top of Fred's head*)

3.1 Visual iconicity

Imagic iconicity typically occurs in the visual mode, as in the drawing and diagram shown in Fig. 1. As a primarily spoken medium, language is not well suited to reproduce visual information. This is one of the reasons why speech is often accompanied by gestures and facial expressions. Bolinger (1985) demonstrates how closely intonation and gesture work in parallel. For example, the *Ah!* of surprise is spoken with a high fall in pitch and paralleled by a high fall by the eyebrows, and in 'surprised realization', it also includes a down movement of the head. Bolinger also shows that a change of the gesture changes the interpretation of a sentence. He demonstrates this in gestures accompanying a nonsense sentence. Thus, when we say *Canòbis afásco* with head forward, lips pursed and sidelong look, the string conveys defiance, but when we say it with lips smacking and a look of intense expectation, it conveys enthusiasm.

Visual iconicity is mainly exploited in *sign languages*. A large proportion of the signs used in sign languages are of iconic origin, but most of them are not transparent to non-signers. Klima and Bellugi (1979: 22) presented non-signers with basic signs of American Sign Language such as the signs for APPLE, BIRD and BOY, and "not a single subject was able to guess the meaning of 81 of the 90 signs presented."

Writing systems present another area of visual iconicity. Most writing systems evolved from pictograms representing things like the sun, animals, humans, etc. Once these images become conventional elements of a writing system, their iconicity gives way to more opaque forms. The picture of a man with outstretched arms and feet might still be discernable in the stylized Chinese pictogram 大 for 'big', but a bull is no longer visible in the Latin character "A". Its gradual evolution from the pictorial representation of Hebrew *'lf* for 'bull, cattle' through various processes of abstraction has been retraced by Givón (1985: 193-95). The first step of abstraction involved the retention of the head of the bull for the whole animal (1), the next steps

included the discarding of details of the head (2) and regularization of curving lines to an abstract vertical triangle (3), followed by a sideway position of the *'alef* in the Phoenician/Hebrew writing system (4) and finally leading to the complete loss of iconicity in the Greek letter alpha *α* (5) and the Roman letter *A* (6).

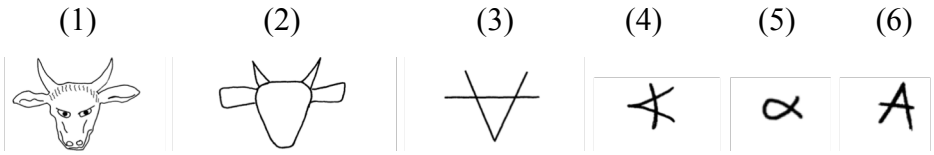

Figure 3: Evolution of the letter "A" (Givón 1985)

3.2 Phonological iconicity

Spoken language is ideally suited to reproducing sounds. Sounds are emitted from some source, and the strong conceptual link between a sound and the source of the sound usually allows us to identify the source. The source of a sound is normally of more interest to us than the sound itself. When we hear the noise of a sudden crash, we are worried about what happened and not about the sound. The more a sound reveals about its source, the more informative it is.

Sounds are commonly distinguished according to their vocal or non-vocal production. Some examples of words for vocal sounds (1a and b) and non-vocal sounds (1c and d) are listed below (for a more comprehensive list see Hinton, Nichols and Ohala 1994: 10). All, or most, of these words for sounds are felt to be "sound symbolic", i.e. they evoke some aspect of meaning.

(1) a. words for animal sounds: *cuckoo*, *buzz*, *baa*, *oink*
b. words for linguistic sounds: *babble*, *murmur*, *stutter, lisp*
c. words for biological sounds: *sneeze*, *burp*, *hiccup*, *fart*
d. words for physical sounds: *crash*, *bang*, *click*, *thump*

Words for animal sounds imitate the calls made by animals and hence are characteristic of the species they belong to. Words for linguistic sounds are restricted to humans. They typically refer to a person's manner of speaking or their condition. Words for biological sounds tend to denote noises accidentally made by animates and, with humans, usually causing embarrassment. Words for physical sounds are unspecific about their source and, in a way, compensate for their lack of specificity by conveying particularly strong sound symbolism. Words for animal sounds thus appear to be the class of expressions that display the tightest degree of imagic iconicity. They will be looked at more closely.

3.3 Animal sounds

At least experts are able to assign sounds produced by animals to their species. Does this property of animal sounds have consequences for its iconic expression? Let us consider five areas where the unique status of animal sounds is manifested.

(i) *Name for the sound and the animal*. Birds are often named after their call. We are usually more interested in the bird than in its call, but we "often first observe the singing of a bird before actually seeing the animal" (Marttila 2011: 94). Apart from the *cuckoo* and the *crow*, the titmouse called *chickadee* and the nightjar called *whippoorwill* are in English named after the birds' calls. The odd name *whippoorwill*, incidentally, reveals an interesting aspect of its naming. Its first reference in the *OED* is from 1709, in which John Lawson, an English explorer, describes the bird as "*Whippo-Will*, "so nam'd, because it makes those Words exactly". The call is obviously perceived and expressed in terms of one's native language. This might explain why the bird and its call are split up into three words of English, *whip-poor-will*, even though they do not make sense. These formations reveal that people not only mimic the sounds they hear but also attempt to adapt the sounds they hear to their language.

(ii) *Language acquisition*. Imagic iconicity is prevalent in children's early vocabulary. Imitating the sound produced by an animal or a thing has the advantage that the word for the sound also designates its source. Thus, a dog says "woof woof" and is a *woof woof*, and a duck says "quack quack" and is a *quack quack*. This also applies to objects: A train goes "choo choo" and is a *choo choo*. The reduplicated forms also reflect the iterative aspect of the call. An eye-tracking study by Laing (2017 and 2019) showed that British 10- to 11-month-olds had better knowledge of iconic than non-iconic words. The children would, for instance, fixate longer on a picture of a dog after hearing "Where's the woof woof?" than after hearing "Where is the doggie?"

(iii) *Resistance to sound change*. When iconic words participate in general sound changes, they may lose their iconic quality. A dramatic sound change in English was the Great Vowel Shift. This sound change affected all long Middle English vowels. Thus, long /u:/ changed to the diphthong /aʊ/, changing the pronunciation of the word for 'house' from /hu:s/ to /haʊs/. The sound shift should also have affected the pronunciation of *cuckoo* from /'kʊku:/ to /'kʊkaʊ/ and, later on, even to /'kʌkaʊ/. *Cuckoo* resisted the sound change because its form would no longer mimic the bird's call and, possibly more importantly, it would no longer evoke its cultural associations. The repetitive call of the cuckoo is seen as a harbinger of spring, it tells children how many years they still have to live, and its call is heard every hour in the cuckoo clock. The Middle English word for 'owl', /u:le/, on the other hand, participated in the sound shift and changed to Modern English /aʊl/. The reason why *owl* was subject to the sound change probably had to do with the fact that there was a separate word for the cry of the bird, *hoot*, which in its turn resisted the sound shift from /u:/ to /aʊ/ and kept its inherited pronunciation of a long /u:/ in /hu:t/.

(iv) *Cross-linguistic commonalities*. Since animal species are the same worldwide, their cries should also be mimicked more or less identically across languages. Abbott's (2004) list of animal sounds and Marttila's (2011) study of bird names show extensive similarities between the languages as well as striking differences. For example, the sounds made by the cuckoo and the rooster are typically disyllabic with an initial velar plosive /k/, the sounds made by the cat and the cow are typically monosyllabic with an initial bilabial /m/, the sounds made by bees are perceived as voiced alveolar fricatives and written as *zzz*, and the sounds made by snakes are almost universally rendered as voiceless alveolar fricatives and written as *sss*. On the other hand, owls named after their calls are in some South American languages called *si-bi*, *márúúcu*, and *ho^{3}ho^{3}ka^{3}lxi^{3}su^{2}*, in the North American language Purépecha *tu'kuru*, in Mende *mbu* and in Balti *uk-pa* (Marttila 2011: 97f).

(v) *Phonological reproduction*. The words mimicking the sound of animals at best approximate their acoustic model. Rhodes (1994) describes the acoustic form of a word as *wild* and its phonological reproduction in a language as *tame*. The wild forms of animal sounds are vastly different from the tame ones. Moreover, imitations of animal sounds are formed in accordance with the phonological system of the given language. It is thus an extraordinary achievement of the speakers of different languages to find reproductions that are sometimes almost comparable. Interestingly, however, the words for animal sounds are often formed with unusual phonotactics. The phoneme patterns used in describing the following animal sounds in English do not occur in other words: /ɪ'aʊ/ in *meow*, /ʊf/ in *woof*, /ʌz/ in *buzz* and /ɔɪŋk/ as the sound of *a pig*, etc. These sound patterns may have been deliberately chosen in order to highlight the difference of animal sounds as opposed to human sounds without breaking out of one's sound system. Phonotactic rules are, of course, also violated in other sound-imitative words, as in *vroom* /vru:m/ or *boing* /bɔɪŋ/.

