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PHONOSEMANTICS: PHONEMES OF MODERN GREEK CAN EXPRESS INHERENT MEANINGS?

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Abstract
There are four categories of phonological iconicity (sound symbolism *or phonosemantics* → phonology + semantics): lexical and non-lexical onomatopoeia (direct phonological iconicity), associative and phonaesthetic iconicity (indirect phonological iconicity). This paper focuses on the third category, the examples of indirect associative phonological iconicity with examples of onomatopoeic words from Modern Greek, which are connected with concepts that refer to acoustic (*γκαπ-γκουπ* [gap-gup], *καπ-κουπ* [kap-kup], *τακ-τακ* [tak-tak], *μπαμ-μπουμ* [bam-bum], *ντιγκ-νταγκ* [dig-dag], *ντουκ-ντουκ* [duk-duk] > *ντουγκ-ντουγκ* [dug-dug], *τσικ-τσικ* [tsik-tsik], *παφ-πουφ* [paf-puf], *πίτσι-πίτσι* [pítsi-pítsi], *πούρου-πούρου* [púru-púru], *μπούρου-μπούρου* [búru-búru]) but also to non-acoustic experiences (*τσατ-πατ* [tsat-pat], *τσάκα-τσάκα* [tsáka-tsáka], *τσούκου-τσούκου* [tsúku-tsúku]). The indirect, associative connection of consonants and vowels with specific or abstract concepts is based on the phonological characteristics of these phonemes (sonority, manner of articulation, etc.).

Keywords: associative iconicity, modern Greek, onomatopoeic words, phonosemantics, phonological iconicity

Introduction

> The beginnings of Phonosemantics…The first work that took a more modern, critical approach to the subject was Plato's *Cratylus* dialogue…Sapir began as a conventionalist who then converted to a naturalist position after running a few phonosemantic experiments on his own…we can say that **every phoneme is meaning-bearing**. The meaning that the phoneme bears is rooted in its articulation. (Magnus, 2001, p. 12, 21, 34)

> Phonosemantics is the idea that **sounds have inherent meanings**…is, quite simply, the **combination of phonology and semantics**…is a small but growing field within the linguistics domain. Combining phonology and semantics, phonosemantics (or sound-symbolism) examines the possible **inherent meanings of phones/sounds** (Butler, 2017, p. 5, 9).

> Phonosemantics is a school of thought which believes that **each sound or phoneme carries a specific psychological impression** allotted by nature (Agrawal, 2020, p. 453).
>
> …how sounds can express inherent meaning…a lot of linguists also treat ***phonosemantics*** as ***phoneme semantics***… (Nasikan, 2019, p. 36).

The article aims to study the onomatopoeic words of Modern Greek based on the theory of phonological iconicity in the more general frame of phonosemantics (see also; Tilikidou, 2021, pp. 42-55). There are four categories of phonological iconicity: direct-lexical (e.g. *cock-a-doodle-doo* 'rooster sound', *meow* 'cat sound', phonologically acceptable word), direct-non-lexical (e.g. *bzzz* 'bee sound', *brrr* 'sound of a person getting cold', phonologically unacceptable word), indirect associative (e.g. *weeny* 'smallness', the vowel /i/ is indirectly associated with a non-acoustic experience), indirect-phonaesthetic (e.g. *slip* 'smoothness', the consonant cluster is indirectly associated with a non-acoustic experience) (Masuda, 2007, pp. 57-58). This study focuses on the third category, i.e. the examples of indirect, associative phonological iconicity, with indicative examples of Modern Greek which are associated with concepts that refer to acoustic (e.g. *τακ-τακ* 'tap sound') and non-acoustic experiences (*τσάκα-τσάκα* 'time'). The indirect, associative connection of consonants and vowels with specific concepts concerning size, weight, etc. of an object, but also with abstract temporal concepts, is based on the phonological features of these phonemes (loudness, the place or the manner of articulation, the opening of the oral cavity, etc.). Examples: /a/ → low, back, open, non-round, /i/ → high, front, closed, non-round, /g/ → voiced oral stop, /f/ → voiceless fricative, /t^{s}/ → voiceless affricate.

Phonological iconicity

> Iconicity in language refers to the similarity **between conceived reality and language structure**. The notion of iconicity is often associated with so-called **onomatopoeic** words such as *cuckoo* and *crack*, whose sound shapes are suggestive of their meanings (Radden & Dirven, 2007, p. 53).
>
> **Iconicity** is a relationship between a sign and its object (often a linguistic pattern or another sign) in which the form of the sign recapitulates the object in some way (Mannheim, 1999, p. 107).

