ТЕОРЕТИЧЕСКАЯ, ПРИКЛАДНАЯ И СРАВНИТЕЛЬНО-СОПОСТАВИТЕЛЬНАЯ ЛИНГВИСТИКА / THEORETICAL, APPLIED AND COMPARATIVE LINGUISTICS

PRINCIPLES OF CREATING CONSTRUCTED LANGUAGES

Research article

Malinskaya O.T.[1], *
[1] ORCID : 0000-0002-4617-5856;
[1] Higher School of Economics, Moscow, Russian Federation

* Corresponding author (oxana.malinsckaya[at]yandex.ru)

Abstract

The article analyzes the methods of creating constructed languages for religious needs in the past, and now for the needs of science fiction and cinema as actively developing due to scientific and technological progress in areas of culture. Based on the study of well-known sources, including historical ones, the principles of creating constructed languages for beings with human speech apparatus have been studied. Special attention is paid to fantastic alien creatures that come to life through cinematography, and therefore are in dire need of the realism of the images created. Methods of creating constructed languages for fantastic alien creatures with a human speech apparatus are proposed using the example of the voice apparatus of intelligent birds. The ideas of constructing such a language are presented based on the analysis of the sonograms of Moscow nightingales.

Keywords: constructed languages, Klingon language, sonograms, science fiction.

ПРИНЦИПЫ СОЗДАНИЯ ИСКУССТВЕННЫХ ЯЗЫКОВ

Научная статья

Малинская О.Т.[1], *
[1] ORCID : 0000-0002-4617-5856;
[1] Высшая школа экономики, Москва, Российская Федерация

* Корреспондирующий автор (oxana.malinsckaya[at]yandex.ru)

Аннотация

В статье анализируются методы создания искусственных языков для религиозных нужд в прошлом, а ныне для нужд научной фантастики и кинематографа как активно развивающихся благодаря научно-техническому прогрессу областей культуры. На основе исследования известных источников, в том числе исторических, изучены принципы создания искусственных языков для существ с человеческим речевым аппаратом. Особое внимание уделено фантастическим инопланетным существам, которые оживают посредством кинематографа, а поэтому остро нуждаются в реалистичности создаваемых образов. Предложены методы создания искусственных языков для фантастических инопланетных существ с нечеловеческим речевым аппаратом на примере голосового аппарата разумных птиц. Идеи построения такого языка представлены на основе анализа сонограмм московских соловьев.

Ключевые слова: искусственные языки, клингонский язык, сонограммы, научная фантастика.

Introduction

The genre of science fiction is one of the most popular literary genres today. A century ago, this genre, like a locomotive, pulled the train of scientific and technological progress, drawing prospects for its development. Futurology in literature appeared thanks to the industrial revolution of the XIX century, as a reflection of the boldest ideas about the structure of society and smart technology in the service of man.

The acceleration of scientific and technological progress turned out to be so rapid that it began to outpace the prophecies of science fiction writers, which led to a certain decline in the popularity of the genre.

Discussion

Human space exploration gave rise to a new boundless flight of imagination and a new breath of the genre. By this time, television had already become widespread and became available to a large number of people on planet Earth. Science fiction writers could not stay away and enthusiastically began to create scenarios of science fiction films about traveling through the galaxy, about the exploration of new worlds, about an intelligent extraterrestrial civilization.

Immediately, new words and concepts began to appear to describe space travel, it is not necessary to go far, in fact, the word "инопланетянин" was invented by the Soviet science fiction writer Alexander Kazantsev for his science fiction novel "Planet of Storms" [1], before him aliens were called "инопланетчики". A feature film was naturally made based on the book.

The appearance of many neologisms [2] requires an analysis of the principles of their formation and the creation of a methodology for this process, which is relevant and has direct practical value, despite their lexical fantasticism. The analysis of methods of synthesis of new words will help linguists in generating not only individual words within the language of a work of art, but also completely new languages with their own alphabet and rules. Of particular interest is the creation of constructed languages for fantastic intelligent beings with an inhuman sound apparatus. This issue has not yet been absolutely studied and the problem remains open today.