3.4 Onomatopoeia

The words for sounds listed under (1) were characterized as "sound symbolic". The term *sound symbolism* is used to indicate that the sounds of a word resemble aspects of its meaning. The term is, however, misleading in that the notion of 'symbol' is usually understood as an unmotivated sign. Be that as it may, words that are felt to be sound symbolic are known as *onomatopoeia*. An onomatopoeia is "a novel or conventionalized word in which a part of the phonological form is perceived to be similar to the referent or to a sound metonymically associated with it" (Benczes 2019: 81). This definition includes existing onomatopoeia, not just newly created words, as suggested by the meaning of the Greek word *onomatopoeia*, 'making of a name or word'. It makes it clear that only a part of the sounds of a word (metonymically) determine its iconic nature. These are normally phonesthemes. The definition also clarifies that the relationship of similarity is not objectively given but

perceived, i.e. a matter of subjectivity. Finally, it takes both imagic iconicity and associative iconicity into account: "direct" similarity, i.e. imitation of a sound, and "indirect" similarity, i.e. form-meaning similarity evoked by associating a word with other words of a paradigm.

The distinction between imagic and associative onomatopoeia corresponds to Ullmann's (1972: 84) distinction between primary and secondary onomatopoeia. In primary onomatopoeia, "the sound is truly an echo of the sense." Instances of primary onomatopoeia are *buzz*, *crack*, *growl*, *hum*, *plop*, *roar*, *squeak*, *squeal* and *whizz*. Instances of secondary onomatopoeia evoke a movement (*quiver*, *slink*, *wriggle*) or "some physical or moral quality, usually unfavorable" (*gloom*, *grumpy*, *slimy*).

Ullmann's observation of the predominant role of movement in English secondary onomatopoeia is in line with research on ideophones. Ideophones are marked words that depict vivid sensory scenes in imitative fashion (Akita and Dingemanse 2019: 1).[1] For example, Blasi et al. (2016: 1) report that in Kisi Kisi, a language spoken in Sierra Leone, *hábá* means '(human) wobbly, clumsy movement' and *hábá-hábá-hábá* '(human) prolonged, extreme wobbling'. Here, the increase of a sensory scene is conveyed by repetition. In the following example of Japanese, different kinds of motion are indicated by minimal alternation of a phoneme. Thus, *goro* denotes a heavy object rolling, *koro* a light object rolling, *guru* denotes a heavy object rotating around an axis, *kuru* a light object rotating around an axis (Imai et al. 2008: 55).

Ideophones for movement rank in frequency across languages right after ideophones for sound and before all other kinds of ideophones, as illustrated in the implicational hierarchy under (2) (Dingemanse 2012: 663).

(2) SOUND < MOVEMENT < VISUAL PATTERNS < OTHER SENSORY PERCEPTIONS < INNER FEELINGS AND COGNITIVE STATES

The implicational hierarchy is to be read as: "If a language has ideophones for movement it will also have ideophones for sounds. If a language has ideophones for visual patterns […], it will also have ideophones for movements and sounds" (p. 663).

Similar systematic relations between words are also found in English. Bolinger (1950: 130) shows that words are often interrelated by partly identical forms and similar meanings. The words listed under (3) are arranged according to their affinities with other words. The linkage of words may be based on their *onset*, often referred to as *assonance*, when they share the same initial phonemes, or on *rime* or *rhyme*, when they share the same final phonemes.

(3) wriggle wiggle squiggle jiggle

[1] The earliest and often-cited characterization of the ideophone is the one given by Doke (1935: 118), cited in Akita and Dingemanse (2019: 2). In his study of Bantu languages, Doke defines *ideophone* as a "vivid representation of an idea in sound."

juggle snuggle struggle
strive strain

The words *wriggle*, *wiggle*, *squiggle* and *jiggle* share the rhyme /ɪgəl/ and meanings related to 'quick, short and irregular motion'. The words *jiggle* and *juggle* share the onset /dʒ/ and the rhyme /gəl/ as well as meanings related to 'up-and-down movement'. The words *juggle*, *snuggle* and *struggle* share the rhyme /ʌgəl/ but apparently not related meanings, whereas *struggle*, *strive* and *strain* are again linked by the onset of /str/ and the meaning of 'forceful effort'.

The phoneme clusters in the onset and rhyme such as /ɪgəl/ are typically phonesthemes. The words *wriggle*, *wiggle*, *squiggle* and *jiggle* are associated and form a paradigm due to their shared phonestheme and their similarity of meaning related to 'iterative motion'. The words *giggle* and *niggle* share the phoneme clusters but not the meaning of the paradigm. They would at most qualify as marginal members of this paradigm. This example shows that the notion of 'phonestheme' is far from clear-cut. It is also at odds with the traditional assumption that the smallest meaningful units in language are morphemes. As a kind of compromise, phonesthemes are described as submorphemes.

Phonesthemes are pervasive in language and have been collected and categorized extensively. However, as observed by Benczes (2019: 25), "what counts as a phonestheme is in the eye of the beholder". Understanding an onomatopoeic word and its phonestheme involves at least two mental processes. The phonestheme evokes associations to words of its paradigm, and the onomatopoeic word typically evokes a particularly rich conceptual frame. "Frames are mental structures that shape the way we see the world" (Lakoff 2004: xv). Every word evokes a frame, but the frames evoked by words that contain phonesthemes are different. Consider the following ways of expressing the same situation.

(4) a. I threw my phone away.
b. I dumped my phone.

The neutral expression *throw away* evokes no specific frame – possibly I threw my phone away because I wanted to hide it. The verb *dump* with its phonestheme /-ʌmp/ or /-ʌm/ evokes associations with unpleasant words such as *chump*, *rump*, or *dumb* and a frame of waste being disposed of – possibly I was frustrated by constant calls and dumped my phone for good so no one could reach me.

Frames are also involved in extending a paradigm of onomatopoeia. Let us consider the /sn-/ phonestheme. In the majority of the world's languages, the word for 'nose' contains the alveolar nasal /n/ (Blasi et al. 2016). This also applies to English in words such as *nose*, *nostril*, *nuzzle* and *nozzle* (Bolinger 1940: 68). The 'nose'-frame evokes processes and actions associated with the nose and, to a certain extent, with the mouth. Verbs describing such events

include *sneeze*, *sniff*, *snivel*, *snore*, *snort*, *snuff*, *snuffle*, *snicker* and *snarl*. The phonestheme /sn-/ in these words is well motivated: Due to the nasal sound made by the nose, the /n/ relates to the nose and the /s/ to the frictional noises that arise in the nose. Actions involving the nose like blowing one's nose are considered bad manners. This negative aspect of the 'nose'-frame might have motivated the inclusion of words in the /sn-/ paradigm that have the pejorative senses of 'derision' and 'mockery' but no longer relate to the nose: *sneer*, *snippy*, *snoop* and *snub*. Possibly words for nasty things like *snake*, *snail* and nasty actions like *snatch*, *snare*, *snide* and *snitch* are also felt to fit in this frame and thus confirm Ullmann's observation that secondary onomatopoeia tends to evoke unfavorable qualities. The word *snob* 'arrogant person' also belongs to the paradigm of negatively loaded words. It originally referred to shoemakers, i.e. to common people, who were looked down upon by "vulgar social climbers who copied the manners of the upper classes".[2] The word *snob* then came to be used in reference to the arrogant upper classes themselves, who despised the lower folks, as witnessed in the expression *look down one's nose at someone*, which involves tilting one's head back.

The more sound-symbolic elements an onomatopoeic word contains, the more iconic it should be. The word *bang* is a prime example of a word with a high degree of sound symbolism. *Bang* is, in fact, one of the few English ideophones – along with *zigzag*, *gaga*, *boing* and *boom* (*Wikipedia* s.v. Ideophone). As such, it evokes particularly vivid imagery, is syntactically independent and occurs after quotative *go* as in *The gun went bang*. Taylor (2004: 64-71) has examined the use of *bang* in the *bang goes* construction, as in *Bang goes the weekend*, and Marchand (1969) has dealt with the iconicity of *bang*. Both authors investigate the sound symbolism of *bang* but interpret it differently. Marchand (1969: 318) interprets the phonemes that make up the word *bang* as reflections of sounds as they typically occur in a situation. Taylor (2004: 69f) interprets the phonemes in their association with affiliated words:

(5) a. The [æ] renders the sound the slamming of a door causes, the [ŋ] the air following it and the [b] the blunt explosive sound. (Marchand)
b. The /æ/ occurs in monosyllabic words like *slam*, *slap* and *bat* and is associated with a noisy impact and/or sudden movement, the /ŋ/ in words like *sing*, *ring* and *ping* is associated with sound or movement, and the /b/ in words like *boo*, *beat* and *bat* is associated with sudden events. (Taylor)

Both iconic interpretations of the same word are, of course, equally adequate. They show that iconicity is a matter of *perceived* resemblance and that there is no clear distinction between imagic iconicity and associative iconicity.

[2] English Language & Usage, s.v. Etymology of "snob". https://english.stackexchange.com/questions/22147/etymology-of-snob

Onomatopoeia also represents an exciting area for acoustic studies. To the extent that a sound occurring in reality more or less accurately matches its phonological rendition in language, the degree of iconicity is objectifiable. In the demonstration of her "Analogue Building Model", Taub (2001: 24, 51-53) compares the amplitude waveforms of the sound of a bell with the spoken word *ding*. The analogue-building process involves four steps on the part of the speaker: (1) forming the concept, (2) selecting the sound image, (3) schematizing the sound image to fit the phonological categories of English, and (4) encoding. Fig. 4 illustrates the second and the fourth steps, which are of prime interest for the iconic mapping: the auditory image of the bell's sound in (A) and the sound image encoded as *ding* /dɪŋ/ in (B).

