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The Sounds of Fiction: An Analysis of Phonetics and Phonology in Selected Constructed Languages

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dr Weroniki Kamoli-Uberman

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Polish Summary

Języki sztuczne są tworzone od wieków i służą różnorodnym celom – od usprawnienia komunikacji międzyludzkiej, przez eksperymenty językoznawcze, kognitywistyczne i informatyczne, po ekspresję artystyczną. Przykładami takich języków są Volapük, Esperanto czy Klingoński. W ciągu ostatniego stulecia szczególnego znaczenia nabrało wykorzystywanie języków sztucznych w kontekstach artystycznych i rozrywkowych. Trend ten znajduje swoje odzwierciedlenie w dziełach takich jak *Gra o tron*, *Avatar* czy grach komputerowych, np. *Far Cry Primal*, gdzie języki sztuczne pogłębiają immersję i wzbogacają odbiór wykreowanych światów.

Celem niniejszej pracy licencjackiej jest przeprowadzenie analizy językoznawczej wybranych języków sztucznych (conlangs), ze szczególnym uwzględnieniem ich aspektów fonetycznych i fonologicznych; oraz porównanie ich w odniesieniu do zamysłów autora. Ze względu na ograniczoną objętość pracy, analizie poddano dwa języki: Dothraki oraz High Valyrian. Kryterium wyboru była osobista sympatia wobec serii *Gra o tron* oraz wykreowanego w niej uniwersum. Badanie wykorzystuje jakościowe metody badawcze, w szczególności porównawczą analizę językową, bazując na rzetelnych źródłach stworzonych lub zaakceptowanych przez autora.

Analiza wykazała kluczowe różnice fonologiczne między Dothraki a High Valyrian, które zostały szczegółowo omówione w rozdziale 3.4. Ze względu na ograniczoną dostępność danych, badanie uniemożliwiło przedstawienia precyzyjnych informacji z zakresu fonetyki. W pracy dokonano również zestawienia początkowych celów autora z wynikiem końcowym, a także odniesiono cechy analizowanych języków do wybranych języków naturalnych. Przeprowadzone badanie pozwoliło na pogłębienie zrozumienia różnic strukturalnych między wybranymi językami sztucznymi oraz ich relacji do języków naturalnych.

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Introduction

Constructed languages have been developed for centuries, serving a wide range of purposes. These include improving human communication; conducting experiments in linguistics, cognitive science, and machine learning; or as a form of artistic expression. Some examples of such languages are Volapük, Esperanto or Klingon. In the past century, the use of constructed languages in artistic and entertainment contexts has gained significant prominence. This trend is exemplified by works like *Game of Thrones*, *Avatar*, and video games such as *Far Cry Primal*, where constructed languages enhance immersion and enrich the audience's experience of fictional worlds.

The purpose of the following thesis is to perform a linguistic analysis of selected constructed languages (conlangs), focusing on their phonetics and phonology. Due to the limited space of the dissertation, only two conlangs were chosen for the examination: Dothraki and High Valyrian. The selection was based on personal affection towards the Game of Thrones series and the world depicted in it. To achieve the aim of the thesis, the following research questions were devised:

1. What are the key phonetic differences between Dothraki and High Valyrian?
2. What are the key phonological differences between Dothraki and High Valyrian?
3. How do the creative choices in constructing Dothraki and High Valyrian reflect the author's objectives?

The motivation in undertaking this topic stems from my personal fascination with constructed languages that appear in science fiction genre and their growing popularity in literature and the film industry. For many years, the issue of constructed languages was overlooked and considered a subordinate thing. However, due to the growing demand for more gripping settings, more and more producers or writers hire conlangers.

The thesis consists of three chapters. The first chapter explains the meaning of constructed languages, their types, history and importance in creating fictional universes. The second chapter examines the terminology concerning phonetics and phonology. The third chapter is devoted to the comparative analysis of Dothraki and High Valyrian, contrasting their phonetic and phonological features, as well as evaluating their patterns according to the author's intentions.

Chapter 1. Introduction to Constructed Languages

This chapter contains key information about constructed languages, providing a definition of constructed language as well as its classification by form and communicative function. Subsequently, a concise history of constructed languages is presented, focusing on groundbreaking moments. At the end of this chapter the purpose of constructed languages is considered.

1.1 Definition and types of Constructed Languages

1.1.1 The definition of Constructed Language

Language is one of the most fundamental aspects of human communication, evolving naturally over approximately 150,000 years to serve the needs of its speakers. However, not all languages emerge organically—some of them are deliberately crafted for various purposes. These linguistic phenomena are called constructed languages, nevertheless, they were not always labelled as such.

At the beginning of contemporary linguistic studies, many terms were used interchangeably, including *planned language*, *invented language*, *fictional language*, *model language* or *artificial language* (Brown 2006). In 1928, the term *constructed language* was first introduced by the Danish linguist Otto Jespersen, who presented it to describe his language called *Novial* (Adelman 2014: 545). However, the term did not gain instant recognition, and the compound *artificial language* became the preeminent term in the early years of language invention. According to Blanke (1997: 3), the term *artificial language* encompasses whole spectrum of meanings and can be defined as follows:

1. Regularized and standardized literary language, as distinguished from dialects […];
2. Ethnic languages, highly regularized to maintain them at a particular stage of development (Sanskrit, church Latin) or to modernize the (Modern Hebrew, Bahasa Indonesia, Landsmål);
3. Consciously created languages to facilitate international communication […], that is, planned languages;
4. Nonredundant, formulaic, or symbolic languages to facilitate scientific thought […];
5. Programming languages for computers […];
6. Machine languages for automatic translations (Blanke 1997: 3).

