

# Iconicity in fictional and natural languages: an experimental study

Varvara Davydova<sup>1</sup>, Elena Shamina<sup>2</sup>

<sup>1</sup>Department of Foreign Languages, St Petersburg Electrotechnical University, Russian Federation

<sup>2</sup>Department of Phonetics, St Petersburg state university, Russian Federation

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## Abstract

Language iconicity has lately become an important issue in cognitive studies. The phonetic form of iconic linguistic signs is supposed to be motivated and aligned with some of the physical properties of the signified, thus making it more understandable and recognisable for the language user. The hypothesis laying the foundation of the present research is that iconic words of fictional languages are constructed in accordance with the same or similar principles as iconic words in natural languages. The paper discusses the results of a series of psycholinguistic experiments that are part of a broader study of iconicity in fictional languages and whose aim is to test the hypothesis.

Keywords: psycholinguistic experiment, iconicity, phonosemantics, fictional and natural language

## Introduction: language iconicity

Iconic language signs (unlike indices or symbols in C. S. Peirce's classification (Peirce 1994)) are those that represent by their sound form certain properties of the signified directly, by means of synesthetic associations (Ramachandran, Hubbard 2001). They fall into two categories: sound imitative and sound symbolic, and have been shown to have cognitive potential that can ensure instantaneous understanding of nonsense (Abelin 2006) or foreign (Шамина 2018) words. It is only logical to suppose that literary fictional languages abound in phonosemantic vocabulary.

## Background: fictional languages

Fictional (invented) languages are those constructed for use in literary writings describing thought-up worlds and their non-human inhabitants. Often, the sound of their speech is the major means of their characterization, and the readers should be given an opportunity to understand what is going on without constantly referring to the dictionary. Iconic features in such languages have been pointed out (Fimi, Higgins 2016; Peterson 2015), and an extensive study of the phenomenon have been conducted for 4 of them (Davydova 2016). That was performed with the help of the phonosemantic analysis procedure (Воронин 1982), and a special emphasis was placed on the phonemic inventory

and the phonotactics of the lexis not being copied from English, the native tongue of the inventors: cf. Klingon *tlhup* /tʰupʰ/ ‘whisper’, Na’vi *hi’i* /‘hi.ʔi/ ‘small’.

## Perception of iconic lexis of fictional and natural languages

### Material and methodology

The material for the perceptual experiment with fictional lexis (ДАВЫДОВА, ШАМИНА 2022) is extracted from two invented languages found in popular fantasy novels: Klingon by Mark Okrand and Na’vi by Paul Frommer who supplied phonetic transcription and detailed pronunciation instructions. The 20 words constitute designations of acoustic events of different types, as well as size, shape, luminosity, etc., i.e., their semantics is typical for phonosemantic items in natural languages. The methodology used is a variation of the associative experiment with 3 options offered to the respondents to choose from when trying to determine the meaning of the target stimulus. These were presented to the participants in their audio form. The subjects were native English and Russian speakers of both sexes and various ages.

For comparison, the data from a different series of phonosemantic experiments (Shamina 2019) are used. The methodology and the respondents’ characteristics are very similar, but the word-stimuli come from the author’s corpus of English and Russian slang and the onomatopoeic vocabulary of the languages mentioned. About 5000 responses were elicited and analysed for each of the experiment series and the data statistically evaluated. Any observed discrepancies between reactions of respondents in different age and gender groups are statistically insignificant.

### Results and discussion

The analysis of the data obtained points to the respondents’ reactions to the word-stimuli, whether they are fictional items or existing foreign words, being based on their sound iconic properties, and to the speakers of both non-closely related languages demonstrating similar perception strategies. The overall results show that in the case of fictional languages, for 17 out of 20 lexical items both groups of subjects are inclined to choose the meaning originally conceived by the inventor. The average correct interpretation of the language units under consideration, both fictional and natural, varies around 70 - 80 %, peaking to more than 90 % in some instances, e.g. fictional *slele* /‘slɛ.lɛ/ ‘swim’ for the Russian speakers and Russian *пентюх* /‘pɛn’tɯx/ ‘lout’ for the English speakers.

In the experiment with the fictional language material, the subjects’ “correct” choices embrace both sound imitations and sound-symbolic names referring to non-acoustic properties of the denotatum. Speaking of the latter, designations of small size are known to be associated with front high vowels and fore-lingual

consonants, and Na'vi *lini* /'li.ni/ 'young of an animal' follows suit, being recognized as such by 80 % of the Russian and 83 % of the English subjects. Iconic words denoting fast sharp movement usually have stops in their form, thus Na'vi *takuk* /'ta.kuk/ 'rush forward' is perceived as expected by about 80 % of the Russians and about 72 % of the English. The Klingon word *gho* /ʝo/ comprising a rounded vowel triggers its perception as 'circle' and not 'sharp-angled figure' or 'dotted line' by about 70 % of all the respondents. The same percentage of both groups of the subjects are sure that Na'vi *hufwe* /hu.'fwe/ means 'wind' and not 'stone' because denotations of air movement and breathing regularly contain fricatives and rounded vowels.

In respect to onomatopoes, all the subjects identified the Na'vi word *nguwai* /'ŋu.wai/ as meaning 'howl' in more than 60 % of cases and the Na'vi word *rurur* /ru.'rur/ as meaning 'water flowing among the rocks' in about 80 % of cases. This happens due the well-established tendency (Voronin 2005) for tone continuants (words imitating prolonged and fluid tones) to have long vowels and sonorants in their phonetic structure while frequentatives (words imitating vibrations, disruptive noises) tend to include rhotic consonants. Instants (imitations of pulses) are better recognised than other types of onomatopoes, e.g., Na'vi *pxek* /p'ɛk/ 'sound of strike' and Klingon *baS* /baʃ/ 'sound of a sheet of metal' are correctly perceived in about 80 % and 90 % of cases, respectively. It is worthy of mention that the same observation was made when analysing the data of the experiment with the onomatopoeic lexis of the natural languages.

## Conclusion

The results of the experimental series discussed confirm the hypothesis about the non-random selection by inventors of fictional languages of sound forms for the transmission of various meanings, which, apparently, is determined by the universal iconic principles of linguistic systems. The findings can be, at least partly, accounted for by the supposition that literary fictional languages do not function as a means of communication between (non-human) literary characters, but serve the purpose of transferring the authors' ideas to the readers who are speakers of natural languages.

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