The term 'phonological iconicity' refers to the iconic relationship between the form and the meaning of a linguistic element. Example (Dingemanse et al., 2015, p. 606): *ts*ra*ts*ra* 'a light person walking fast' ([ts]→ voiceless = light), *dz*ra*dz*ra*, 'a heavy person walking fast' ([dz]→ voiced = heavy) (Siwu). This linguistic phenomenon of absolute (direct iconicity) or relative (indirect iconicity) non-arbitrariness (iconicity) mainly concerns words that can be characterized as iconic (Masuda, 2007, p. 57). Phonological iconicity (relation between linguistic sound and meaning) is divided into direct (the referent is a sound) and indirect (the referent can be, not only a non-linguistic sound, such as, for example, the sound of an animal, but also a non-auditory experience, for example, an emotion). Examples

from Japanese (Akita, 2011, p. 4): *nya^anyaa* 'meow', *riiN^* 'jingle' (direct phonological iconicity), *hoQ* 'relief', *ki^rakira* 'in a glowing way' (indirect phonological iconicity).

In *direct phonological iconicity* there is a direct connection/correspondence between linguistic and non-linguistic sound, between meaning and sound («Since this involves a straightforward resemblance, direct iconicity necessarily involves words with auditory meanings (Sidhu, 2019, p. 7). Direct phonological iconicity is divided into lexical onomatopoeia and non-lexical onomatopoeia. Lexical onomatopoeias obey the phonological rules of the language (phonotactics: what consonant clusters are permissible? what sequences of vowels and consonants? in what positions within the words are these clusters and sequences allowed?) as they are recognizable syllabic structures (Onset-Rhyme, $C_{onsonant}V_{owel}$, $C_{onsonant}V_{owel}C_{onsonant}$, etc.) (e.g. *boom*-CVVC, *bang*-CVCC, *plop*-CCVC, *ding-dong*-CVCC, etc.). On the contrary, non-lexical onomatopoeias do not obey the phonological rules, they are not recognizable syllabic structures (they cannot be classified as words) as the most important syllabic element is missing, the nucleus-vowel of the syllable (e.g. *brrr*-CCCC, *bzzzz*-CCCCC, etc.) (De Cuypere, 2008, p. 108).

In *indirect phonological iconicity*, linguistic sounds represent, in addition to acoustic, non-acoustic, or abstract concepts such as, for example, the temporal meaning 'quickly' in the Greek word *τάκα-τάκα* [táka-táka]. Other examples from Japanese and Tamil: *kyoro kyoro* 'look around', *thuru thuru* 'active, impatient' (Schmidtke, Conrad & Jacobs, 2014, p. 2). Indirect phonological iconicity is divided into associative iconicity and phonaesthetic iconicity (Masuda, 2007, p. 61).

In the category of associative iconicity, vowels and consonants are associated with specific meanings-experiences. Certain phonemes are associative (indirectly, not directly), due to their specific phonological characteristics, to specific experiences, or to specific properties of objects that may relate to their size, brightness, weight, motion, etc. (Sadowski, 2001, p. 72). For example, in the onomatopoeic words of Japanese *korokoro* 'light object that rolls repeatedly', and *gorogoro* 'heavy object that rolls repeatedly' certain features of the consonants /k/ and /g/ are associated with a specific weight. The (oral stop) consonant /k/ corresponds to small and light objects (voiceless consonant = lightweight), while the (oral stop) consonant /g/ corresponds to large and heavy objects (voiced consonant = heavyweight) (Ahlner & Zlatev, 2010, p. 307; Perniss & Vigliocco, 2014, p. 3; Sidhu & Pexman, 2018).

In English the high vowel /i/ (the tongue is raised towards the hard or soft palate, narrow passage of air) is associated with the concepts 'smallness', 'sharpness', 'brightness' (e.g. *mini*, *sweety*, *petite*), while the low vowel /a/ (the tongue is lowered away from the hard or soft palate, the wide passage of air) is associated with the concepts 'largeness', 'bluntness', 'darkness' (e.g. *tall*, *large*, *grand*) (De Cuypere, 2008, p. 109). In an experiment, Sapir (1929, p. 227) asked the participants to give the meanings 'small table' and 'big table' to the linguistic forms *mil* and *mal* (pseudowords). The speakers distinguished an iconic relationship between the size of the table (small, big) and the size of the oral cavity when articulating these vowels. The word that includes the closed vowel /i/ is associated with a small object (*mil* 'small table'), while the word that includes the open vowel

/a/ is associated with a large object (*mal* 'big table') (Ahlner & Zlatev, 2010, p. 309). In English, Dutch, and Kambera (Austronesian languages) the closed consonants /d/, /p/, /t/, /b/ and the back vowels /u/, /o/ are associated with the sound of a massive object falling. On the contrary, in Didinga (Afro-Asiatic languages) the palatal consonant /n/ and the front vowel /i/ are the phonological elements that are associated with the same sound (Klamer, 2001, pp. 165-166).