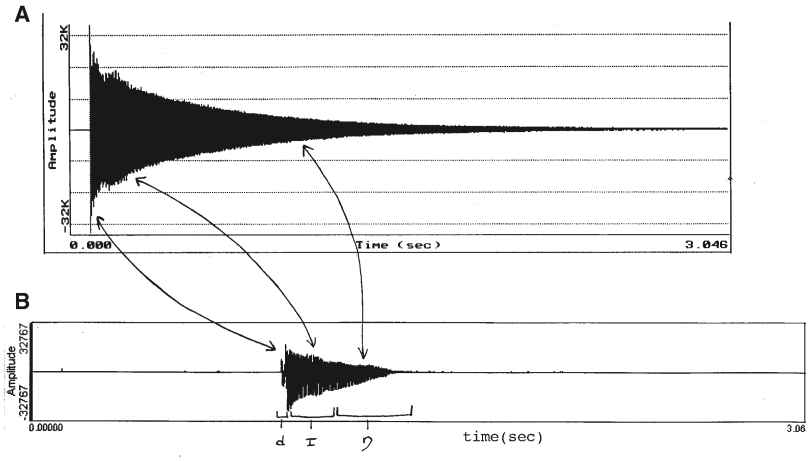

Figure 4: Amplitude waveforms of the sound of a bell (A) and of an American woman speaking the English word *ding* (B) (adopted from Taub 2001: 24)

The two amplitude waveforms are strikingly similar – they differ only with respect to their length. The phonemes of English can neatly be plotted on the sound continuum and iconically reflect three phases of the sounding of the bell. The stop /d/ marks the sharp onset of the ringing, the vowel /ɪ/ its high-pitched sound and the nasal /ŋ/ its extended muffled decay. The arrows linking diagrams (A) and (B) in Fig. 4 indicate structure-preserving correspondences. The three phonemes appear in the same order as the three phases of the sounds referred to and reflect the diagrammatic principle of linear order, which is discussed in the following section.

Recent research has also shown that language users associate phonemes with meaning. The studies were inspired by Köhler's (1929) ingenious experiments on people's perception. His subjects had to match the shapes in Fig. 5 with the pseudo-words *takete* and *maluma* and overwhelmingly associated *takete* with the angular figure and *maluma* with the rounded figure.

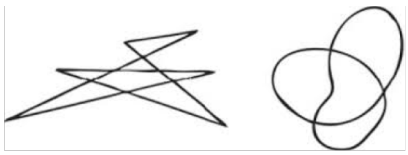

Figure 5: *takete* and *maluma* (Köhler 1929/1947)

Köhler's findings have been replicated many times, under different conditions and across languages, in Anglo-Saxon studies by using the pseudo-words *bouba* and *kiki*. The synaesthetic correspondences between visual and phonetic stimuli can only be explained from the sound structure of the pseudo-words. Nobile (2015) examined articulatory and acoustic features that have strong analogies with roundedness and angularity. The voiceless stops give *takete* a discontinuous acoustic profile whereas the sonorants give *maluma* a continuous acoustic profile. Many studies have discovered similar correspondences between "angular" and "rounded" phonemes (see McCormick et al. 2015).

Studies have even shown that particular sounds are matched with particular types of personality. Kawahara et al. (2015) had English and Japanese speakers judge people's personality from made-up names with angular and sonorant sound shapes, such as *sataka* and *meyana*. People with angular-shaped names were rated as blunt, confident and unapproachable, whereas people with sonorant-shaped names were rated as modest, cute and approachable. All these studies demonstrate that iconicity has a much wider range than thought of in its original conception.

4. Diagrammatic iconicity

The impact of diagrammatic iconicity was recognized in work on functional grammar in the 1980s and 1990s. John Haiman (1985: 9-10) illustrated diagrammatic iconicity by using a neat analogy to the numbering of houses. The house numbered "45" lies between the houses numbered "43" and "47" in the same way that the cardinal numbers represent a quantity between 43 and 47. The Arabic numerals themselves are almost entirely symbolic. The words of a language correspond to the Arabic numerals, "but their grammar (the rule for assigning numbers to houses) is diagrammatically iconic".

Grammar is thoroughly iconic, and only a relatively small, but powerful, set of iconic principles motivates the complexity of grammar. In 1983, a memorable symposium on "Iconicity in Syntax" was held at Stanford University, where the most renowned linguists presented their work on functional and iconic linguistics. The proceedings of the conference were published by Haiman (1985) in the series *Typological Studies in Language*, reflecting its cross-linguistic approach and its use of data from 142 languages. The fourteen papers collected in the volume demonstrate "that linguistic forms are frequently the way they are because, like diagrams, they resemble the conceptual structures they are used to convey." (Haiman 1985: 1). Diagrammatic iconicity has most extensively been illustrated in the following three principles of iconic coding: the principle of linear order, the principle of proximity and the principle of quantity.

4.1 The principle of linear order

De Saussure (2011 [1916]: 70) already drew attention to the linear nature of language: "[T]he whole mechanism of language depends upon it" since "auditory signifiers have at their command only the dimension of time". The principle of linear order is an iconic motivation par excellence. It mainly applies to the order of clauses. Givón (1991: 92) provides the following definition of this principle: "The order of clauses in coherent discourse will tend to correspond to the temporal order of the occurrence of the depicted events". We might add Haiman's (1985: 4) observation that there is no language known in which stories are regularly told 'backwards', with the narrative order being the reverse of the chronological order.

Linde and Labov (1975) have shown that people use the sequential order of narratives when asked to describe the layout of their apartment. They would take us on an imaginary tour through their apartment from the entrance to the rooms, as shown in the following excerpt (p. 926):

(6) You walk into a long, narrow foyer, leading into a smaller, squarer foyer, eating place, dinette—area. And—uh—to the right is the kitchen, and—uh—to the left, my living room.

The classic example of linear iconicity in language has already been mentioned in Section 2: Caesar's famous dictum *vēnī, vīdī, vīcī* after his triumphant victory over King Pharnaces II of Pontus. Caesar did not, in fact, utter these words but sent them as a message to the Senate in Rome. As noted by de Saussure (2011 [1916]: 70), the written form represents the succession of spoken words spatially. In both modes, the linguistic order of the three verbs mirrors the temporal order of the events described.

The co-aligned order of events and clauses describing them is, as stated in Givón's principle of sequential order, only a tendency, or a default inference. Langacker (2008: 79f) provides a neat example of a divergence from the iconic order. Given the proper context, the order of events described in sentence (7a) may also be stated in the reverse order of sentence (7b), which might be given in response to the question, *What are the most important things that happened to you last year?*

(7) a. I quit my job, got married and had a baby.
b. I had a baby, got married and quit my job – in reverse order, of course.

Describing a sequence of events according to their chronological occurrence is the most natural and unequivocal way. We also have the option of marking the order explicitly. For example, the order of the two successive events described by *She kissed me goodbye and left* can be signaled by using

temporal clauses, as illustrated in the four sentences below, where the numbers behind the clauses indicate the order of the events.

(8) a. She kissed me goodbye (1) *before* she left. (2)
b. *Before* she left (2) she kissed me goodbye. (1)
c. She left (2) *after* she kissed me goodbye. (1)
d. *After* she kissed me goodbye (1) she left. (2)

The order of the temporal clauses under (8a) and (8d) is in harmony with their iconic order. In the sentences under (8b) and (8c), the order of the temporal clauses conflicts with the iconic order of the events: The later event of leaving is mentioned first and the earlier event of kissing is mentioned second. In such conflicting situations, the grammatical structure prevails over iconicity. These counter-iconic sentences are, however, harder to process. Children up to age 3;6 years consistently follow the "order-of-mention strategy" and interpret such sentences according to their iconic order (Clark 1971). Adults may have to think twice to comprehend counter-iconic sentences like the ones in (8b) and (8c). The impact of linear iconicity shows up in frequencies of use. In Diessel's (2008) study of temporal clauses, 81.8 percent of the sentences with initial *after*- and *before*-clauses and even 93.9 percent of the sentences with initial *once*- and *until*-clauses are iconic. The frequencies for sentences with final temporal clauses are less significant because adverbial clauses tend to follow the main clause, probably for reasons of information structure and processing ease.

Adverbial clauses also tend to be subject to the principle of linear order. In the sentences listed under (9), the clauses marked with a "+" sign indicate preferred choices as opposed to non-preferred choices, marked with a "-" sign.

(9) Conditional clauses
a. + Initial: *If you apologize, I'll forgive you.*
b. – Final: *I'll forgive you if you apologize.*
Purpose clauses
c. + Final: *You need to register to download the game.*
d. – Initial: *To download the game, you need to register*.
Causal clauses
e. + Final: *I'm here because I love you.*
f. – Initial: *Because I love you, I'm here*.