The most common way of word formation has become the use of Latin words in a new sci-fi meaning. An example of this method can be the word "anabiosis" [3], which comes from the Latin "anabiosis" — "revival", and in ancient Greek ανα —

means "again" and βιος — "life". The word "anabiosis" was initially used by scientists to describe a state in which the vital processes of the body are greatly slowed down, but still science fiction writers expanded this meaning to a specific application of suspended animation for a flight between planets, supplementing it with a study of the design of suspended animation chambers, specific methods of immersion in this state and a description of human sensations before and after immersion in sleep.

A striking example of science fiction films is the television series "Star Trek", in which the Earth is a member of the United Federation of Planets, and the heroes of the series boldly go to the unexplored regions of the Galaxy to explore new worlds. One of the races with which the team of heroes of the series interacts is the Klingons.

A TV sci-fi movie is not only an unusual fantastic video series, including future gadgets, peculiar costumes and hairstyles of characters, but also an unearthly sound series. Here you can't do without inventing new words that are sufficient for readers of books. To create a realistic picture of the life of the Klingon civilization, the director of the series invited a professional linguist Mark Okrand to develop the Klingon language [4] – a constructed language that gave the series the appropriate atmosphere necessary for the viewer to believe.

Mark Okrand's Klingon language appealed to the fans of the series, many of them wanted to learn it and speak it. From artificial Klingon has turned into a natural spoken language. In the USA, there is even a Klingon Language Institute [5], which deals with translations into Klingon. Currently, several dozen people speak Klingon, there are video tutorials on its study.

A characteristic feature of the Klingon language is the similarity of its sounds with the diphthongs of the English language, and the distinctive feature is the presence of difficult–to–pronounce guttural sounds. The Klingon alphabet contains 27 letters, which almost corresponds to the English language, the number system is also familiar – decimal. The basis of the Klingon script was the Tibetan script.

The structure of the Klingon language is very similar to the method by which linguist Lazar Markoviĉ Zamenhof developed the first constructed language in the XIX century - the language of international communication Esperanto [6]. This language was also created on the basis of another language, in this case Latin. The Esperanto alphabet contains 28 letters and their corresponding 28 sounds. Unlike Klingon, Esperanto was created to simplify the communication of people on the planet, so it is quite easy to learn and contains borrowings from a number of European languages. It should be noted that there are more than a hundred similar projects for creating languages of international communication. Esperanto turned out to be the most successful of them [7].

It should be noted that not only modern linguists were engaged in the creation of artificial languages. Even in ancient times, when there was no concept of "Fiction", people created artificial languages, only their goal was not communication between people or dubbing fantastic films, but religious rituals. An example of such a language can be Lingua Ignota, created by Hildegard of Bingen [8]. The language was a priori, and did not rely on known languages, which is similar to fantastic languages.

The Klingon language was created on the principle of being as unlike as possible to a human, hence the difficult-to-pronounce phonetic series.

Another famous language from Mark Okrand is Vulcan, it is spoken by the inhabitants of the fantastic planet Vulcan also from "Star Trek". The creation of this language became a necessity after Klingon was already invented, because the new alien race in the film could not speak English, while Klingon was already sounded in the film. The Vulcan language is no longer at all similar to Klingon, it has several forms, one might say, adverbs, and a vertical letter based on an alphabet of 51 sets of characters, each of which in turn contains three characters and a complex phonetic interpretation. And yet, at least in the matter of writing letters, even in this case, you can follow the analogy with the already known writing – ancient Egyptian hieroglyphs.

These examples of constructed languages suggest that they will be used by intelligent beings similar in their biological structure to humans, with a similar anatomical structure of the speech apparatus. And actually, if we remember that in the TV series it is people who play the roles of aliens, then borrowing from human earthly languages, modern and already dead, is quite natural. But fantastic intelligent beings do not necessarily have a human-like image, and science fiction writers, as well as linguists working on the creation of artificial languages, have the problem of creating a language that has nothing to do with human.

