

Phonosemantics of English consonants and their combinations: students' perception

Liudmila Varenina

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Abstract

Understanding the general meaning of phonemes and their combinations helps to guess the meaning of unknown words intuitively. The aim of this paper is to examine nine groups of English phoneme combinations as examples to prove they have some specific common meaning, a so-called DNA that can be traced in all given words. Thus, 108 university students were offered to work with a dictionary and to learn words with particular phoneme combinations in order to examine non-native listeners' perception. The author insists that the relationship between phonemes and what they signify is non-arbitrary. It is determined that certain consonant combinations retain their meanings even when separated by a vowel. Thus, upon closer examination, words that are not similar to one another but which have identical consonant phonemes combinations bear an element of meaning which is absent in words not containing such combinations. The practical value is that the described model can be successfully applied to learning a foreign language.

Key words: phoneme, meaning of phoneme combination, phonosemantics, sound symbolism, semantic domains, language learning

Introduction

Any modern language is a complex hierarchical system of signs and ways of connecting them (Allwood, 2017; Neidle, 2000). Any language like a living being is constantly developing and improving. Linguists have always wondered when and where such diversity of languages appeared (Dingemanse, Enfield, 2015).

Phonosemantics is a hypothesis, which explains that every sound in this universe has a specific meaning allotted by nature (Magnus, 2000). Under this hypothesis, as and when we speak or listen to any sound, we feel a corresponding specific emotion inside (Pecher, Zwaan, 2005; Barrett, Lindquist, Gendron, 2007).

All languages in this universe are evolved because of this relationship between sound and meaning (Shestakova et al., 2016). In spite of strong philosophical support, modern linguists disagree with this finding (Agrawal, 2014).

We suppose it is because they try to name an object based on its construction. The reality is that nature never provides any name to any object. It is the observer who observes the object according to his needs, utilities, and capabilities and stimulates different places of its structure of existence while observing (Jespersen, 2013; White, 2012).

Non-arbitrary, motivated nature of the linguistic sign does not mean that all words in the modern language can be considered motivated (Sandler, Lillo-Martin, 2006). Language is constantly evolving, new words and new meanings are appearing, since the word itself carries a double function: reflective and communicative (Berwick, Chomsky, 2015).

When analyzing the sign properties of sounds, linguists pay much attention to initial combination of two (sometimes three) consonants that are used to mean bound submorphemic strings which have in common a certain element of meaning or function (Lvova, 2005).

One can note the notion that there is a regular correlation between the form of a word and its meaning is controversial. Many linguists insist that the relationship between sounds and what they signify is arbitrary (Harre, Harris, 2017).

It is hard to deny that the sound itself carries no universal meaning, but it does have relative value in each language. That was proved by quite a few studies conducted in different languages (Grosvald, Corina, 2012).

Despite the fact that words typically have more than one meaning one can find something in common, a unique and coherent semantic domain. In their research scientists managed to show the correspondence between sound and meaning in words, and that phonosemantics correlations are much more pervasive and greater than can be imagined and that was generally supposed (Bartashova, 2015; Schuklina, 2016).

Anyway, phonosemantics by itself can be regarded as an «interdisciplinary science», and since so, the implementation of its ideas in solving crossdisciplinary problems appears to be quite effective (Butler, 2017).

The idea that individual vocal sounds have meaning is not a new one. Scientists have always wondered why this or that particular word denotes this object or why this particular letter corresponds to that particular sound?

Since ancient times linguistic scholars have been arguing about phoneme reference to particular meaning (Cruse, 2011). Precedents can be found in the Upaniṣads and in Plato. However, it is not a popular idea amongst linguists who deny the possibility of such a relationship.

Thus, S. Voronin (2006) singles out phonosemantics as an independent discipline of a linguistic nature. He counterpoised F. de Saussure's "principle of arbitrariness" to the double "non-arbitrary / arbitrary principle" of the nature of the linguistic sign and substantiated it.

There were also attempts to compare consonant confusions by adults and children (Broersma, Scharenborg, 2010; Wilbur, 2017). Thus, fifteen consonants in American English were embedded in VCV nonsense syllables and presented in noise at three SNRs. The results confirm that children do not acquire the ability to recognize all phonetic features at the same time, and that appropriate care should be taken when interpreting young children's speech perception performance (Tzeng et al., 2017; Rogerson-Revell, 2017).

Some scientists stick to the monogenesis theory claiming that all languages originated from one proto-language and have common roots; others insist on polygenesis concept and believe that originally there were several independent sources of tongue emergence (Nichols, 2011). Whether this is true or not has not been proved yet.

It is pertinent to point out that well-developed literacy skills, such as the ability to comprehend a wide range of texts at a high level, are necessary for success in today's learning environment and society in general (Lipka, Siegel, 2011). Skills associated with phonemic and phonological awareness have been shown to contribute to successful reading comprehension skills (Cain, Oakhill, Bryant, 2000; Foresti Carlet, Cebrian, 2017). This claim stands for both monolingual students and for English learners.