Conditional clauses tend to precede the main clause, as in (9a), because they describe the hypothetical condition, or protasis, under which a consequence, or apodosis, may occur. Diessel (2008: 470) points out that the consequence described in final conditional clauses, as in (9b), may be misinterpreted as a factual statement. Purpose clauses tend to follow the main clause because the intended event is to be realized later, as in (9c). In (9d), the purpose clause is understood as describing a condition and hence is preposed – 'if you want to

download the game', while the main clause functions as a consequence and hence is postposed. Causal clauses are expected to precede the clause describing its effect because causes precede their effects. This iconic order applies to coordinated clauses, as in Givón's (1991: 92) example *He shot and killed her* as opposed to **He killed and shot her*. Causal subordinate clauses, however, are more likely to follow the main clause, as in (9e). Diessel (2008: 470) conjectures that the final position of causal subordinate clauses is motivated by their function of backing up a preceding statement.

Cause-effect relationships typically occur in action chains, i.e. in energetic events involving an agent and a patient. The notion of 'action chain' is understood by Langacker (1991: 292) as the flow of energy traced from an initial energy source to the ultimate energy sink. The direction of the flow of energy largely coincides with the temporal sequence of the action. The declarative active sentence *Floyd broke the glass (with a hammer)* represents a natural coding of an action chain: The initiator of the action, *Floyd*, is coded as the subject of the sentence and the entity affected by the action, *the glass*, is coded as the direct object of the verb.[3] The transitive sentence pattern S – V – O is prototypically associated with energetic actions. It is, therefore, not surprising that the majority of the world's languages prefer a word order in which the subject precedes the object.[4]

A striking use of temporal iconicity is found in Chinese. In his study of word order in Chinese, Tai (1985) observes that the position of certain sentence-internal constituents is iconically motivated. One of his examples is the following pair of sentences:

(10) a. *tā zài chúfáng-li zuòfàn.*
he PREP kitchen- in cook
'he cooked in the kitchen'

b. *tā diào zài shuǐ- li.*
he fall PREP water- in
'he fell in the water'

In sentence (10a), the place adverbial 'in the kitchen' needs to be placed before the verb because the kitchen was there before the cooking took place. In sentence (10b), the place adverbial 'in the water' needs to be placed after the verb because the person's fall happened before he landed in the water.[5]

[3] In *Floyd broke the glass with the hammer*, the instrument role of *hammer* is midway in the flow of energy between the agent and the patient but, due to its second-rate importance to the object affected, is not attributed the status of an argument.

[4] Hammerström (2015) lists the following frequencies of basic word order in 5,230 languages: SOV: 43.3%; SVO: 40.2%; VSO: 9.5%; VOS: 3.3%; OVS: 0.7%; OSV: 0.3%; NODOM 2.3%. 93% of the languages thus have a word order in which the subject precedes the object.

[5] The conditions governing the iconic order of spatial and temporal adjuncts in Chinese seem to be: Free adjuncts denoting a place as in (10a) or a source are placed

In their seminal article fittingly called "World order", Cooper and Ross (1975) demonstrate that a wide range of fixed expressions, described as "binomial conjuncts" and "freezes", only appear in an irreversible linear order. Thus, we speak of *now and then* and *law and order*, but not of *then and now* and *order and law*. The order of such freezes is governed by semantic and phonological factors. We will look at six of the 19 semantic factors identified by Cooper and Ross. The factors listed under (11) characterize the first conjunct.

(11) a. Here: *here and there; this and that; come and go*
b. Now: *now and then; sooner or later; today or tomorrow*
c. Animate: *people and things; men and machines; horse and cart*
d. Adult: *mother and child; men, women and children; cat and kitten*
e. Male: *husband and wife; king and queen; Adam and Eve*
f. Agentive: *agent and patient; speaker and hearer; cat and mouse*

The first two semantic factors refer to the spatial and temporal deictic center typically associated with the speaker's location at the present moment. The temporal conjuncts listed in (11b) are motivated by linear iconicity: The event described by the first conjunct occurs before the event described by the second conjunct. Cooper and Ross (1975: 102) already list a large number of freezes such as *wash and wear*, *eat and run*, *hide and seek*, *park and ride*, and the list could be expanded *ad libitum* by further examples such as *Kiss and Ride*, *Coin & Call*, *Pay and Save*. The semantic factors in (11c) to (11f) reflect the stereotypical egocentric worldview of a chauvinist male, and his place in the world is characterized by the principle "Me First". The order of the pronouns in *you and I* is due to a politeness convention, but the egocentric order is reflected in expressions such as *They believe me and you to be similar* or *We and they* as opposed to the questionable order of ??*They and me* (Cooper and Ross 1975: 106-107). Panther (this volume) has shown that the iconic order *men, women and children* in (11d) reflects the patriarchic sociocultural model and is by far the most frequent order among the six possibilities of ordering the three nouns.

The first conjunct of a freeze normally contains less phonological material than the second conjunct. For example, in (11a), *come* has a short vowel and a closed syllable, while *go* has a long vowel and an open syllable. Here, the semantic and phonological factors jointly determine the ordering of the freeze, but they may also be in conflict. For example, the order of *now* and *then* in (11b) conforms to the order events but conflicts with the phonological constraint. *Then* with its short vowel and closed syllable should come first and *now* with its diphthong and open syllable second. Here, semantics overrides phonology. Phonology may also override semantics. Cooper and Ross (1975:

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before the verb and obligatory adjuncts denoting a goal as in (10b) or functioning as a predicate of a state are placed after the verb.

73) give as an example the expression *trick or treat*, said by children when they ask for sweets on Halloween. *Trick* has a short vowel and is mentioned first, whereas *treat* has a long vowel and is mentioned second. According to semantics, *treat* should be mentioned before *trick* because what the children mean is, 'If you don't give us a *treat*, we will play a *trick* on you'.[6]

The semantic and phonological factors determining the irreversibility of freezes are based on principles of processing load. Material that is easier to process tends to be placed before material that is more difficult to process (Cooper and Klouda 1995). The material described in the first conjunct is immediately available to the speaker: his location *here*, his present time *now* his view of the world as 'me first'. The material described in the second conjunct extends beyond the speaker's egocentric experience: it includes a place over there, a time in the past or the future and other people or things like children, machines or mice. The material in the first conjunct is familiar to the speaker and needs less phonological material than the second conjunct, which needs more phonological material.

The linear order of linguistic units may also be determined by other than temporal factors. As shown by Posner (1986), the order of adjectives in attribute-noun constructions relative to their head noun is determined by their semantic properties. Adjectives denoting essential properties are closer to the noun than adjectives denoting accidental properties. The natural order of attributive adjectives is illustrated in sentence (12a).

(12) a. a beautiful young Japanese woman
b. ?a Japanese young beautiful woman

The adjective *Japanese* is adjacent to the noun because one's nationality is a permanent property, *young* is farther removed from the noun because one's age changes over time, and *beautiful* is farthest away from the noun because the property it describes is based on the speaker's personal assessment. The reversal of the natural order of attributes in (12b) sounds odd.

4.2 The principle of proximity

Givón (1991: 89) defines the diagrammatic principle of proximity or distance in its widest sense: "Entities that are closer together functionally, conceptually or cognitively will be placed together at the code level, i.e. temporally or

[6] As pointed out to me by my colleague Catherine Schwerin, the order *trick or treat* may be historically motivated. Halloween is traditionally seen as the time when spirits rise to play mischief on humans or even harm them. They are to be propitiated to prevent this. Thus the spirit may play havoc (play a "trick") unless it is appeased (given a "treat"). Fear of harm is the default and the "treat" is the action to prevent this, therefore motivating the order of the modern-day ghostlings' threat: "trick or treat".

spatially".[7] He relates the notion of 'proximity' to "general requirements of associative memory, spreading activation and priming", which are beyond the scope of the present survey. However, support for viewing proximity as a general cognitive disposition is found in visual perception. The Gestalt law of proximity states that "things that are close together appear to be more related than things that are spaced farther apart".[8] Thus, in Fig. 5, the patches and dots that are in proximity to each other are seen as being related and forming groups. In Fig. (5a), we see, not see six patches, but twice three patches, and in Fig. (5b), we do not see 42 dots, but two dotted circles (Metzger [1936] 2006: 30; from Köhler 1933).

(a) (b)

Figure 5: Gestalt law of proximity

It is to be expected that our brain processes close and distant linguistic units in the same way as close and distant visual figures. Linguistic areas in which the principle of proximity has been shown to operate include lexical fusion and a host of grammatical phenomena.