The author of this article is also the author of a series of books in the genre of science fiction called "Kvantovity" [9], [10], [11]. In this series, the Avison race lives on one of the planets of the Galaxy. This is a very developed and intelligent race, which has surpassed in its development and technology all the races of the Galaxy, but in appearance this race resembles terrestrial birds.

Representatives of this race have three pairs of wings: one for gaining height, another for soaring, and the third is used for turns. Avison have six paws, each of which, unlike terrestrial birds, has six fingers with developed motor skills, allowing the birds not only to stay on the branches of giant trees on which comfortable smart homes of Avison are built, but also to write texts in their language, draw, as well as carry out household and scientific and technological operations of varying complexity. The Avison race has six eyes, two of which are located on the sides of the head to fully see the environment around.

Avison's mouth is similar to the beak of terrestrial birds, and, therefore, does not have a human language apparatus, which makes it impossible for them to use natural terrestrial languages or languages similar to Klingon or Vulcan. When the Avisons speak, their speech sounds so melodious and beautiful that the heroes of the "Kvantovity" listen to it without even understanding its content.

Readers would undoubtedly like to understand how intelligent birds communicate with each other. This question would be particularly acute in the case of a film adaptation of "Kvantovity".

The solution to this problem is based not on human speech and the corresponding alphabets, but on the singing of birds. A very interesting work with the support of the Russian Foundation for Basic Research was checked by scientists of the project to study the singing characteristics of the eastern nightingale living in the Moscow region [12]. They revealed that the song of the nightingale is not a random set of random sounds, but a piece of music that has a strict rhythmic pattern, introduction, central

part and finale. The repertoire of the nightingale includes up to 23 different songs, which consist of repeating elements performed in different sequences.

The study of sonograms showed that the elements of the nightingale's song are: "initiatives" ("tsi-lu"); "choruses" ("zipil — zipil-zipil"); single notes ("tut"); trills ("choo-choo-choo-choo"); fractions ("trrrrrrrr"); final trill ("vzzzzzzzz"); closing component ("it"). There are eight phonemes in total: tzi, lu, zipil, tut, cho, trrrrrrrr, vzzzzzzzz, it. A person differs from an animal in that he is able to encode information. If a nightingale could encode information, i.e. to encrypt some messages using these eight phonemes, then he could be considered an intelligent being, like an Avison.

The nightingale does not encode information, his goal is to beautifully and loudly perform his melody in order to attract the attention of the female and show how strong and charming he is. But the principles of splitting the sound series into separate phonemes characteristic of birdsong, as well as their musical rhythm and pitch, can be used to create, for example, the same Avison language.

If, for example, you compose two-phonemic words based on the alphabet of the nightingale, then you can compose: $8 * 8 = 64$ different words. If you compose three-phonemic words, you will get: $8*8*8 = 512$ words, etc. If you compose eight-letter words, you will get: $8*8*8*8*8*8*8 = 16\ 777\ 216$ different words. The nightingale could have quite a solid dictionary!

Essentially, birdsong consists of long trills (repeated repetitions of some phoneme) and single phonemes. It is very similar to Morse code with its dots and dashes, and this is also a variant of the principle of creating a new language of intellectual fantastic birds.

Since birds do not speak, but sing, when creating their alphabet, it is necessary to take into account the pitch, i.e. letters (phonemes) should differ depending on the frequency of the extracted sound, which is real for birdsong and completely unrealistic for humans. In this case, what is meant is not the similarity of opera singing, but the encoding of sounds by pitch.

Conclusion

Thus, when creating a constructed language, the main thing is to take into account the anatomical features of its intended owner.

The identified key points and basic principles of creating artificial languages for science fiction, especially in the case of the adaptation of these works, are useful and can be used by various science fiction writers, as well as linguists engaged in the creation of these languages for intelligent alien beings of both human and alien non-human appearance from the works of the genre.

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