Despite the wide plethora of meanings linked to this term, this definition has become archaic in the rapidly changing field of language creation. Furthermore, Blanke's

description comprises elements that resemble the contemporary definition of *International Auxiliary Language* and *Engineered Language*, which are explored in a following section. Over time, the term *artificial language* has been used less and less due to the pejorative connotations of the word *artificial* (Adelman 2014: 545). All this disagreement among the linguists has led to the revival of the term *constructed language* and the coinage of the abbreviation *conlang* in 1991 (Peterson 2015: 11).

Nevertheless, not all sources accepted the term *constructed language*. To establish a more current and precise definition, it is useful to consult dictionaries. The *Cambridge Dictionary* does not provide an entry for *constructed language* but determines *artificial language* as "a language that has been created for a particular purpose, rather than one that has developed naturally as a way for people to communicate" (Cambridge Dictionary n.d.).

Similarly, the *Oxford English Dictionary* defines *constructed language* as "an artificially created language" (Oxford English Dictionary n.d.). Both entries provide clearer general vision on the concept, however, they lack details which makes them vague.

Adelman (2014: 545) presents comparable interpretation describing constructed language as "a language that has a phonology, morphology, syntax, and sometimes alphabet attributed to an individual human inventor".

David J. Peterson, a linguist and a conlanger, suggests his own profound definition, clarifying previous ambiguities.

> The term conlang is short for "constructed language," and it the consensus term for a created language. […] Any language that has been consciously created by one or more individuals in its fullest form is a conlang, so long as either the intent or the result of the creation process is a fully functional linguistic system. This includes Esperanto, Quenya, Dothraki, Lojban, and Lingua Ignota, but doesn't include modern revitalization projects like modern Hawaiian, Modern Cornish, and Modern Hebrew—nor does it include creole languages like Tok Pisin, Bislama, or Saramaccan" (Peterson 2015: 18-19).

Despite differences in definition, all sources agree on one essential characteristic: constructed languages are deliberately created by individuals rather than evolving naturally. In contrast to this is natural language which "has not been specially constructed, whether for general or specific purposes, and is acquired by its users without special instruction as a normal part of the process of maturation and socialization" (Lyons 1991). Currently, English is the most renowned natlang in the world, therefore it often serves as a base for conlangs. Latin, despite being a dead language, still performs a function similar to that of English by inspiring conlangers to create new languages.

There is also one more group connected to constructed languages called *programming languages*. They are systems of notation as well as collections of values and operations for computer programs (Aaby 2004). Even though it may seem as they do not have anything in common with natural or constructed languages, they consist of syntax, which refers to the form of programs; semantics, which describes the relationship between a program and the model of computation; pragmatics, which expresses the degree of success with which the programming language achieves its objectives (Aaby 2004). While natural languages are used to communicate between people, programming languages, such as *Python* or *Java*, allow the interaction between people and machines.

1.1.2 Classification of Constructed Languages

In the field of language creation, like in every other field of study, classification occurs. Since constructed languages are relatively recent phenomena, the boundaries between the groups are vague and sometimes confusing. However, a large fraction of linguists and conlangers agreed to classify them by answering to two simple questions: how and why are constructed languages created (Schreyer 2021).

1.1.2.1 Classification of Constructed Languages by Form

Linguists, when analysing the new language's lexicon and grammar, decided to identify two main groups: *a priori* and *a posteriori* (Adelman 2014: 546).

According to Peterson an *a priori conlang* "is one whose grammar and vocabulary are not based on existing languages" (2015: 22). Okrent shares similar view calling an *a priori conlang* as one made from scratch (2009: 275). Adelman calls *a priori conlang* to be "created from whole cloth" and having almost no parallel to native language of the speaker. He also provides an example of such language, naming Solresol, created by Jean François Sudre in the 1930s. Sudre developed a language from the seven notes of the musical scale (do, re, mi, fa, sol, la, si). Since his language was based on musical notes, one could communicate not just by singing but also by playing an instrument or whistling (2014: 546).

An *a posteriori conlang* is the opposite of *a priori conlang*. Okrent describes it as a language created based on an existing natural language (2009: 275). Peterson specifies previous definition stating that an *a posteriori conlang* is one "whose grammar and vocabulary are drawn from an existing source", with Esperanto as a remarkable example

(2015: 22). Adelman further explains that *a posteriori* language utilises elements from natural languages, which are adjusted to function in various schemes. As an example, he mentions Latino sine Flexione, which was created by mathematics professor Giuseppe Peano at University of Turin. The conlang's lexicon was based on Latin and other European languages. To make Latino sine Flexione simpler, Peano excluded complex inflections and declensions for number, gender, tense, and mood. Despite the recognition among the scientists, Latino sine Flexione has never gained a worldwide adoption.

The third category, mixed languages, incorporates characteristics of both a priori and a posteriori language. Although, categorization of specific language is often debatable, there are certain characteristics that simplify this process (Okrent 2009: 275). Adelman claims that a priori languages usually do not have irregular forms or exceptions from grammatical rules. He mentions that their alphabets often utilize different sets of symbols or signs. In contrast, the creators of a posteriori languages take the social and cultural context more consciously, while developing their languages (Adelman 2014: 547).

