

Introduction: sound-symbolic processes

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Hermogenes. I should explain to you, Socrates, that our friend Cratylus has been arguing about names; he says that they are natural and not conventional; not a portion of the human voice which men agree to use; but that there is a truth or correctness in them, which is the same for Hellenes as barbarians.

Plato

1.1. Introduction

In general, linguistic theory assumes that the relation between sound and meaning is arbitrary. Any aspect of language that goes against this assumption has traditionally been considered as only a minor exception to the general rule. Over the past few decades, there has been a great accumulation of cross-linguistic data on sound symbolism. Recently, scholars interested in sound symbolism came together at a conference to attempt to synthesize the data and discuss its implications, in order to begin the determination of the rightful role of sound symbolism in a theory of language. The papers in this volume represent the findings of the conference. We must conclude, from the combined work shown here, that sound symbolism plays a considerably larger role in language than scholarship has hitherto recognized.

In this introduction, we will examine the nature of sound symbolism in general. The term "sound symbolism" has been used for a wide array of phenomena in human languages, related but each with its own distinguishing characteristics. We will begin, then, with a typology of sound symbolism. We then explore the general characteristics of sound-symbolic form and meaning.

1.2. A typology of sound symbolism

Sound symbolism is the direct linkage between sound and meaning. Human language has aspects where sound and meaning are completely linked, as in

involuntary utterances such as cries of pain or hiccups. In these cases sound only has "meaning" in that it directly reflects an internal state of the body or mind. A scale can be set up between these utterances and completely conventional, arbitrary language, where sound and meaning presumably have no direct relationship at all. We have found it reasonable to divide the overall concept of sound symbolism into four different categories, which are arranged below according to degree of direct linkage between sound and meaning.

1.2.1. Corporeal sound symbolism

This is the use of certain sounds or intonation patterns to express the internal state of the speaker, emotional or physical. This category includes involuntary, "symptomatic" sounds such as coughing or hiccupping, and ranges through expressive intonation, expressive voice quality, and interjections. An argument could be made that this is not properly sound symbolism, because in this case the sound is not a true *symbol*, but rather a *sign* or *symptom*. We nevertheless give it a place in this typology and in this volume, because it lives around the edges of sound symbolism, and is related to the biological roots of sound symbolism (as well as language in general).

Much of corporeal sound symbolism is not commonly written. Either it forms part of the suprasegmental features of utterances, expressed as intonation or voice quality, or else it is expressed in unconventionalized utterances. Corporeal sound-symbolic utterances are typically structurally simple, non-segmentable vocalizations. In English writing traditions, it is primarily in comic strips that we find expressive intonation and voice quality portrayed, by visual effects such as letter size, shape and color; and such forms as *Laugh!* and *Achoo!* are attempts to write corporeal utterances that do not fit easily into the sound system of the conventional vocabulary. Corporeal sound-symbolic utterances are directly tied to the emotional or physical state of the speaker, and as such cannot easily be objectified into referential speech. They are, therefore, generally complete utterances, rarely occurring as parts of more complex sentences (except as direct quotations). The unconventionality of corporeal utterances, their structural simplicity, and their defiance of writing makes them an understudied area of human speech. In this volume, the role of human utterances expressive of physical state is discussed in the paper by Ostwald, who develops a typology of the ways in which corporeal utterances reflect disease.

We should also mention here a type of sound symbolism related but tangential to the symptomatic utterances of corporeal sound symbolism: *vocatives* formally have certain similarities to corporeal sound symbolism, but with the function of gaining the attention of some hearer. The use of vocalization to get the attention of another individual is a basic function of vocal communication throughout the animal kingdom. There is a good deal of overlap between corporeal and vocative utteran-

ces: the crying of a child or the scream of someone in serious danger are both directly symptomatic and vocative in nature. Some corporeal utterances are regularly manipulated by speakers within linguistic interactions, as vocative or turn-taking signals. Clearing the throat or coughing are often used for these communicative functions. Vocatives, however, go beyond the bounds of corporeal sound symbolism in that they often use the normal vocabulary of language, such as names (see Jacobsen, this volume). Nevertheless, even name vocations involves such expressive features as increased amplitude and segment duration. Since vocation has the specific function of gaining someone's attention, vocatives have the special feature of being designed to suit the acoustic limitations of the external environment and the auditory and mental requisites of the hearer (in so far as the speaker can understand and perform these). Thus our use of whistles and labial clicks to call dogs is based on their higher center of hearing; and calls to a distant hearer are different from close-up calls.