[1]	meaning:	sound made by bulky object falling
	form:	*thud* (English)
		plof (Dutch)
		mbùtu (Kambera)
		tdIN (Didinga)

Each vowel indicates a different size (/iː/ > /ɔː/ > /oː/ → 'small to big', /aː/ → 'no dimension'). During the pronunciation of the open vowel /a/, the tongue is not raised, so the entire oral cavity is a large air passage, in contrast, for example, to the closed vowel /i/, where during its pronunciation the tongue is raised, resulting to create a very small air passage (Wayland, 1996, p. 224-225).

[2]	[c**i**ːŋ^4 p**i**ːŋ^4]	→	appearance of small hole
	[c**ɔ**ːŋ^4 p**ɔ**ːŋ^4]	→	appearance of medium size hole
	[c**o**ːŋ^4 p**o**ːŋ^4]	→	appearance of big hole
	[c**a**ːŋ^4 p**a**ːŋ^4]	→	appearance of wide, open space

Some examples of phonaesthetic iconicity («a phonaestheme is a submorphemic sound cluster which is related to a certain meaning based on association with similar sound-meaning clusters in other words…», De Cuypere, 2008, p. 113) are the phonaestheme /gl-/ associated with the concept 'vision' (e.g. *gleam*, *glance*, *glare*, *glitter*) (Hiraga, 1994, p. 8), the phonaestheme /fl-/ associated with the concept 'moving light' (e.g. *flash*, *flame*, *flare*), the phonaestheme /-ounce/ associated with the concept 'fast movement' (e.g. *bounce*, *pounce*, *trounce*) (Meier, 1999, p. 141) and the phonaestheme /-ash/ associated with the concept 'sound of an explosion or collapse' (e.g. *clash*, *crash*, *dash*, *gash*, *smash*) (De Cuypere, 2008, p. 113). As phonaestheme can be characterized, not only a cluster of phonemes («…phoneme clusters that tend to occur in words with similar meanings», Sidhu, 2019, p. 51), but also a single phoneme, such as, for example, the phoneme /b-/ which reflects the sound of a deafening impact (e.g. *bang*, *bash*, *bounce*, *biff*, *bump*, *bat*) (De Cuypere, 2008, p. 113).

This paper focuses on the indirect, associative phonological iconicity with examples of onomatopoeic words of Modern Greek which are associated with concepts that refer to acoustic and non-acoustic experiences. All examples are taken from everyday speech and from the following dictionaries: *LKN* (1998), *Tegopoulos-Fitrakis* (2004), *Mpampiniotis* (2012).

Phonosemantic study of onomatopoeic words of Modern Greek

Phonosemantic study of onomatopoeic words which are associated with concepts that refer to acoustic experiences:

[3] ***γκ****απ-****γκ****ουπ* [**g**ap-**g**up] ‘sound of repeated <u>loud</u> banging on a surface’
/g/ → voiced consonant → high intensity, high volume
/a/ - /u/ → low-high vowels → sound fluctuation

[4] ***κ****απ-****κ****ουπ* [**k**ap-**k**up] ‘sound of repeated <u>soft tap</u> on a surface’
/k/ → voiceless consonant → low intensity, low volume
/a/ - /u/ → low-high vowels → sound fluctuation

[5] ***τακ-τακ*** [**t**a**k**-**t**a**k**] ‘<u>soft tap</u> sound’
/t/, /k/ → voiceless consonants → low intensity, low volume

[6] ***μπ****αμ-****μπ****ουμ* [**b**am-**b**um] ‘<u>loud</u> sound, sound of shots’
/b/ → voiced consonant → high intensity, high volume
/a/ - /u/ → low-high vowels → sound fluctuation

[7] ***ντιγκ-νταγκ*** [di**g**-da**g**] ‘<u>loud</u> sound of the bell’
/d/, /g/ → voiced consonants → high intensity, high volume
/i/ - /a/ → high-low vowels → sound fluctuation or bell movement