1.1.2.2 Classification of Constructed Languages by Their Communicative Function

Linguists and conlangers divided constructed languages into three groups, basing on their communicative functions. As Adelman mentions, "the largest classes of constructed languages are intended to serve as Internation Auxiliary Languages: culturally neutral or simple languages for use between native speakers of different languages" (Adelman 2014: 547). Peterson describes an *auxiliary language (auxlang)* as one created for international communication, though it may also serve as a means of communication among specific groups of the populace (2015: 21). Most auxlang are developed to become a lingua franca and strengthen global relationships, however the majority fail. The best-known prototype of auxlang is Esperanto, created by L. L. Zamenhof (1859-1917), who designed it with two intentions: making it uncomplicated for international speakers and keeping it free of any political, religious or ideological beliefs (Destruel 2016: 1-2). Esperanto experienced its golden age between World Wars, during which the Red Cross and the Universal Telegraphic Union adapted and disseminated its usage. Although Esperanto's prevalence did not meet Zamenhof's expectations, it is still considered one of the most influential auxlangs (Adelman 2014: 547).

The next group consist of *artistic languages*, in short *artlangs*. According to Peterson, “this is a conlang created for aesthetic, fictional, or otherwise artistic purposes” (Peterson 2015: 21). This group attracted significant attention in recent decades, thanks to literature and film. In contrast to other conlangs, artlangs are styled to seem more authentic and naturalistic. To achieve it, they may include idiosyncrasies and exceptions to their own linguistic rules (Destruel 2016: 3). Adelman notes that “these constructed languages can provide unique richness to a fictional world”, naming Elvish languages, Quenya and Sindarin, developed by J.R.R. Tolkien as one of the most prominent artlangs ever created (Adelman 2014: 547-548). Unlike other conlangs, artlangs are not intended for widespread communication but rather to immerse the audience into a fictional world (Adelman 2014: 548).

Engineered languages fall into the last category. According to Peterson engelangs are “created to achieve some specific type of linguistic effect (e.g. to create a language without verbs, as with Sylvia Sotomayor’s Kēlen)” (2015: 21). These languages often attempt to test hypothesis, such as the Sapir-Whorf hypothesis[1], to expiernce how different language would mold culture (Destruel 2016: 4). One of the most eminent examples of engelang is Loglan (whose name itself is short for ‘logical language’) created by James Cooke Brown. The aim of this engelang was to develop a language without any ambiguities to avoid misunderstandings. For instance, a string of sounds could only be separated into words in one distinct way (Destruel 2016: 4).

While the boundaries between the groups are vague, there is enough understanding among the linguists to categorize the constructed languages with consistency. However, some of the constructed languages can belong to more than one category. For example, Láadan is considered an a priori language experiment, with extremist feminist pronoun system based on the theory that no natural language appropriately expresses the female experience. However, Láadan is also classified as an artlang, used in the science fiction novel *Native Tongue* (Adelman 2014: 549).

[1] Sapir-Whorf hypothesis asserts that language influences worldview or cognition. One form of linguistic relativity, linguistic determinism, regards peoples' languages as determining and influencing the scope of cultural perceptions of their surrounding world. <Ottenheimer, Harriet (2009) (2 ed.). Belmont, CA: Wadsworth>

1.2 History of Constructed Languages

Even though constructed languages can seem like a contemporary phenomenon, the conscious creation of language dates to the prehistoric era. The earliest record comes from the twelfth century CE, when Hildegard von Bingen created Lingua Ignota (Latin for "unknown language"). However, Lingua Ignota cannot be named a proper language, since it contained merely a vocabulary list encompassing approximately one thousand words, most of which were nouns. Hildegard believed that God inspired her to create this language to use it in a song for religious and aesthetic effect. The vocabulary of Lingua Ignota was a combination of Latin and German words, and it incorporated excessive amount of letter 'z', and included copious amounts of profane words (e.g. *zirzer* for "anus", *maluizia* meaning "prostitute") (Peterson 2015: 7).

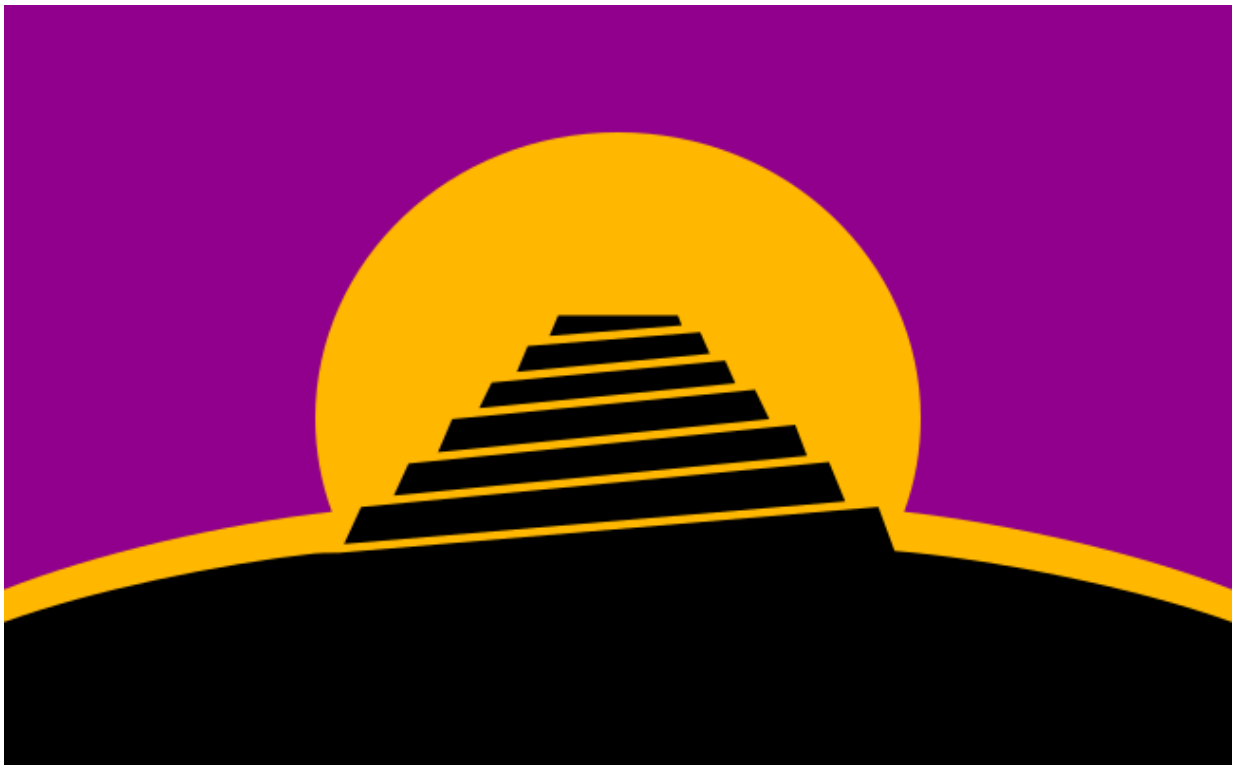
Around the sixteenth century, philosophers and scientists, who noticed flaws in natural languages, started developing philosophical languages. They believed that they could improve them by eliminating all the vagueness and uncertainties from language to enhance the communication (Peterson 2015: 8). Their languages have never gained global recognition; however, their ideas ignited a spark in the minds of next generations.