Corporeal utterances have many universal components, both in human languages and across species. The paper by Morton discusses some of these cross-species universals, including differences between long-distance and close-up calls.

1.2.2. Imitative sound symbolism

This relates to onomatopoeic words and phrases representing environmental sounds (e.g. *bang*, *bon-wow*, *swish*, *knock*, and *zap*). Again, imitatives include many utterances that utilize sound patterns outside of conventional speech and are difficult to portray in writing, such as representations of bird and animal sounds, children's imitations of sirens, etc. Nevertheless, imitatives are much better represented in the linguistic literature than corporeal sound symbolism, because so much onomatopoeic vocabulary does become conventionalized. It is not directly tied to emotional or physical state, the way most corporeal sound symbolism is, but instead has a very important role in referential speech, and can be objectified in a way that expressive sound symbolism cannot. In this volume, Rhodes' paper "Aural images" sets up a scale for discussing degree of conventionalization of onomatopoeic words - his "wild" and "tame" vocabulary. And while "wild" imitative words are not found in dictionaries, there is nevertheless a huge tradition of writing them in comic strips, as discussed by Oswald.

Imitative sound symbolism is often highly structured linguistically. Rhodes, and also Robert Oswald in his contribution on "Inanimate imitatives in English," show how English imitative words have an internal grammar.

Very frequently, languages represent movement with the same sorts of sound-symbolic forms that they use for the representation of sounds. The movements so represented are often highly rhythmic (such as walking, swaying, repeated jerking, trembling, etc.). Certainly, rhythmic movement often directly produces sound. But beyond that, the rhythms of sound and the rhythms of movement are so closely

linked in the human neural system that they are virtually inseparable. This is illustrated in the very natural human physical response to rhythmic music, in the forms of hand clapping, foot tapping, dancing, rhythmic physical labor, etc. Just as humans are capable of translating rhythmic sounds into rhythmic movements, they are also capable of the reverse: translating rhythmic movements into sounds, including sound-symbolic language forms. In the representation of repeated sounds and movements the linguistic strategy of reduplication is frequently utilized (as in English "ding-dong"), a direct imitation of the rhythm being represented. While it could perhaps be argued that these movement terms are a kind of synesthetic sound symbolism (see section 1.2.3 below), they are so closely tied to imitations that we would rather call them *movement imitations*, and include them in this category. Movement imitations are discussed by Alpher, Aoki, Childs, Difloth, Langdon, and others in this volume. Hamano's paper gives us an example of a transitional system, one where imitative symbolism is extended into synesthesia.

1.2.3. Synesthetic sound symbolism

We choose here the term "synesthetic" because this realm of sound symbolism can be defined as the acoustic symbolization of non-acoustic phenomena. Synesthetic sound symbolism is the process whereby certain vowels, consonants, and suprasegmentals are chosen to consistently represent visual, tactile, or proprioceptive properties of objects, such as size or shape. For example, segments such as palatal consonants and high vowels are frequently used for diminutive forms and other words representing small objects. Expressive intonation patterns are also used synesthetically, as in the use of deep voice and vowel lengthening in speaking of large objects. ("It was a *bi-ig* fish!") Besides symbolic frequency shifts and durational patterns, other acoustic parameters may also serve symbolic roles, such as rise time, fall time, loudness, continuity, and the contrast between periodicity and aperiodicity. Segmental synesthetic symbolism is most readily subject to study, and has a large and ever-growing literature associated with it. This is partly because it is an area of sound-symbolic speech that is strongly conventionalized ("tame"), and also partly because it is one of the most interesting aspects of sound symbolism, in view of the fact that here the relation between sound and meaning is relatively indirect. Work by scholars from Sapir on (see references) shows clearly that in the case of size symbolism, there is a very significant tendency in languages throughout the world for certain types of segments to be chosen over other types of segments to represent objects of given sizes. For example, Ulan (1978) found that in almost 90% of the languages he sampled that had diminutive marking, the diminutive was symbolized by high front vowels. Nevertheless, to a much greater extent than for expressive symbolism and onomatopoeia, exceptions to these findings are also prevalent, illustrating that this sort of sound symbolism is further along the scale toward arbitrariness than the previous two types.