Lexical fusion. Lexical fusion represents the tightest degree of proximity. It is, for example, found in blends, such as *pictionary* or *Brexit*, where two words or parts of words are combined to form a new word. In the late 1960s, generative semanticists also treated simple lexical items as fusions of "atomic" elements of meaning. The lexical item that was extensively discussed at that time was the verb *kill*. The causative verb *kill* comprises the atomic predicates 'cause', 'begin' and 'resulting state' and hence was claimed to derive from *cause to die* or *cause to become dead*. However, these expressions are not synonymous. The lexical verb *kill* refers to a single event and the periphrastic construction *cause to die* to two events (Wierzbicka 1975; Haiman 1985: 108-111). This compares to our perception of things: Things that are close to each other are seen as related and things that are far apart as unrelated. In the verb *kill*, its constituent elements CAUSE and EFFECT are related and even fused, whereas in the periphrastic construction *cause to die*, these elements are unrelated and kept apart. As a result, *kill* denotes direct causation and physical contact and *cause to die* indirect causation and absence of physical contact. *Cause to die* or *bring about to die* can, therefore, be used to

[7] Otto Behaghel (1932: 4) already noted the topmost importance of proximity in language structure: "the primary law is that what belongs close together mentally is placed close together" (daß das geistig eng Zusammengehörige auch eng zusammengestellt wird).
[8] https://www.usertesting.com/blog/gestalt-principles#proximity

describe a complex situation in which the causal event happened at one point in time and its effect happened at a later point in time. This would not be permissible with the simple verb *kill*, as illustrated in the following pair of sentences adopted from Lakoff (1977: 245):

(13) a. On Friday I brought it about that John would die on Saturday.
b. *On Friday I killed John on Saturday.

The same difference between direct and indirect causation obtains in pairs such as *show* versus *make someone see* and *remind* versus *make someone remember*. Most periphrastic expressions, however, do not have a simple lexical counterpart. For example, English has no causative verbs corresponding to *make someone hear*, *feel*, *like*, etc. The reason why such verbs do not exist is that we cannot, as a rule, bring about these effects directly, but only indirectly.

Complementation. Distance is a matter of more or less, and some constructions can, therefore, also be arranged along a scale. The sentences under (14) have been adopted from a "binding scale" of degrees of complementation elaborated by Givón (1991: 95). The underlined words increase the distance between the matrix and complement clauses: The greater the distance between the clauses, the smaller the effect of the main event on the subordinate event.

(14) Degrees of complementation
a. Bare infinitive: *She made him leave.*
b. *to*-Infinitive: *She told him to leave.*
c. Subjunctive: *She wished that he would leave.*

Transitive motion. Similar effects have been noted by Panther (in print) in transitive motion constructions. In the sentences below, the verb of the main clause, *order*, compels a person to move out of the car. The expectation that the driver complies correlates with the distance between the causative verb and the effect.

(15) Transitive motion construction
a. strong implicature: *The detectives ordered him out of the car.*
b. weak implicature: *The detectives ordered him to step out of the car.*

Sentence (15a) codes this complex situation as a single event and invites the strong implicature that the event occurred. Sentence (15b), on the other hand, codes the situation as two events with the infinitive *to step* separating cause and effect. As a result, this construal only weakly implies that the event actually took place.

Transitivity. The conceptual and linguistic proximity is particularly strong between a transitive verb and its direct object. Consider the sentence pair below.

(16) Direct object – Prepositional adjunct

a. + Effective: *Felix slapped a mosquito.*

b. – Effective: *Felix slapped <u>at</u> a mosquito*.

In sentence (16a), the action described by the verb immediately affects the thing described by the direct object. The sentence is, therefore, interpreted to mean that Felix killed the mosquito. In sentence (16b), the object is separated from the verb by the preposition *at* and hence is not affected by the action. The sentence is, therefore, understood to mean that the slap missed the mosquito. Likewise, in *Felix kicked the door*, the direct object is affected by the transitive action of kicking: The door might fly open, fall shut, or break. In *Felix kicked at the door*, Felix might have used force but the door did not open or shut or break. Therefore, we couldn't say, **Felix kicked at the door open*.

"Dative shift". The following pair of sentences differs from the preceding one in that they involve a dative, or indirect object. The two constructions under (17) are usually seen as closely related and referred to as "dative shift" or "dative movement".

(17) Indirect object – Prepositional adjunct

a. + Effective: *Heidi wrote her mother a letter.*

b. – Effective: *Heidi wrote a letter <u>to</u> her mother.*

In sentence (17a), the indirect object is adjacent to the verb and is, like the direct object, affected by the action of writing. The sentence is, therefore, interpreted to mean that Heidi's mother probably received the letter. In sentence (17b), the prepositional object is separated from verb and not affected by the action. The preposition *to* normally marks the goal of a motion and the sentence is, therefore, understood to mean that Heidi finished writing the letter, but we do not know if she sent it or if her mother received it. Similar contrasts have been observed between *I taught Harry Greek*, meaning that Harry actually learned Greek, versus *I taught Greek to Harry*, meaning that the teaching took place, but nothing is said about whether any learning took place (Lakoff and Johnson 1980: 130; Thompson and Koide 1987).

Possession. The following pair of sentences illustrates differences in the linguistic behavior of so-called inalienable possession ('cannot be given up') and alienable possession ('can be given up'). Inalienable "possession" refers to body parts or relatives, alienable possession refers to things we own. The distinction between these two kinds of possession is understandably so fundamental that it is often marked in languages. For example, inalienable possession would be expressed by using an affix and alienable possessions by using a separate noun, which thus reflects their different conceptual distances

(Fox 1981; Haiman 1983: 791-795). The sentences under (18) show that the two kinds of possession are also distinguished in English in a very subtle way.

(18) Possession

a. Inalienable: (i) *I kissed her lips.* (ii) *I kissed her <u>on</u> the lips.*

b. Alienable: (i) *I kissed her shoes.* (ii) *?I kissed her <u>on</u> the shoes.*

Inalienable possession, as in (18a), allows two ways of expression: (i) either by naming the possessed body part, or (ii) by naming the person *and* the body part. In sentence (i), the possessor is coded as a possessive pronoun in *her lips*, in sentence (ii), the possessor is "ascended" to the position of a direct object – and hence affected by the verb's action, while the body part is downgraded to a prepositional adjunct, *on the lips*. Alienable possession, as in (18b), only allows naming the possessed thing, her shoes. If the possessor is named as a direct object, as in (ii), we can only interpret the sentence in the sense of inalienable possession. Now the possessed thing, the shoes, is understood as an extension of a person's body part. In construction (ii) with the "ascended possessor" as a direct object, the possession, i.e. the lips and the shoes, are separated from the action described by the verb, but this is done for good iconic reasons: Now the person who is really affected by the kissing is put next to the verb.

Clausal coherence. Caesar's dictum *veni, vidi, vici*, which was already quoted as an illustration of sequential order, may also serve as an instance of iconic proximity. The three clauses are asyndetically juxtaposed and thus compressed into a single event. The tight connection of the clauses mirrors the swiftness of Caesar's military actions leading to victory (Nänny and Fischer 1999: 3).

Inter-clausal coherence. As indicated in the examples under (12), attributive adjectives are commonly juxtaposed. Predicative adjectives, by contrast, are usually coordinated with *and*, as in (19b).

(19) Attributive adjectives – Predicative adjectives

a. Attributive juxtaposition: *a beautiful young girl*

b. \+ Predicative coordination: *The girl is young and beautiful.*

c. – Predicative juxtaposition: **The girl is young, beautiful.*

The first thing to note is that the predicative adjectives in (19b) appear in the reverse order from that of attributive adjectives in (19a). This order makes perfect iconic sense: The adjective that denotes a permanent property, *young*, is still in closer proximity to the noun than the adjective *beautiful*, which only denotes an accidental property. The linking of the adjectives also makes sense: Attributive adjectives jointly spell out properties of the thing described by a

noun, whereas predicative adjectives each assign new properties to the thing denoted a noun and hence are coded separately.[9]

Political correctness. Proponents of political correctness demand that expressions that are felt to be offensive to particular groups of society should be replaced by politically acceptable expressions. Some typical examples of offensive expressions that should be avoided and replaced by politically correct expressions are listed under (20).

		Offensive expressions	Politically correct expressions
(20)	a.	*colored person*	*person of color*
	b.	*dyslexic student*	*student with dyslexia*
	c.	*cripple*	*person with a physical disability*
	d.	*blind person*	*person with visual impairment/ who has low vision*
	e.	*slow learner*	*person with a learning or cognitive disability*

The most conspicuous difference between the two sets of expressions is their different lengths. This may relate to the iconic principle of quantity that is discussed below, but an iconic factor that is certainly also involved is proximity. In the set of politically correct expressions, the noun and the adjunct are separated by a preposition, i.e. the persons are separated from their impairment or other stigma. Moreover, the properties in the two sets differ. Most of the offensive expressions contain premodifier adjectives, which, in English, tend to designate permanent and general properties, as in *a reviewed article* (for attributive and predicative modification see Bolinger 1967 and Radden and Dirven 2007: Ch. 7). The politically correct expressions, on the other hand, contain postmodifier phrases, which tend to designate changeable and particular properties, as in *an article reviewed*. The attenuating effect associated with the politically correct expressions is thus triggered by the postposition of the modifier phrase and its separation from the noun denoting the person by a preposition. The greater length of the positive politeness expressions is due to the fact that there is no better way of expressing their normality. The phrase *a person with a physical disability* sounds as unremarkable as *a person with a gleeful smile*.

4.3 The principle of quantity

Would you say that again using more words?
(Jim McCawley)

The principle of quantity applies to language-internal as well as language-external iconic relationships. In language-internal iconicity, MORE MEANING IS

[9] See Givón (1991: 90-91) for more examples and linguistic markers distinguishing the kinds of coherence, especially stress and intonational contours.