[8] *ντου****κ****-ντου****κ*** [du**k**-du**k**] > *ντου****γκ****-ντου****γκ*** [du**g**-du**g**] ‘sound of a <u>heavy</u> object hitting another object or surface’
/k/ > /g/ → voiceless > voiced consonant → high intensity, high volume

[9] *τσι****κ****-τσι****κ*** [ts**i**k-ts**i**k] ‘<u>light</u> creaking of wood’
/i/ → high front closed vowel → smallness, low intensity (small opening of the oral cavity)

[10] ***παφ-πουφ*** [**p**a**f**-**p**u**f**] ‘<u>soft</u> sound of smoking’
/p/, /f/ → voiceless consonants → low intensity, low volume
/a/ - /u/ → low-high vowels → sound fluctuation or inhalation and exhalation of smoke

[11] ***πίτσι-πίτσι*** [p**í**ts**i**-p**í**ts**i**] ‘<u>small</u> chat or gossip’
/i/ → high front closed vowel → smallness, low intensity (small opening of the oral cavity)

[12] ***π****ούρου-****π****ούρου* [**p**úru-**p**úru] ‘<u>low-pitched</u> loquacity, chatter’
/p/ → voiceless consonant → low intensity, low volume

[13] ***μπ****ούρου-****μπ****ούρου* [**b**úru-**b**úru] ‘<u>high-pitched</u>, <u>intense</u> loquacity, chatter’
/b/ → voiced consonant → high intensity, high volume

Phonosemantic study of onomatopoeic words which are associated with concepts that refer to non-acoustic/temporal experiences:

[14] *τσα****τ****-πα****τ*** [ts**a**t-p**a**t] ‘immediately, without any delay’

/a/ → low vowel → the rapid and unimpeded passage of time is associatively related to unobstructed outgoing air during the pronunciation of the open, low vowel /a/ (large opening of the oral cavity, the tongue is not raised), but also with the concept of 'lightness' with which the voiceless consonants /tˢ/, /p/ and /t/ are associatively connected

[15] *τσάκα-τσάκα* [ts**á**k**a**-ts**á**k**a**] 'quickly, immediately'
/a/ → low vowel → the rapid and unimpeded passage of time is associatively related to unobstructed outgoing air during the pronunciation of the open, low vowel /a/ (large opening of the oral cavity, the tongue is not raised), but also with the concept of 'lightness' with which the voiceless consonants /tˢ/ and /k/ are associatively connected

[16] *τσούκου-τσούκου* [ts**ú**k**u**-ts**ú**k**u**] 'slowly'
/u/ → high, closed vowel → small opening of the oral cavity, tongue is raised and prevents rapid air passage

Conclusion

In the present paper, the categories of phonological iconicity were presented with emphasis on the phenomenon of indirect associative phonological iconicity with indicative examples of Modern Greek. The general conclusion that emerges is that, in terms of loudness/sonority, the voiced consonants /g/, /b/, /d/ (oral stops) are associated with the concepts 'high volume' and 'gravity/heavy', while the voiceless consonants /p/, /k/, /t/ (oral stops), /f/ (fricative), /tˢ/ (affricate) are associated with the concepts 'low intensity' and 'lightness'. In the case of vowels, the position of the tongue is mainly taken into account (forward-backward, up-down), but also the opening of the oral cavity (open-closed). The alternations of the vowels /a/-/u/ (low-high, open-closed) and /i/-/a/ (high-low, closed-open) are associated with the fluctuation of the sound, but also with the vertical or horizontal movement of the hand or the object causing the sound. The high, front, closed vowel /i/ (small opening of the oral cavity) is associated with the concepts 'up', 'smallness', 'thinness', 'low volume'. The low, back, open vowel /a/ (large mouth opening) is associated with the concepts 'down', 'high volume', 'fast', and the high, back, closed vowel /u/ is associated with the concepts 'up', 'low volume', 'slow'. The crosslinguistic study of this phenomenon would be very interesting for future research. By the phonosemantic study of onomatopoeic words of different languages and different linguistic families, it will be found out whether the speakers tend to associate the consonants and the vowels in the same way with specific meanings and experiences/properties. For example, if they associate the abstract temporal concept 'immediately/quickly' with the open vowel /a/ and with the voiceless closed consonants (e.g. French: *du tac au tac*, Romanian: *ţac-pac*).

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