In the nineteenth century, the field of language creation has undergone a remarkable innovation with the introduction of the international auxiliary language (IAL). Similarly to philosophical language, the main goal of an IAL was to facilitate communication, however the key difference between them was the ease of learning for speakers across the globe. The two earliest achievements were Volapük (1879) and Esperanto (1887). Volapük, created by the German priest Johann Martin Schleyer, accomplished an unprecedented success due to its vocabulary based on English, German and French, as well as its relatively uncomplicated pronunciation. As more and more people started using Volapük, they requested changes concerning simplification of grammar and spelling. However, Schleyer resisted any adjustments and insisted on maintaining complete control over his language. This was a path to the downfall of Volapük and the ascension of Esperanto (Peterson 2015: 8-9). In contrast to Schleyer, the creator of Esperanto—Ludwik Lejzer Zamenhof—shared the grammar of his language and laid no claim on it. Thus, Esperanto spread across the world, while evolving within its community. While most speakers used Zamenhof's original rules, some created new iterations of Esperanto (Peterson 2015: 9).

The next movement emerged in the twentieth century, focusing on artlangs. At the beginning, they occurred in literature, although most of them were not fully developed. The first author who constructed a fully functioning artlang was J.R.R. Tolkien. In contrast to other writers, Tolkien was primarily a linguist with a profound interest in language creation. He understood the essence of world-building which was apparent in his conlangs. Tolkien was also the first person to develop a language family. His two most popular languages, Quenya and Sindarin, descend from the same ancestor, Quendian—mirroring the exact process natural languages undergo (Peterson 2015: 9-10).

Another breakthrough occurred on July 29, 1991, with the first ever message sent to the Conlang Listserv, an online platform gathering language creators. This listserv was originally run from the Boston University Physics Department by John Ross, afterward it was moved to the Datalogisk Institut in Denmark. Unfortunately, it could not be hosted there permanently. Due to the efforts of David Durand, one of the original members, it finally found its home at Brown University, where it remains to this day (Peterson 2015: 11). The Conlang association has grown into a friendly and helpful environment for beginners as well as for experienced conlangers to share and improve their languages. One of the methods they test their languages is translating the "Babel Text" (Genesis 11:1-9), which has become a symbol of the organization. Consequently, the Tower of Babel became an emblem featured on the community's flag, depicted in Figure 1.1 (Peterson 2015: 11).

Figure 1.1 The Conlang Flag



Source: The Outer Hoard, Creator: Christian Thalmann
<https://outerhoard.wordpress.com/2006/11/20/conlanging-and-phonetics/>

1.3 Importance of Constructed Languages

Natural languages develop over time with smaller or larger human involvement, however constructed languages are crafted through hard work no one would tackle unless steered by a major purpose or passion (Adams 2011: 2).

One of the reasons for creating constructed languages might be a desire to experiment with language. Many scholars develop languages to test the linguistic limitations and improve existing natural languages. For some, language creation also serves as a hobby or an exercise to enhance their craft (Adams 2011: 11-12).

In recent decades, constructed languages have found a new niche within literature and cinema. In fictional worlds, conlangs contribute to depth and realism. Since language is the core of human culture, writers and filmmakers recognize its importance in world-building, creating enriched cultures, which are more authentic and gripping. Conlangs complement character development, helping to form a strong identity for each character. In cinematic context, the storytelling is particularly enriched where conlangs serve as auditory markers that differentiate fictional realm from the real world (Ene 2024: 339).

Na'vi is one of the most outstanding cases in this context. Paul Frommer, who developed the langauge for the film *Avatar* (2009), studied the fictional world and the customs of Na'vi population to create intricate and compelling system of communication. Frommer did not base Na'vi on any natural language, making it sound esoteric and otherworldly. The complex sound system composed of different sounds and tones makes the language exceptionally difficult to learn (Ene 2024: 74-75). However, most artlangs are not intended to serve as a tool for communication but rather to supplement viewer's experience.