MORE SOUND. For example, the drawn-out vowel in *That was a looooong story* emphasizes the long duration of the story. In language-external iconicity, MORE SOCIAL DISTANCE AND RESPECT IS MORE SOUND. For example, in the British House of Commons, Members of Parliament are addressed as "The Honourable Member" and, when the MP is also a member of the Privy Council, as "The *Right* Honourable Member".

4.3.1 The principle of quantity in language-internal iconicity

Givón (1991: 87) finds "footprints of this principle" in the following areas.

(i) A larger chunk of information will be given a larger chunk of code. For example, derived lexical words contain more coding material than un-derived ones. Thus, *active* is longer than *act*.

(ii) Less predictable and more important information will be given more coding material. For example, contrastive elements receive prominent stress, as in *I saw **Bill** leave, not Harry*. Conversely, pieces of identical information are given less coding material – one need not say what is already known (Haiman 1983: 802). Thus, in *Mary wanted [Ø]to leave*, the co-referential subject of the complement clause, *Mary*, is deleted.

The most straightforward application of the quantity principle relates to the sound and meaning of words. A word that contains more sound is felt to convey more meaning. For example, people think of a vase pronounced as [va:z] as bigger than a vase pronounced as [veɪz]. Bolinger (1980: 19) notes differences in meaning conveyed by different past tense forms. Thus, the pronunciation *dreamed* suggests "slowly moving action" and that of *dreamt* "completed action". Similar differences apply to *spilled* vs. *spilt*, *burned* vs. *burnt* and *smelled* vs. *smelt*.

The language-internal principle of quantity mainly operates in morphology and syntax. Some illustrative examples are given below.

Gradation. One of Jakobson's (1965: 29) examples of iconicity was adjective gradation in the Indo-European languages. The forms for the positive, comparative and superlative degrees contain an increasing number of phonemes, as in English *high – higher – highest* or Latin *altus – alterior – altissimus*. In Jakobson's words, "the signatia reflect the gradation gamut of the signata", which, in Givón's words, translates as a larger chunk of code reflects a larger chunk of information. Jakobson's analysis has been criticized on the grounds that the size described by adjectives such as *small – smaller – smallest* decreases rather than increases. It is, however, not the semantics of the adjectives that matters in gradation but the schematic augmentation of their conceptual scope. The positive invokes one referent, the comparative two referents and the superlative at least three referents. The gradation of adjectives can be compared to the increasing temporal distances from the present moment to the future and to the past. Thus, certain relatives of ascending and descending generations are in English formed in the same symmetrical way: *grandparents* and *grandchildren*, *great-grandfather* and *great-grandson*, etc.

Plurality. Jakobson (1965: 30) also lists the increased length of plural forms as echoing "the meanings of a numeral increment". This applies to the majority of plural forms but not, for example, to Latin neuter nouns in *–um*: The singular form *oppidum* 'town' has more phonemes than the plural form *oppida* 'towns'. A number of English words of foreign origin have kept the shorter foreign plural ending. The preferred plural form of *curriculum* is *curricula*, not *?curriculums*. The same applies to the short plural forms *bacteria*, *phenomena*, *alumni* and *stimuli*. Here, the learned ring of academic terms wins out over the iconic principle. At the same time, there is a tendency to avoid such non-systematic plural forms. The most economical way is to use the originally shorter plural form for both the singular and the plural, as in *data* and *media*.

Reduplication. The notion of reduplication is mainly understood as a morphological process. The repetition of the root syllable of a word is, in fact, optimally suited to denote an increase of quantity. Reduplication is widely attested across languages and with all kinds of functions. Its predominant functions are illustrated under (21).

(21)	a.	Plurality:	Japanese *ie* 'house', *ieie* 'houses'
	b.	Collectivity:	Indonesian *orang* 'man', *orang orang* 'people'
	c.	Iteration:	Fiji *kai* 'call', *kaikai* 'call repeatedly'
	d.	Intensification:	Samoan *taaba* 'speak', *taaba taaba* 'scream'
	e.	Duration:	Vietnamese *nói* 'talk', *nóinói* 'keep talking'
	f.	Diminution:	Sahaptin *kušú* 'pig', *kusúkusu* 'new-born pig'
			Nepali *sānā sānā bastu* 'very small things'
			Guugu Yimidhirr *gunggaarr* 'north', *gungga=gunggaarr* 'a bit north' (smallish distance)

The examples of diminution, taken from Aoki (1994: 19), Pharies (1985: 50), and Haviland (1998: 9), respectively, demonstrate that reduplication does not necessarily correlate with an increase in semantic information. Like adjective gradation, the augmentation of reduplication applies schematically and may go in either direction. As remarked by Haspelmath (2008: 5), reduplication is also marked with respect to frequency in that the reduplicated form is always the rarer one.

Reduplication may also be achieved by repeating words. We may string together nouns (*There's forms forms forms forms*) or verbs (*She talks talks talks talks*), or coordinate verbs (*The ball bounced and bounced and bounced*) or verb phrases (*He told me and told me and told me*). Due to the independent status of words, their reduplication is subject to the principle of sequential order, and the iteration of a few units stands for the whole sequence. The experiential basicness of this kind of repetition has been pointed by Bolinger (1980: 43): "*He kept telling me* is shorthand for *He told me and told me and told me and...*"

Contraction. Givón (1991: 88) compares the full lexical form *have* in *I have two books* to the contracted grammatical form *'ve* in *I've read two books*. The full form *have* is used as a lexical verb meaning 'own' and thus contains more information than the contracted form *'ve*, which is used as a perfect marker and cannot be used in the sense of 'own'.

Brown and Levinson (1978: 271) argue that contracted forms have a different communicative function than their corresponding conventional forms. Three of their examples comparing full and contracted forms are listed below:

(22)		Negatively polite forms	Positively polite contracted forms
	a.	*I want to*	*I wanna*
	b.	*Do you want to*	*Wanna*
	c.	*Do you need a*	*Needa*

Negative politeness is understood as "the desire to be unimpeded in one's actions"; positive politeness is understood as "the desire (in some respect) to be approved of" (p. 13). Contracted forms in positive politeness are markers of in-group membership and casual informality. Rather than invoking lager and smaller chunks of information, the different forms thus characterize different registers used according to social distance. The difference in quantity between these forms thus relates to language-external iconicity.

4.3.2 The principle of quantity in language-external iconicity

The correlation between language-external factors and expressions of quantity is particularly conspicuous in offensive, derogatory and other emotionally charged expressions. Taboo words like *shit* and *fuck* are vulgar and inappropriate in public but may be fully acceptable in locker room talk. Expressions such as *defecate* and *fornicate*, on the other hand, are appropriate in a doctor's office but inappropriate in the locker room. Haiman (1983: 802) argues that the length of a word is an index of one's familiarity with the word and an expression of social distance. Short words including four-letter words relate to familiar semantic domains and signal close social distance. Long expressions including euphemisms, on the other hand, relate to less familiar domains and signal respectful social distance. Metaphorically speaking, in using euphemism, the speaker wraps up the unpleasant content of a message in protective verbiage (p. 801).

People are aware of the appropriateness of a word, but "[w]hat seems 'appropriate' to speakers may often be what is iconically motivated" (p. 800). Expressions are felt to be appropriate when their length, or the distance between words, corresponds to "some other distance", in particular to social

distance and related aspects, such as formality and politeness.[10] The following mundane example of requests illustrates increasing degrees of linguistic quantity reflecting increasing degrees of social distance.

(23) a. Come here!
b. Please come here!
c. Can you come here?
d. Could you please come here?
e. Would you mind if I asked you to come here?

The short direct request in (23a) might be used in talking to a little child or a dog, the slightly longer request in (23b) could be used in talking to a bigger child or to one's friend. Both reflect a close social distance to the addressee and would sound rude if said to an acquaintance. Indirect requests are longer and have an open intonation contour allowing the hearer to opt out. The requests in (23c) and (23d) are polite forms used with people of neutral social standing. The longest indirect request in (23f) would be used in asking a respectful person for a favor.

The quantity of an expression is noticeable when it competes with alternatives. This applies to the well-known difference in register between words of Germanic and Latin origin, such as *buy* vs. *purchase*; *talk* vs. *converse*; *think* vs. *reflect*; *guess* vs. *conjecture*, etc. Words of Latin origin are invariably longer than inherited words of Germanic origin. Innumerable critics have noted and ridiculed the pretentious diction and pseudo-academic jargon in present-day writing, such as the use of *perform an analysis* for *analyze*. One of the earliest critics of this kind of inflated style was Orwell (1946), who said that "It is easier – even quicker, once you have the habit – to say *In my opinion it is not an unjustifiable assumption that* than to say *I think*" (p. 149).

According to the language-internal principle of quantity, a larger quantity of form is expected to reflect a larger quantity of information. The use of excessive wording in pretentious diction, however, is not licensed by factors of social distance, such as respect, formality or subject matter. It is thus in conflict with the language-external principle of quantity. The conflict between the language-internal and language external principles of quantity is resolved by interpreting such utterances in other than literal ways: as deliberate exaggeration or boasting, as self-deprecating or humble behavior, or as an attempt not to personally commit to a statement. The iconic principles of quantity thus explain implicatures arising from violating the maxim of quantity (Grice 1975; Brown & Levinson 1978: 219-220).