Consonant production was also assessed by having English listeners identify the English consonants produced by Greek speakers (Lengeris, Nicolaidis, 2016). Thus, Greek speakers achieved higher identification scores in quiet than in noise, and the 8-speaker babble had a more detrimental effect in their scores than the competing speaker.

Difficulties with specific English consonants were not always similar across modalities; some consonants proved easy to identify but difficult to produce and vice versa (Becker, Bieswanger, 2017).

The aim of our research is to examine non-native listeners' perception of some English consonants.

Methodological Framework

The basic theory of phonosemantics of P. Agrawal was applied in this research (2010). Different phonemes clusters based on the phonemes **B, P, T** and nine consonants combinations **SN, SL, SW, GL, ST, BB, NV, RL, ML** as well as patterns of native and non-native listeners' perception of English consonants are presented in this study.

Understanding the general meaning of phonemes and their combinations helps to guess the meaning of unknown words intuitively. The associative memory is switched on, and it helps to memorize new words.

Such experiment was conducted at Plekhanov Russian University of Economics (Moscow, Russian Federation). Two groups of students (n=108, aged 18-20) were offered to work with a dictionary and to learn words with particular phoneme combinations. The study was conducted from March 2016 to January 2017.

There were totally 39.8% males (43) and 60.2 % of female students (65 students). The majority of participants (74, 1%) were the 1st year students – 80.

Non-native subjects were selected according to the following criteria: middle age, normal hearing and a score of at least 85% correct using the Modified Rhyme Test (Saychum et al., 2016).

To conduct a survey and analyze its results, written permissions were obtained from the respondents to use their personal data. All the participants were informed on both the purpose and content of the research.

Results and Discussions

It is common knowledge that the Old Testament was written in the Hebrew language and partly in the Aramaic language, which lacked vowels in written variants. Over time, the translation of the text was distorted. Depending on the vowels each interpreter used, the meanings of words could change thus leading to new interpretations and therefore new trends in religion. Nevertheless, the main idea was preserved. It proves that it is the consonant that bears the main semantic meaning.

To demonstrate this phenomenon, we can use a simple example depriving all vowels from the phrase:

“Gv m sm cff pls!”

On the face of it, the phrase is not readable. However, if we pronounce the sounds, we can understand what is written. It means that the consonants form the semantic basis of any language.

We have also to admit that some vowels have the meaning similar in many languages. For example:

oh! – astonishment;
a-a-a! – a cry of pain or danger;
u-u-u – disappointment.

The hissing and whistling sounds at the beginning of the word accompanied by a short vowel express anger. Compare: *Shit!*

The boom of sound symbolism research fell on the last decade of the twentieth century. A surge of interest in this science led to the emergence of a number of interesting works related to the definition of the meaning of phonemes. There was even a comparative analysis of several languages, including the proto-language.

It is pertinent to point out that language has a simulated (symbolic) and motivated origin and a linguistic sign at the initial stage of phylogenesis is motivated, symbolic. Having appeared initially as a motivated and symbolic phenomenon, the linguistic sign like the language as a whole on the primary –“the natural” stage of its evolution was developing within a given quality, till the emerging language system exhausted the possibilities of development within the framework of sound symbolism.

Individual phonemes have a unique semantics, which can be identified in words containing this or that particular phoneme. Phonemes form clusters, which in their turn form classes and superclasses.

For example, phoneme **B** (see Table 1).

Table 1. Lexical units associated with phoneme **B**.

B
is being
beginning
birth
building
base
boom
bloom
bud
blow
blast
bit
burst
blast

The correlation of the meanings may seem elusive, but it is traced subconsciously in all words in spite of the fact that they look different. This semantic domain may be characterized as *procreation, explosion*.

If you compare the semantics of B and P, you can see that the lexical units with B have the meaning of procreation, explosion (*boom, bang, break*), whereas words containing P pin to the place (*pierce, prick, pin, puncture*) (see Table 2).

Table 2. Lexical units associated with phoneme **P**.

P
<i>bears the meaning of place, precision, patience</i>
place
point
position
pacific
passage
palace
paradise
particularity
peace
pad

These sounds are antipodes: deaf – voiced and their connotations are also opposite.

T – bears the meaning of direction: *tendency, to, toward, tele-, trans-*. T implies *Where?* and indicates the path. T means *travelling, trip, track, trace, turn*. T teaches and trains.

It is easy to show how one can understand unknown words relying on the meaning of some consonants combination. For example, if a word starts with **SN** combination, it denotes something unpleasant: *snap, snake, sneeze, snudge* and so on.

If a word starts with **SL** combination, the author identifies two main domains (see Table 3).

Table 3. Semantic domains associated with **SL** combination.

SL	
<i>slope or moving down</i>	<i>negative domain</i>
slack	slam
slalom	slander
slant	slang
slice	slap
slide	sleazy
slope	slime
slow	slink
slot	slob
slouch	slop
slump	slut

SW combination has the meaning of movement from side to side, covering a certain wide space: *swagger, swallow, swamp, sway, sweep, swill, swing* and so on.

Phoneme [ɜ:] written in letters –url, -irl, -earl is associated with something round: *curl, furl, pearl, swirl, twirl, whirl*.