Like imitative sound symbolism, synesthetic sound symbolism is often highly structured. As Silverstein demonstrates (this volume), the phonemic inventory of Wasco-Washram Chinookan is structured according to its role in demonstrating diminution and augmentation.

1.2.4. Conventional sound symbolism

This is the analogical association of certain phonemes and clusters with certain meanings: e.g. the "gl" of glitter, glisten, glow, glimmer, etc. This process is most eloquently described by Bloomfield (1895):

Every word, in so far as it is semantically expressive, may establish, by hap-hazard favoritism, a union between its meaning and any of its sounds, and then send forth this sound (or sounds) upon predatory expeditions into domains where the sound is at first a stranger and parasitic. A slight emphasis punctures the placid function of a certain sound-element, and the ripple extends, no-one can say how far . . .

The signification of any word is arbitrarily attached to some sound-element contained in it, and then cogeneric names are created by means of this infused, or we might say, irradiated, or inspired element. (pp. 409-410)

Unlike the previous three categories, which are seen to exhibit many cross-linguistic similarities, conventional sound symbolism, as the name implies, may be largely language-specific in its choice of phonetic segments. These submorphemic meaning-carrying entities are sometimes called *phonemes*, or *phonetic intensives* (Bolinger 1965). While phonemes are often conventional, some have universal properties and fit into other categories described above. There is some debate as to whether these units really have a special status, or whether they should be classed as a type of morpheme instead. Rhodes (this volume) argues the latter point of view.

While conventional sound symbolism is frequently classed as sound symbolism, we are getting close here to the arbitrary end of the language scale. Yet the point must be made that in the minds of speakers, sound and meaning are always linked automatically, so that on some subjective and unconscious level we all agree with Cratylus (see the quotation which opens this chapter), that names are somehow "natural." Children feel this especially strongly, as illustrated once by Stephanie, the stepdaughter of one of the authors: she said, "English is the one true language, isn't it?" When asked what she meant, she replied, "Well, when [our Mexican friend] Lupe says 'agua,' what she *means* is 'water.' But when I say 'water,' I don't mean 'agua,' I really mean 'water!'"

While some of us may later learn to subjugate these linguocentric prejudices, the tension of their continued underground existence in adult minds is still often expressed in humor. ("No wonder they call it an elephant: it's so big!") It is this predilection toward the belief in the naturalness and rightness of words or their

components as representatives of meaning that is probably at work in phonesthetic association and creation. Phonesthetic creation is especially obvious in the realm of blends. Another quote from Bloomfield (1895):

I have mentioned in the past that I frequently felt tempted to blend the two words *quench* and *squash* in a composite result *squench*, and that my attention was afterward drawn to a passage in Page's "In Old Virginia," p. 53, presenting the word in dialect "She le' me *squench* my thurst kessin' her hand" . . . The slang word *snipe*, which is now heard often, is to my sense clearly a similar product of *wipe* and *snipe*. One can taste the ingredients. (pp. 411-412)

Great use of conventional sound symbolism is made in the creation of names for commercial products. The American automobile corporation Dodge has named one of its transporters the *Caravan*, which evokes the image of adventure and far-flung travel, while at the same time being a play on words by referring to a vehicle type called a "van." (The word "van" was derived as an abbreviation from "caravan" in the first place, but most people probably are not aware of that historical fact, and are more likely to see the play on words as a pun in the last syllable. Americans do not use the word as the common term for a mobile home, as British English does.) The *Nova*, famous as a naming disaster in the Spanish-speaking world ("doesn't go"), is nevertheless a very successful car name to English speakers. The word itself means an exploding star, evoking a sense of mystery, beauty, speed, and powerful light; the first part of it connotes newness (novel, novelty), and it bears the traditional feminine ending so popular among car names. Auto names create blends, such as *Sentra*, which combines the feminine ending with a piece of the word "sentry," the watchful protector. Among shampoos, we find such names as *L'Oréal*, no doubt recognized by its creators as sounding like a very feminine-sounding name (Laura), reminiscent of a flower name (Laurel), while at the same time harking back to synesthetic sound symbolism: the name is full of continuant, "flowing" sounds to symbolize flowing hair.