In literature, where the auditory features are not present, authors are forced to use different approaches to make their conlangs more credible. Writers often create consistent spelling rules or utilise diacritics to facilitate readers' experience. Constant repetition of certain words or phares reinforces the meaning and alleviate the struggle with new vocabulary. Those and many more tactics are present in Elvish languages created by J.R.R. Tolkien, which remain as one of the most prominent examples of artlangs. Few writers possess the skill to develop a fully functional language and blend it into fictional world as masterfully as Tolkien did. His meticulous attention to detail set a high standard for those who followed, showcasing his remarkable techniques in language creation (Ene 2024: 71-72).

Chapter 2. Overview of phonetic and phonological features

This chapter is dedicated to describing phonetic and phonological language features. It focusses on oral physiology, consonants and vowels. Further in this chapter notions of sound systems, phonotactics and prosody are discussed. The choice of selected issues is made purely to help conduct the comparative analysis in the third chapter. Therefore, the terms such as connected speech and tone are not explored since they are not be needed in this study.

2.1 Phonetics

Phonetics and phonology are tightly connected in the field of linguistics and often misunderstood or confused with each other. It stems from the fact that both are related to the speech sounds, however they concentrate on different aspects of those sounds. Laver (1994: 20) mentions that phonetics, in contrast with phonology, studies the substance of spoken language instead of the form. His definition indicates that phonetics is concerned with the actual sounds, while phonology describes the grammar of those sounds. There are still more differences between those fields of study that are explored in this chapter. Starting with phonetics, Odden notes that (2013: 2):

> Phonetics deals with "actual" physical sounds as they are manifested in human speech, and concentrates on acoustic waveforms, formant values, measurements of duration in milliseconds, of amplitude and frequency. Phonetics also deals with the physical principles underlying the production of sounds, namely vocal tract resonances, and the muscles and other articulatory structures used to produce those resonances (Odden 2013: 2).

Crystal (2018: 236) shares a similar definition, describing phonetics as a study of speech sounds that humans produce and receive. He also divides it into three categories: articulatory phonetics, acoustic phonetics and auditory phonetics. The study of methods of speech sounds production belongs to the articulatory domain. The acoustic phonetics is concerned with the physical qualities of human sounds. The last branch, the auditory phonetics, examines how people perceive speech sounds.

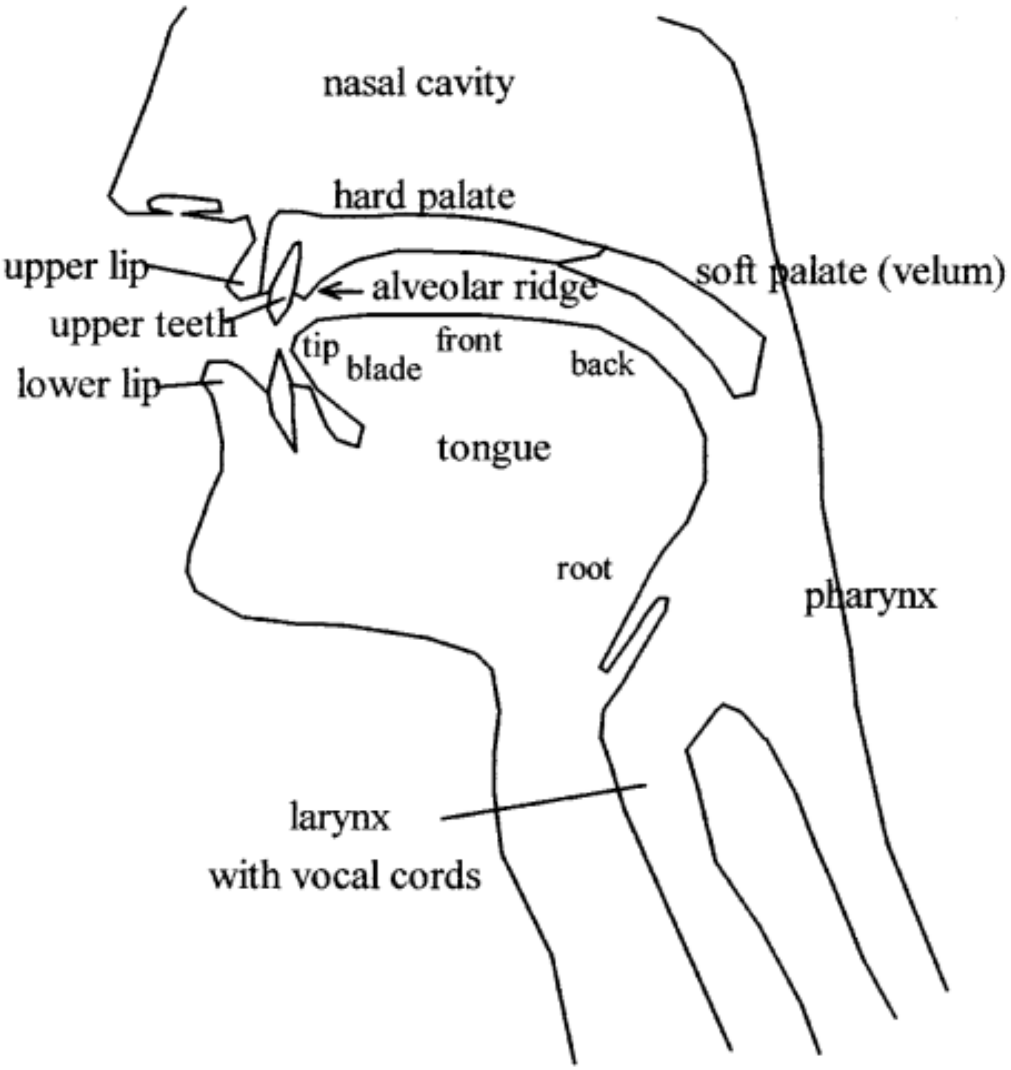
To facilitate the distinction between phonetics and phonology linguists came up with two different methods of transcription of spoken language. While describing purely the sounds in a language, it is advised to use the square brackets – [ ] – in case of phonetic transcription (Crystal 2018: 236). The words written in the brackets utilise the