The main meaning of **GL** combination is something bright and brilliant: *glimpse, glisten, glitter, glass*.

It is needed to pay attention to the combination of phonemes **ST** at the beginning of the word, which bear the meaning of mainstay, stability, strength, stop, resistance.

This is obvious from the examples in Table 4.

Table 4. Lexical units associated with **ST** combination.

ST
stable
stack
staff
stage
stag
stanchion
stand
steadfast
stick
stop
stout
stubborn
stunning
stunt

strength

It is interesting to note that the meaning is preserved even if these phonemes are separated by a vowel: *set, settlement, site, sate, satisfaction*.

Our further research showed that combination of consonants separated by a vowel may also have a specific meaning.

BB combination separated by different vowels preserve the meaning of something childish. Compare: *babble; baby; bib; bob; bobbery; bobbish; bubble*.

NV combination at the beginning of the word with the previous vowel has the meaning of involvement, being inside (see Table 5).

Table 5. Semantic domains associated with **NV** combination.

NV
invader
invasion
inveiglement
inventory
invert
investment
investigation
involvement
envelope
envoy
environment

The availability of **RL** combination in the word, even separated by different vowels, will preserve the meaning of movement, rotation: *rail, reel, relation, relapse, relish, relay, release, roll*.

ML combination with a vowel inside has the meaning of division, splitting (see Table 6).

Table 6. Semantic units associated with **ML** combination.

ML
mill
mile
mallet
mall
meal
millennium
multitude
molecule

A common meaning, so called DNA can be traced in all above-mentioned words.

These examples show that, upon closer examination, words that are not similar to one another but which have identical consonant phonemes combinations bear an element of meaning which is absent in words not containing such combinations.

One can note the first attempt to describe “meanings” of these sound clusters were based on a statistical analysis of English vocabulary with the initial

combinations str-, st-, thr-, br-, cr-, gr-, etc. (Wallis, 1653). He reported the following correspondences (see Table 7):

Table 7. Meanings of sound clusters in English by J. Wallis.

STR-	force, efforts, strain (strong, struggle)
ST-	less intensive force (stand, stop)
THR-	powerful movement, gust (throw)
BR-	strong breaking, noise (break, brook)
CR-	breaking with a crack (crack, cry, crash)
GR-	something rough, hard (grate, grind)
CL-	adjoin or restrain (cleave, clay, climb)
SP-	spreading or disperse (spread, spit)
SL-	noiseless sliding (slide)
SK-, SKR-	strong compression

Being a universal international means of communication the English language has been drawing the attention of many linguists and has been under close examination for many years.

M. Magnus (1999) was the first to do a great job of studying the English dictionary and discovering a proof to long before suggested idea about sound symbolism. She proved individual phonemes and phonetic features were meaning-bearing.

One can note non-native listeners comprise a substantial percentage of the American population. A. Nábělek, A. Donahue (1984) examined the differences between the three Asian and five Polish listeners. Some errors were common to both groups, such as response /p/ to stimulus /f/. However, the Polish listeners confused /8/ with the unvoiced plosives more often than did the Asian listeners. Participants from Asia confused the liquidglides among themselves and with the voiced plosives more often than did the Poles.

Other studies confirm the above-mentioned errors can be related with the phonemes used in the native language (Toft, 2013; Kondo, 2016).

S. Guion et al. (2000) also defined contrast pairs composed of two English consonants, two Japanese consonants, and one English and one Japanese consonant. Thus, the perceived phonetic distance of second language consonants from the closest first language consonant predicted the discrimination of L2 sounds.

Currently, there is a wide range of methods for attempting to enhance foreign language instruction, including L2 pronunciation teaching. Let's put a pin in electropalatography (EPG). Thus, A. Schmidt (2012) wrote about correlation between perception of the English contrasts /s/-/ʃ/ and /z/-/dʒ/ by adult native speakers of Korean who participated in EPG training.

Interesting fact, because EPG can provide visual feedback of tongue palate contact (Badin et al., 2010), which is a critical aspect of the Russian palatalization contrast, Russian learners improved their production of the contrast between palatalized and unpalatalized consonants (Hacking, Smith, Johnson, 2017).

Conclusion

It is common knowledge that the words learnt without context are not cut into the memory, and not retained there for a long time.

The results of our experiment were amazing. The students retained lexical units from the dictionary in their memory for two years. Children studying their mother tongue perceive new unknown words intuitively, and understand them on a subconscious level of recognizing of familiar phoneme combinations. This is natural

and productive tendency in human psychology to associate any form with a coherent referent.

Proposed natural model of learning a mother tongue can be successfully applied to learning any foreign language. The main thing here is to find the true DNA of phonemes or their combinations that makes unique and coherent semantic domain.

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Varenina Liudmila Petrovna
Candidate of philological Sciences, Associate Professor
Department of foreign languages # 2
Plekhanov Russian University of Economics
Plescheeva Street, build. 30, apart. 24
Moscow, Russian Federation
127560
lvarenina@yahoo.com, luvaren@starlink.ru