At the ends of sound symbolism, then, we see the human mind at work *creating* links between sound and meaning even where such links might not be intrinsic or universal.

1.3. Metalinguistic symbolism

Cross-cutting the above categories is a sort of sound symbolism that might be termed *metalinguistic symbolism*, where segment choice and intonation patterns signal aspects of linguistic structure and function. One type of metalinguistic symbolism, highly conventionalized and abstract, comprises the various language-specific restrictions on the formal canon of individual parts of speech, including exclusion of, or preference for, particular phonemes in particular parts of speech or

affixes, dealt with in this volume by Austerlitz, Diffloth, Malkiel, Matisoff, and Sereno. Diffloth shows that what he calls *expressives* are a regular phonological part of the language, yet particular vowels are infrequent in them. Yet while central vowels are dispreferred in Bahar expressives, the central vowel /y/ is shown by Langdon to be favored in corresponding symbolic vocabulary in Guaraní; this discrepancy illustrates the language-specific and conventionalized nature of such restrictions. Matisoff discusses a set of words one might describe as involving metacommunicative synesthetic symbolism: a particular, language-specific, form is conventionally associated with a particular kind of semantics. Malkiel proposes the term *morphosymbolism* for the association of particular root-canon forms with particular parts of speech or their subclasses. Sereno shows that in English, parts of speech (nouns and verbs) are partially signaled by vowel quality. In an example that may be transitional between plain and metacommunicative conventional symbolism, Austerlitz discusses a set of etymological problems suggesting that particular sounds – including, saliently, sounds that are secondary in the language and therefore likely to have been highly marked and to have had high affective value at some earlier time – have some propensity to associate themselves non-etymologically with certain roots, and the conditions favoring the innovations involve both semantics and abstract lexical or grammatical classes. For all these and similar examples, association of particular forms with particular abstract classes functions to expedite communication in that, especially under noisy conditions, the occurrence of a particular sound, sound class, or sound sequence aids the hearer in recovering the fact that s/he has just heard, say, a noun or an accusative case or a past-tense verb. Perhaps the best-known example of this kind of symbolism is the use of phonemes, of neutralization, of abstract structural shapes, and of accent in what Trubetzkoy calls the *boundary-marking function* (Trubetzkoy 1969).

Frequently labeled as "symbolism" are various forms of consonantal and vocalic ablaut utilized to express such grammatical phenomena as tense, aspect, pluralization, etc. – such as *goose/geese* in English, or a similar kind of vowel ablaut to represent active/passive distinctions in Yana (Sapir 1922). This kind of process strains at the edges of what we would consider to be valid sound symbolism. Certainly consonant or vowel substitution is one of the most common means for producing sound-symbolic expression, but only if a non-arbitrary (either natural or conventional) relationship between a segment and its meaning can be demonstrated would we want to call the process sound-symbolic. Nevertheless, a productive process of ablaut has the potential to be a process of conventional sound symbolism.

The examples dealt with so far have all involved the non-arbitrary relations of sound to meaning. There are also instances of the non-arbitrary relation of sound to communicative function, for which a separate term such as *metacommunicative symbolism* might be proposed. In fact, it may well be that each of our types of sound symbolism also has a metacommunicative variant. Certainly the vocative and

turn-taking uses of corporeal utterances (coughing, throat-clearing) discussed above are example of metacommunicative symbolism. One further example is whispering: here the acoustic form of speech is adjusted in accordance with the communicative function, namely communication at close distance and where intimacy, privacy, or some form of restraint (conventional or otherwise) on the possible audience is desired. Another example would appear to be the addition or lengthening of word-final vowels in the vocatives discussed in this volume by Jacobsen. The added acoustic prominence achieved by this device serves the communicative end of getting the hearer's attention; since in real usage vocatives sometimes function as interjections or contributors of special pragmatic coloring rather than (or as well as) attention-getters, the metacommunicative function is again distinctly conventionalized.