5. Associative iconicity

[10] A nice example of the impact of social distance on language has been provided by Klaus-Uwe Panther. Nicknames signal close social distance and are invariably shorter than their given names, as in *Dick* versus *Richard* or *Bess* versus *Elizabeth*.

The proverbial expression *Birds of a feather flock together* embodies the folk view that similar things are attracted to each other. This view is also reflected in language. Languages that express notions of similarity in terms of space overwhelmingly use a Goal marker like the preposition *to* in *similar to*. Similar things metaphorically move to each other. Conversely, notions of difference tend to be coded by a Source marker, as in *different from*. Different things metaphorically move away from each other (Radden and Matthis 2002). Likewise, similar linguistic signs are attracted to, and associated with, each other and different signs are repelled and dissociated from each other.

In Sections 3.2 and 3.4 we looked at instances of associative iconicity in which onomatopoeic words were associated with similar words and formed a paradigm. The essence of the paradigm was distilled from the form and meanings of the associated signs and could often be schematically captured in the form of phonesthemes and the frame they evoke. This iconic process of *paradigmatic association* can be represented as involving the following steps.

(24) Paradigmatic association

(i) A sign is given:	*crash*
(ii) The sign is associated with similar signs:	*crack*, *crush*, *crunch*
(iii) The signs form a paradigm:	*/kr-/* 'destructive sound'

An associative process can also be prompted by two or more signs of a given string of signs that do not, or do not necessarily, belong to the same frame. These signs are typically words that are linked by alliteration, assonance, or rhyme. An example of this kind of association is the phrase *neither rhyme nor reason*, which was popularized by Shakespeare.[11] Due to their alliteration, *rhyme* and *reason* attract each other and prompt us to find a common frame that does justice to both concepts. A likely interpretation of *neither rhyme nor reason* would be that something makes absolutely no sense, neither from a poetic or intuitive point of view nor from a logical point of view.[12] The iconic process will be described as '*prompted association*' and is represented in the following three steps.

(25) Prompted association

(i) A string of signs is given:	*neither rhyme nor reason*
(ii) The signs share part of their form:	/r-/ and final nasal
(iii) The signs evoke a composite meaning:	'no sense at all'

[11] Shakespeare used the phrase *neither rhyme nor reason* in his plays *The Comedy of Errors*, *As You Like It* and *The Merry Wives of Windsor.*

[12] Benczes (2019) chose the modified phrase *Rhyme over Reason* as the title of her book. She notes that, from a linguistic perspective, *rhyme* refers to the poetic and *reason* to the referential function of language (p. 1).

The power of prompted associations has been illustrated by Jakobson (1960: 357) in the following delightful dialogue.

(26) A girl used to talk about "the horrible Harry." "Why horrible?" "Because I hate him." "But why not *dreadful*, *terrible*, *frightful*, *disgusting*?" "I don't know why, but horrible fits him better." Without realizing it, she clung to the poetic device of paronomasia.

We enjoy paronomasia, a play upon words that sound alike, because their connection prompts us to associate concepts that are normally not related. In *horrible Harry*, the alliterating consonants /h/ and /r/ attract the two words to each other so that, due to the proximity principle, we see the attribute 'horrible' as a permanent and characteristic property of Harry. Connecting *dreadful* or *terrible* with *Harry* does not have the same effect, but matching *dreadful* with *Dan* or *terrible* with *Tom* would prompt the same unpleasant associations.

Associations evoked by alliteration, assonance and rhyme are omnipresent in daily life. The following lines illustrate alliteration and rhyme in nursery rhymes in (27a and b), advertisements in (27c and d), political slogans in (27e and f) and other slogans in (27g and h).

(27)	Alliterations		Rhymes
a.	*Mary had a **l**ittle **l**amb.*	b.	*Ee**ny**, **mee**ny, **m**iny, **m**oe*
c.	***My G**oodn**ess**, **my G**uinn**ess***	d.	***Loan** by ph**one***
e.	***b**uild a **b**ig, **b**eautiful wall*	f.	*No **Deal** is **Ideal**.*
g.	***F**riday **f**or **F**uture*	h.	***Randy Andy***

Children love the harmony of words in nursery and counting rhymes. In (27a) and (27b), alliteration, assonance and rhyme and the lateral and nasal consonants jointly contribute to the melodiousness of the verses. Advertisements arouse interest through unexpected connections. The catchy slogan of Guinness beer in (27c) was created in 1936, and its long attraction is certainly due to its abundance of assonance and rhyme. The alliteration in Trump's election promise in (27e) makes it almost sound poetic – its full wording includes one more alliteration, … *along the US **b**order to Mexico*. Boris Johnson's eye rhyme in (27f) refers to a hard Brexit, and the mocking nickname given to Prince Andrew in (27h) blatantly points to his sexual escapades.

In all these examples, we appreciate the witty and aesthetic adornment given to trivial statements, in fact, we cannot avoid noticing alliteration, assonance, and rhyme. Since prompted associations involve a relationship between two or more signs, they are a kind of diagrammatic iconicity. It is, therefore, not surprising that prompted associations can be superimposed on diagrammatic iconicity. This is, once again, best illustrated in Caesar's dictum. Jakobson (1960: 358) notes that the three disyllabic verbs *veni, vidi* and *vici* are symmetric in their identical initial consonant and identical final vowel, which

"added splendor to the laconic victory message". Müller (2000: 305-307) draws attention to the increase in assonance of the two final clauses *vidi* and *vici*, which signal the growing momentum of the events, and to the use of the first-person-singular verb forms, which reflect the speaker's view of reality rather than objective reality and imply "the personal triumph of the speaker".

The range of possible interpretations of Caesar's dictum appears to be infinite. Yet our interpretations are still guided by iconicity: We are searching for meanings evoked by a form. Hence we are also still in the realm of iconicity when we come across humorous word plays like the ones below.

(28) a. Veni, vidi, amavi (I came, I saw, I loved)
b. Veni, vidi, edi (I came, I saw, I ate)
c. I came, I saw, I forgot what I was doing.

There are many further variations of Jakobson's classical triplet, e.g. in the advertisements for a car, *Eye it, Try it, Buy it*, or for the resale of luxury goods, *Buy It, Sell It, Make Money*. All of these formations are iconic. Like their classical model, they involve sequential order and connected association. Hence, they would make perfect sense to a person who had never heard of Caesar's dictum, but this person would miss the crucial point of these slogans – they would not sound funny. Once we are familiar with the dictum, we understand the sentences under (28) as what they were meant to be: humorous absurdities.

6. Iconicity, arbitrariness and systematicity

Iconicity is usually seen in opposition to arbitrariness. Iconicity represents motivation in language par excellence, while arbitrariness represents lack of motivation. The benefit of iconicity has been characterized by Givón (1985: 189) in an often-quoted meta-principle of iconicity: "All other things being equal, a coded experience is easier to store, retrieve and communicate if the code is maximally isomorphic to the experience". All three advantages of iconicity apply to the acquisition of child language and pidgin languages, and the communicative aspect also applies to ideophones, i.e. words that evoke vivid sensory depictions.

These beneficial properties of iconicity appear to be at odds with the fact that languages always develop in the direction of arbitrariness. Thus, words like *laugh*, *sob* and *spank* were originally iconic. The verb *laugh*, for instance, originated as an interjection representing laughter, *ha ha*, a trace of which is still visible in the Old English form *hlæhhan*. The iconic origin of these verbs is for most speakers no longer transparent – the words have become arbitrary. Akita and Dingemanse (2019: 5) have observed similar processes of "deideophonization" in Japanese. Thus, the verb *hikaru* 'shine' derives from the ideophone *pikapika* 'shine brightly'. Owing to their different forms – initial

/p/ only occurs in ideophones, Japanese speakers no longer associate *hikaru* with *pikapika*.

Not just spoken language, but also writing systems gradually move away from their iconic pictograms (Section 3.1), as do sign languages from their iconic gestures. With advancing age, children also switch over to arbitrary words – recapitulating the phylogenesis of language development. Why should iconicity be widespread in the initial stage of language development and fall behind in favor of arbitrariness in later stages?

Numerous studies have dealt with the role of iconicity in language acquisition. Three such studies will briefly be mentioned: a study of onomatopoeic words, a study of sound symbolism, and a study of phonesthemes.

Empirical research has shown that children's earliest-learned words are onomatopoeic words. Laing (2014) examines the acquisition of onomatopoeic words (OW) in relation to the corresponding conventional words (CW) in more detail. During the months between 0;8 and 0;11, Annalena, a German girl, built up a vocabulary of predominantly onomatopoeic words. By 0;11, she increasingly replaced OWs by CWs and, by 1;6, stopped acquiring new OWs altogether. The transitional phase between 1;0 and 1;3 turned out to be particularly revealing. Annalena had already acquired an inventory of consonants in onomatopoeic words but they did not fully match the inventory of CWs. The phonological challenges she faced are illustrated in her pronunciation of *Katze* 'cat', /katsə/. At 1;2, she pronounced the word as [aka], at 1;3 as [taðːə] and [taxːa], and at 1;4 as [daksə] and [kaça]. Annalena already had [k] in her inventory of OWs, but apparently not in initial position, so that she dropped it or replaced it by other consonants. She also replaced the unfamiliar affricate /ts/, first by using the familiar sound [k], then by using fricatives, and finally by using a velar affricate. She also applied the familiar OW pattern of vowel harmony in [aka] and [taxːa] instead of using the final schwa. Laing interprets these forms as intermediate steps in the transition from phonetics to phonology. Onomatopoeic words provide a phonetic and lexical template from which phonological structures and conventional words could be implemented – they serve "as a bootstrapping mechanism for word learning" (Laing 2014: 40).