International Phonetic Alphabet (IPA). It is a special alphabet created by linguists to transcribe every sound made with the human vocal tract, regardless the speaker's native language (Peterson 2015: 28). In contrast to phonetic transcription, the phonemic transcription utilises slanted brackets - / / - which serve to describe mental representations of the sound system (Crystal 2018: 236).

2.1.1. Oral physiology

Before focusing on phonetics, it is important to discuss how humans produce oral sounds. There are three parts that enable their production: the use of airstream mechanism, active articulators and passive articulators. The active articulators are the moving part of the mouth that creates constriction. In contrast, the passive articulator is the part that active articulator touches or gets near to produce sounds (Peterson 2015: 29-30). The whole human physiology of speech production is visible in Figure 2.2.

Figure 2.2 Human Physiology of Speech Production



Source: An introduction to English phonology (2020), Creator: McMahon, A. M. S.

To produce any oral sound human's body needs air. The air is pushed out from the lungs, that are not visible in the Figure 2.2 but are located lower and connected with a vocal tract to the larynx. The crucial part of the larynx are vocal folds, a pair of bands made of muscular tissue that can move between a wide-open and a tightly closed position. Their position is closely connected with the sounds that escape the mouth. The gap between the vocal folds is called glottis, while the sounds produced there are called glottal. When the folds are fully open, the air can rush through them, resulting in a burst of air leaving the mouth. If the vocal folds are closer to each other, the sounds that come out is more stertorous and similar to the beginning of the English word 'head'. However,

the most significant ability of vocal folds is vibration. This phenomenon is called voicing and occurs when the vocal folds are lightly touching each other (Roach 2002: 13).

Above the larynx is a passageway called the pharynx. It is responsible for carrying air, as well as food. The role that it plays in producing speech is marginal, however it is a crucial structure that closes one of the pathways, ensuring that the food moves to the oesophagus, while air is delivered to oral or nasal cavity (Roach 2002: 14). Higher in the Figure 2.2 the soft palate, also called velum, is visible. Its position is crucial in deciding where the air is flowing, either through oral cavity or nasal cavity. Velum is also considered a passive articulator, since it is possible to touch it with a tongue, while pronouncing sounds like /k/ or /g/. The consonants pronounced in this place are called velar consonants. At the end of the velum, uvula is located. It is a little muscular structure hanging down at the back of the throat. When the back of the tongue meets the uvula, uvular sounds are produced, but none of them are present in English language (Peterson 2015: 30, Roach 2009:14).

Another important structure is the hard palate, a smooth curved surface, often named the roof of the mouth. The sounds produced with the tongue close to the hard palate, such as /j/, are called palatal. Between the top front teeth and the hard palate the alveolar ridge is located. It is a little bump that is covered with miniature ridges that supports the teeth. Consonants pronounced with the tongue touching this spot, such as /t/, /d/, /n/, are called alveolar (Peterson 2015: 30, Roach 2009:14).

The most important articulator is the tongue, which can be moved in many different positions and take different shapes. Since tongue is an advanced part of human physiology of speech production, linguists divided it into five segments. The root of the tongue starts in the throat. The back of the tongue is located near the velum. The largest surface is called the front of the tongue. At the level of the alveolar ridge is the blade of the tongue, which ends in the tip. Teeth also play significant role in producing speech. For the sake of simplicity, the diagram shows only the front teeth, but it is important to remember that human teeth reach to the back of the mouth, almost to the soft palate. When producing a sound, the tongue comes into contact with the front teeth, mostly the upper teeth, resulting with the sounds such as /θ/ or /ð/. Sounds produced in such way are called dental (Roach 2009: 20). The last part that human use to produce sounds are lips. While producing a sound using upper or lower lip the sound that comes out is considered labial. However, if both lips are used it is referred to as bilabial (Peterson 2015: 31).

2.1.2. Consonants

Since humans can produce all spectrum of sounds, linguists divided them into two groups: consonants and vowels. Peterson (2015: 32) describes consonant as "a sound that puts some sort of obstruction in the way of the airflow, thereby changing the current and producing different sound. Depending on how the current is affected, one can produce different types of sounds." However, it is crucial to mention that some consonants such as /h/ or /w/ are pronounced without any obstruction. This phenomenon is called the distribution of sounds and is responsible for where and in what contexts consonants and vowels occur. A key distinction between vowels and consonants lies not only in their articulation but primarily in their differing distributional patterns within words. These patterns, however, vary across languages (Roach 2009: 21-22).

While comparing consonants to vowels, a few key differences can be seen. From the phonetic point of view, consonants are produced when vocal organs create tight constriction or total blockage, resulting in a variety of distinct sounds. From a phonological point of view, they are parts of a syllable that often occupy the beginning and the end of a syllable (Crystal 2018: 242).

To describe consonants linguists have established three criteria: voicing, place of articulation and manner of articulation. Voicing refers to the involvement of vibration of the vocal cords. If the vocal folds are vibrating, the consonants are described as voiced, otherwise when there is no vibration the consonants are voiceless. The degree of voicing depends on the position of a consonant in a word (Crystal 2018: 242).