Another metalinguistic function of sound symbolism is described in Silverstein's article here on Wasco. He points out that diminutive-augmentative sound symbolism in Wasco does not merely denote small and large objects, but rather functions to signal the affective and evaluative relationship of the speaker to the referent.

1.4. Sound-symbolic form

There is much that is language-specific about sound-symbolic form, and most of the papers in this volume will illustrate these language-specific characteristics (termed "local sound symbolism" in Priestly's article). However, threaded throughout these papers and others listed in the references, there are aspects of sound-symbolic form that appear over and over again, and that we may thus hypothesize to be universal tendencies. Diffloth (this volume) warns against the premature naming of any sound-symbolic pattern as "universal," when the use of the term is loosely used simply to mean that it occurs in a number of languages. However, we believe that when a sound-symbolic pattern is found in a larger number of languages than one would expect if language were fully arbitrary, its presence is attributable to some explanation that is independent of the internal workings of a particular language. It is in that sense that we believe the term "universal (tendency)" to be both accurate and valuable. Such explanations of common sound-symbolic patterns are quite various. They may be extrinsic to language, as in onomatopoeia, where the choice of linguistic representation is based on the features of language-extrinsic sounds; or they may be related to deeply rooted aspects of human (or in some cases, more generally mammalian or even vertebrate) neurology and cognition, as in corporeal sound symbolism and much synesthetic sound symbolism. The explanation may also lie in universals of the pragmatics of human interaction, such as in universal tendencies of vocative forms suggested by Jacobsen in this volume.

Three overall sound-symbolic strategies emerge from these studies as being especially noteworthy: (1) use of reduplication; (2) marked use of segments that are otherwise uncommon in the language, and the loosening of distributional constraints that are otherwise strong in the language; (3) the association of certain types of segments and suprasegmentals with certain semantic realms.

1.4.1. Reduplication

Some languages use reduplication more than other languages. But in those languages that do use it, we seem to find a strong tendency for reduplication to be associated with sound symbolism. Such use of reduplication is common but not very productive in English sound-symbolic forms (the English style of reduplication is often called "partial reduplication" since it involves vowel alternation): "ding-dong," "see-saw," "teeter-totter," "flim-flam," "dilly-dally," "wishy-washy," etc. European languages in general utilize reduplication less than the rest of the world. In this volume, examples of reduplicated forms abound in Guarani (Langdon), Nez Perce (Aoki), Mon Khmer (Diffloth), Lahu (Matisoff), and Africa (Childs), illustrating the prevalence of reduplication around the world.

1.4.2. Use of unusual segments and suprasegmentals

As shown elsewhere (see, for example, Hinton 1986), sounds often enter a language by means of sound-symbolic words. Scholars from Grassmann on have shown that sound changes often do not affect sound-symbolic words, so that phonemes which have otherwise disappeared or become restricted to certain environments are often found thriving in the sound-symbolic vocabulary. This same tendency is shown in this volume for Huastec (Kaufman). Papers in this volume by Aoki (Nez Perce), Austerlitz (Finnish), Joseph (Modern Greek), and Matisoff (Lahu) all discuss segments or tones that are common only in sound-symbolic vocabulary. English also exhibits this tendency: Rhoads's "wild" forms exhibit marked phonology, such as the use of segments that do not occur elsewhere in the English language.

At the same time that unusual sounds may occur, there is also a tendency to use a reduced phonemic inventory in sound symbolism, as suggested by Oswalt in this volume (who makes the same claim for Pomo in Oswalt 1971).

1.4.3. Association of certain phoneme classes with certain semantic fields

This is the sort of sound-symbolic patterning that is most commonly discussed in the literature, and which is best illustrated by imitative and synesthetic sound-symbolic forms. In imitatives, for example, stops are used for abrupt sounds and acts, and continuants for continuing sounds and acts. Fricatives are used for quick

audible motion of an object through air; nasals are used for ringing, reverberating sounds.