The notion of bootstrapping has also been applied to sound symbolism by Imai and Kita (2014). Studies of Japanese children have shown that 11-month-old infants are already sensitive to Köhler's shape sound symbolism (Asano et al., cited by Imai and Kita 2014: 6; for Köhler see Fig. 5). The children were able to match novel words like *kipi* and *moma* to pictures of spiky and rounded shapes, and this biologically endowed ability may also help them to associate speech sounds with meaning. In this way, sound symbolism scaffolds word learning from infancy to early childhood.

A study by Bergen (2004) demonstrates that phonesthemes have psychological reality. His preschool subjects responded to words such as *glitter* and *glow* much faster than to semantically unrelated words such as *druid* and

drip, which shows children's awareness of word affinities. They also responded to frequent words much faster than to infrequent words, such as *crony* and *crook*, which shows that the children make use of statistical information in processing form-meaning pairings. The children must have internalized the statistical sound-meaning correlation in the same way that language users have internalized the statistical correlation between a person's gender and the phonology of their name. Male names like *Richard* and *Arthur* tend to have initial stress and end in consonants, female names like *Irene* and *Michelle* tend to have word-final stress and end in vowels (Cassidy et al. 1999). In both situations, the language user subconsciously picks up on such subtle statistical tendencies and uses them in iconic mappings

A crucial issue is whether, or to what extent, children perform iconic mappings. As previously mentioned, iconicity is in the eye of the beholder (Occhino et al. 2017). This means that iconicity is not an objective relationship between image and referent but a relationship between our mental models of an image and a referent (Taub 2001:19). Does the cognitive basis of iconicity also apply to children's use of language? Does a child "see" an iconic link between the sound and meaning of iconic words like *slurp*? Are responses given by a child to her caregiver to be seen as iconic, as in the following dialogue? Mother: "You're a chicken. buck buck buck…" – Child (Naima 1;5): "buck buck [bæp bæp]" (Laing 2019: 181). Here, the child apparently parrots an onomatopoeic word as best she can and does not yet interpret it iconically.

Studies by Lev Vygotsky and Jean Piaget have shown that children's conceptual world is dramatically different from that of adults. Thus, the name of an object is understood as an integral part of the object. When pre-school children are asked why a cow is called *cow*, they say things like, "A cow is called *cow* because it has horns" (Vygotsky 1987: 254). Chandler (2007: 74) concludes that, "for the child, words do not seem at all arbitrary". Could words be iconic to the child?

The reassessment of iconicity as a fundamental property of language has also led to a reassessment of arbitrariness. In their model of motivated vocabulary structure, Dingemanse et al. (2015) propose three types of form-meaning correspondences, each of which is characterized by its advantages. *Arbitrariness* has advantages such as flexibility, being able to communicate abstract concepts, distinguishing type and token, and certainly also economy of expression. *Iconicity* has the advantages of allowing construal of perceptual-motor analogies and conveying sensory information. *Systematicity* is based on a statistical relationship between patterns of sounds for a group of words and has the advantage of assisting categorization. Dingemanse et al. (2015: 612) conclude that "natural languages contain a mix of all three types of form to meaning correspondences, reflecting their distinctive selective advantages in learning and communication".

We may also look at the mix of these principles in terms of their usefulness. Iconicity is useful in acquiring new expressions but an unnecessary burden once a form-meaning correlation has been firmly established. Here

arbitrariness and economy are useful, but they are of little help in acquiring new words. Systematicity is probably the most fundamental principle of language because it enables us to make generalizations, from phonemes to morphemes to words to grammatical structures. Systematicity is not just a useful, but an indispensible, asset of language. It also serves as the precondition for diagrammatic and associative iconicity – i.e. excluding imagic iconicity. It establishes correspondences between signs or forms or meanings of signs – not correspondences between form and meaning. When young children recognize the iconicity of phonesthemes, they do so because they have first discovered a systemic relationship between words and their sounds.

7. Conclusions

The primary goal of this chapter has been to review forms and facets of iconicity. Iconicity is ubiquitous in language and applies to all linguistic levels. Three main kinds of iconicity have been distinguished: Imagic iconicity as in *meow*, in which the form of a sign imitates its meaning, diagrammatic iconicity as in *veni, vidi, vici*, in which the structure of signs reflects a conceived structure, and associative iconicity, as in the onomatopoeic words *bash*, *smash* and *crash*, in which a shared phonestheme evokes shared meanings. Iconicity is a gradient notion. The kinds of iconicity can be plotted on a continuum according to their degree of similarity, as in Fig. 7 (see also Waugh 1994: 65).

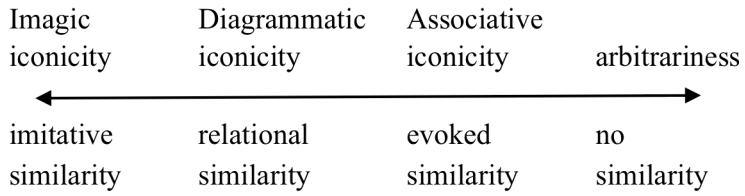

Figure 7: Continuum of iconicities

The left pole of the continuum represents fully motivated form-meaning relationships, the right pole unmotivated, or arbitrary, relationships, and the middle range represents degrees of "relative motivation" in the sense of de Saussure (see Panther, this volume).

Imagic iconicity represents a direct one-to-one mapping between the form and meaning of a word, and in spoken language a mapping between a sound and its phonological rendition. It is the "best" kind of iconicity, but it only lends itself to a small fraction of communicative needs. It goes without saying that imagic iconicity is only suited for basic purposes, as found in early child language.

Diagrammatic iconicity relies on the prior establishment of systemic relationships and hence involves indirect and abstract form-meaning correlations. The number of diagrammatic relationships is limited – here we have focused on the three main types of iconicity: linearity, proximity and

quantity. Diagrammatic relationships are usually taken for granted and hence represent default construals. They only attract our attention in non-default construals, as in the description of sequential events in their reverse chronological order in example (7b).

Associative iconicity depends on systemic word-affinity relations and their condensed commonality in the form of phonesthemes. Phonesthemes are phonemes or phoneme clusters that are associated with expressive sound-symbolic qualities in onomatopoeic words. Their iconicity is indirect and in the eye of the beholder. This is the type of iconicity that language users typically notice. Its range is unlimited and gives rise to creative and appealing associations. Children are especially fond of associative sound symbolism and love rhyming and word games. Waugh (1993: 78, citing Bolinger and Sears 1975) gives the delightful example of the creative use of words by a seven-year-old in referring to the muck at the bottom of an excavation: "if the house is as old as that it's raggy, shaggy, and daggy".

Both imagic and associative iconicity pertain to words, but the difference between them could not be greater: Imagic iconicity relates to direct and tight form-meaning correspondences, whereas associative iconicity relates to indirect and unrestrained form-meaning correspondences. Imagic and associative iconicity represent the endpoints of scales of words that are felt to be more or less *sound-symbolic*, more or less *onomatopoeic*, in short, more or less *iconic*. In view of the scalar nature of lexical iconicity, it is not surprising that the distinction between imagic and associative iconicity is blurred or not even noticeable. Words also have a special status among linguistic units: They are popularly seen as the only meaningful units of language and as such attract more attention than grammatical structures, which are often not even visibly coded. Studies that investigate 'iconicity' are usually also concerned with word iconicity. Diagrammatic iconicity is rarely mentioned in present-day research, but it certainly deserves equal treatment – at least in future research.

Acknowledgment

I would like to thank Catherine Schwerin, Linda Thornburg, Klaus-Uwe Panther, Thomas Berg, Chenting Ma and Yoshihisa Nakamura for their insightful comments on this chapter.

Related topics

semiotics, motivation in language, sign language, language acquisition

Further Reading

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Cambridge: Cambridge University Press.
The most comprehensive book on phonological motivation and iconicity of English to date.

De Cuypere, L. (2008). *Limiting the Iconic: From the Metatheoretical Foundations to the Creative Possibilities of Iconicity in Language*. Amsterdam, Philadelphia: John Benjamins.
An excellent book critically synthesizing traditional and recent approaches to iconicity.

Haiman, J. (Ed.). (1985). *Iconicity in Syntax.* Cambridge: Cambridge University Press.
The first collection of groundbreaking articles covering diagrammatic iconicity within the functional framework.

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An insightful review of kinds of iconicity illustrated with a wealth of linguistic data.

Waugh, L. R. (1994). Degrees of iconicity in the lexicon. *Journal of Pragmatics* 22, 55-70.
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