As it was mentioned before, to produce any consonant, an active articulator and a passive articulator are needed. An active articulator, usually located at the base of the vocal tract, shifts towards a passive articulator, often along the top or roof of the mouth. The position where those articulators meet determines the consonant's place of articulation. The place is labelled according to the passive articulator, since many sounds use tongue as an active articulator (Mahon 2020: 31, 167).

The manner of articulation refers to the obstruction to the airflow that is formed by an active and a passive articulator. The closure of the vocal tract can range from almost complete prevention from any air escaping to an articulation almost identical to that of a vowel (Roach 2002: 23-24).

Before describing the place of articulation in detail it is important to point out that there are two groups of consonants: pulmonic and non-pulmonic consonants. Pulmonic

consonants utilize air pushed from the lungs. Non-pulmonic consonants use alternative airstream mechanisms. There are eleven places of articulation, as it can be seen in Table 2.1. Most of them were explained in previous subchapter, so this is a quick review.

Table 2.1 The International Phonetic Alphabet - Pulmonic Consonant Chart

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

Source: International Phonetic Association
https://www.internationalphoneticassociation.org/IPAcharts/IPA_chart_orig/IPA_charts_E.html

Bilabial consonants are articulated by using both lips, as in English sounds /p/ or /b/. Dental sounds are produced by using the tip of the tongue between the teeth or close to the upper teeth, such as / θ/, /ð/. Labiodental consonants are a mix of labial and dental consonants. They are pronounced by using the lower lip and the upper teeth, as in /f/ or /v/. Alveolar consonants take their name from alveolar ridge which comes close with the blade of the tongue, as in /t/ and /d/. Later there are postalveolar consonants that are pronounced by using the tip of the tongue just behind the alveolar ridge, as in /r/ in some accents. Retroflex use the curled back tip of the tongue positioned behind the alveolar ridge, as /r/ in other accents. Palatal consonants are produced by raising the front of the tongue close to the hard palate, as in /j/. By raising the back of the tongue against the soft palate, velar consonants are produced, as in /k/ or /g/. Uvular are produced when the back of the tongue is raised to make a contact or create constriction with the uvula, as in /q/. When the root of the tongue is retracted to create a narrow constriction with the pharyngeal wall, the harsh pharyngeal consonants are produced, as in /ħ/. The glottal consonants are articulated when the space between the vocal cords creates friction, as in /h/, or when there is total closure, as in glottal stop /ʔ/ (Crystal 2018: 243).

When it comes to the manner of articulation there are only eight types. A plosive consonant, also referred to as stop, blocks the air from leaving the mouth at some point

in the vocal tract. The air is compressed and after a brief pause, the air is released with a short explosive noise, called plosion. To produce a nasal consonant, the velum must be lowered to close the access to the oral cavity and allow the air to go through the nasal cavity (Roach 2002: 23-24). Thrill consonants are produced when the root of an active articulator stays still, enabling the non-fixed part of the articulator to flap back and forth vigorously in the airstream (Peterson 2015: 32). A tap sound is made when the tongue is flicked up against the roof of the mouth, interrupting the flow of air for a brief period. Flap sound, which is similar to tap sound, utilizes curled back tongue that it flicked forward towards alveolar ridge (Roach 2002: 23). Fricatives are continuant consonants, which means that they can be produced as long as there is air in lungs. They are distinctive for their hissing sound that is produced when air escapes the mouth through narrow passages (Roach 2009: 40). Approximant sounds are produced when the active articulator, tongue or lips, takes a position of a fricative consonant, but never creates tight enough constriction, which results in smooth, liquid-like sound. The last type is lateral consonants, where tongue takes the position to pronounce L-like sound allowing air to pass around its sides (Peterson 2015: 32).

The other group of consonants are non-pulmonic consonants. They utilize different airstream mechanism than the lungs. There are three types of them as it can be seen in Table 2.2.

Table 2.2 The International Phonetic Alphabet – Non-Pulmonic Consonant Chart

Clicks	Voiced implosives	Ejectives
ʘ Bilabial	ɓ Bilabial	ʼ Examples:
ǀ Dental	ɗ Dental/alveolar	pʼ Bilabial
ǃ (Post)alveolar	ʄ Palatal	tʼ Dental/alveolar
ǂ Palatoalveolar	ɠ Velar	kʼ Velar
ǁ Alveolar lateral	ʛ Uvular	sʼ Alveolar fricative

Source: International Phonetic Association
https://www.internationalphoneticassociation.org/IPAcharts/IPA_chart_orig/IPA_charts_E.html

Clicks occur when two closures are present in the mouth, one at the velum or uvula, and another in front of that. While sucking air into that enclosure, an explosive popping sound is made when the preceding closure is dropped. Implosive are created with lowered glottis which causes air to rush into the mouth to produce a stop sound. In contrast, ejectives are oral stops that are made while holding one's breath, causing the glottis to propel air out of mouth (Peterson 2015: 39).