Overarching imitatives and synesthetic symbolism is the celebrated Frequency Code (so named by Ohala 1984, and developed by Sapir 1911, 1927, Jespersen 1933, Swadesh 1970, Nichols 1971, and others), which can be summarized as follows: high tones, vowels with high second formants (notably /i/), and high-frequency consonants are associated with high-frequency sounds, small size, sharpness, and rapid movement; low tones, vowels with low second formants (notably /u/), and low-frequency consonants are associated with low-frequency sounds, large size, softness, and heavy, slow movements. Ohala carries his work on Frequency Code further in this volume, and it is well borne out by several other papers here; LaPolla and Matisoff shows its validity for several Asian languages, and Berlin and Langdon for South and Central American languages. Berlin and LaPolla have gone further, to show that the same Frequency Code can be utilized to allow English speakers to correctly guess semantic components of Chinese and Jivaro words. Diffloth, on the other hand, reminds us that there are languages which actually reverse the Frequency Code, as is the case with Mon Khmer sound-symbolic vowel usage.

1.5. Semantic and pragmatic realms of sound-symbolic vocabulary

The following semantic and pragmatic fields crop up again and again for sound-symbolic vocabulary:

- (1) mimicry of environmental and internal sounds;
- (2) expressions of internal states of being, both physical and emotional;
- (3) expressions of social relationships (as in diminutive forms and vocatives and imperatives), also the expression of opprobrium and stigma;
- (4) salient characteristics of objects and activities, such as movement, size, shape, color, and texture;
- (5) grammatical and discourse indicators, such as intonational markers of discourse and sentence structure, and distinctions between parts of speech;
- (6) expression of the evaluative and affective relationship of the speaker to the subject being discussed.

These six areas may be seen as encompassing most of language. Only abstract relational notions (such as categories of even and odd numbers) seem to be sparse in sound-symbolic representation. The first three of these semantic fields are clearly present in the non-human animal world of communication (vocal mimicry is not a general feature of non-human communication, but is found in many species; expressions of internal state and social relationships are found quite generally in vocalizing animals). It is only the last two that are thought to be

(almost) uniquely characteristic of human language. It is also the last two that are traditionally thought to be largely represented by arbitrary linguistic forms; yet we have seen that sound symbolism plays an important role here as well.

Given that we share many of our sound-symbolic aspects of language with other species, it is quite possible that in sound symbolism we are seeing the precursors of fully formed human language. In fact, it seems quite reasonable to say that in all advanced vocalizers (especially humans, many birds, and many cetaceans) we can see a basic sound-symbolic communication system overlaid by elaborations which could be termed arbitrary in their relationship to meaning. Morton (this volume) has demonstrated some of the sound-symbolic aspects of bird and mammal vocalizations. An "arbitrary" component of bird song has developed in the elaboration of territorial songs, just as it has in human language.

In terms of evolution, the value of a sound-symbolic basis to communication is fairly obvious, in that it allows greater ease of communication. Reaction-time experiments show that for humans, correct judgments about the meanings of words are faster for sound-symbolic words than for arbitrary words. Sereno (this volume) demonstrates this for the part-of-speech symbolism she has found in English. In the human and non-human world alike, it is generally to the benefit of speaker and hearer for accurate communication to take place; if form of vocalization is tied directly to meaning, the possibility of accurate and speedy comprehension is enhanced.

It is the evolutionary value of arbitrariness, then, that must be explained. While this interesting problem has been the focus of a fairly large body of research, it is not the purpose of this volume.

1.6. Sound symbolism as a cross-disciplinary topic

The quotation from Plato with which we began this introduction, the terminology chosen above, and the literature, issues, and terminology reviewed here and in most of the individual contributions give our theoretical analysis of sound symbolism a decidedly Western cast. Other grammatical traditions, of course, have also examined symbolism and related issues. We refer the reader to the concise survey of Chinese sources in LaPolla's paper in this volume, and to the terminological discussions by Matisoff, Diffloth, and Hamano. Matisoff and Hamano use technical concepts taken from Japanese grammar, and Matisoff also cites the Japanese terms.

Sound symbolism is a topic of cross-disciplinary interest, as shown in the array of fields our contributors come from: linguistics, anthropology, literature, biology and medicine. In medicine we find that the corporeal sound-symbolic utterances, especially involuntary cries, can give physicians cues about the physical problems of a patient. In biology we find the ethological basis of sound symbolism. In