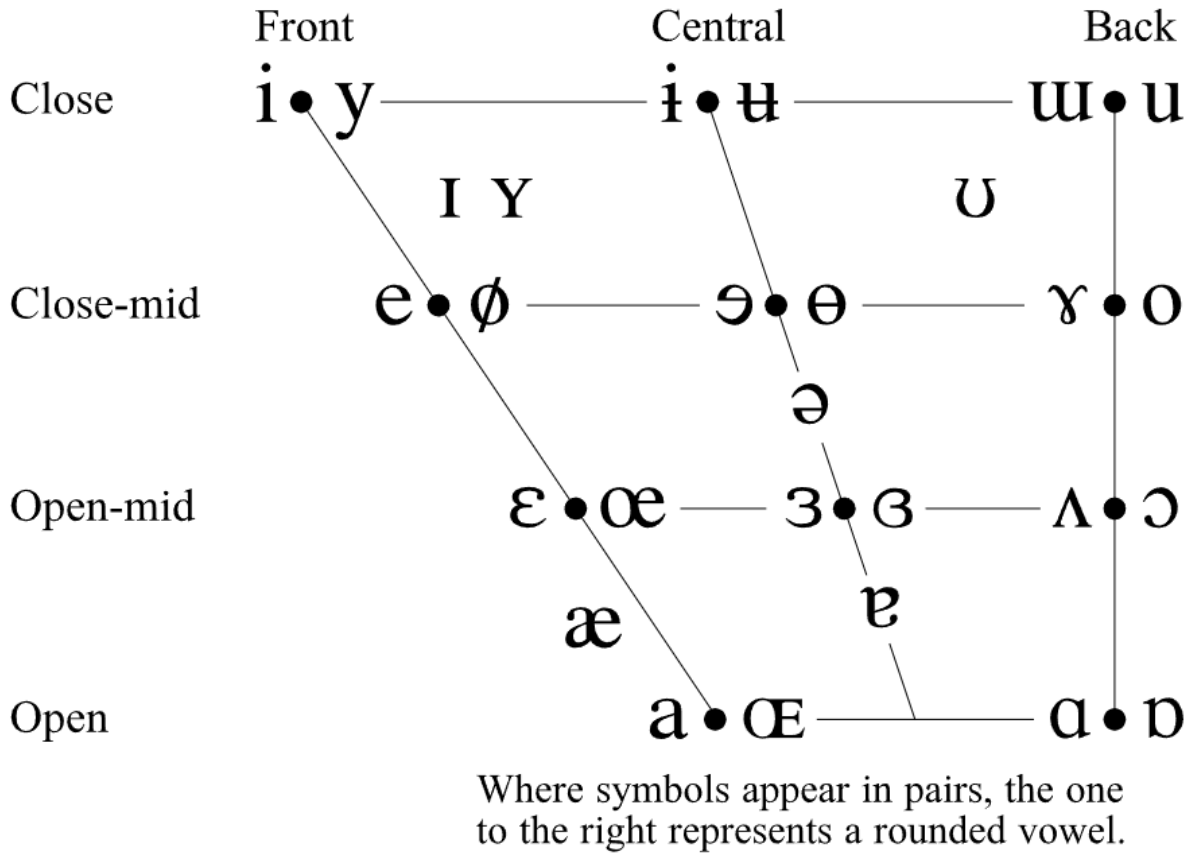
The last important term concerning consonants is gemination. According to Mitterer (2018) geminate consonants are pronounced longer than their regular, singleton counterparts. They are often represented in writing system by a doubled letter. He also notes that gemination is not the same as stress. Peterson (2015: 54) adds that any consonant can be a geminate. Some languages treat geminates as an accident without any special sounds, but others differentiate them from a single consonant.

2.1.3. Vowels

A vowel, in contrast to a consonant, is a sound that is produced when air does not meet any hindrance and is able to rush out of the lungs unimpeded. The sound will result in a vowel even if the tongue or lips are moved, or the velum is lowered. The most important thing is that the sound must pass out of the lungs unhindered. Since vowels are extremely fluid sound, it is difficult to pin them down (Peterson 2015: 40). While comparing vowels to consonants, from the phonological point of view, vowels are units that commonly occupy the middle of the syllable. Most of the vowels also contain the vibration of the vocal folds, which is referred to as voicing (Crystal 2018: 238).

Vowels, similarly, to consonants are also presented on the diagrams, as it can be seen in Table 2.3. The vowels placed on them are called cardinal vowels (Roach 2002: 19).

Table 2.3 The International Phonetic Alphabet – Vowels Chart



Source: International Phonetic Association
https://www.internationalphoneticassociation.org/IPAcharts/IPA_chart_orig/IPA_charts_E.html

At a first glance the chart seems to have unusual appearance. The linguists presented it in such way to make it resemble human oral cavity. All vowels are defined by three basic measures which are backness, openness and rounding. Backness refers to the position of the tongue in the moment of pronouncing a vowel. If the tongue is close to pharynx the vowel is described as a back vowel. When the tongue is located between the pharynx and the front upper teeth it is called a central vowel, and if the tongue is close to the front teeth it is referred to as a front vowel. Openness describes the vertical position of the tongue. A vowel is open when the tongue is closer to the bottom of the mouth. When the tongue is near the roof of the mouth the vowel is referred to as close. Openness is also often known as height; however, it is used less and less in the modern terminology. The last measure is rounding, which concerns lips position. The vowel is rounded when the lips are set in a circle when pronouncing a vowel. On the other hand, when lips and relaxed or spread the vowels pronounced are referred to as unrounded (Peterson 2015: 41).

Vowels, just like consonants, have some unique properties. The first one is vowel length. Some vowels are consciously lengthened while pronouncing some words, especially before voiced consonants, as far as the English language is concerned (Peterson 2015: 44). The lengthened vowel is graphicly presented by the [ː] symbol (Crystal 2018: 239).

Another feature of the vowels is nasality. Nasal vowels are pronounced with a lowered velum, allowing the air to rush out of the lungs through nasal cavity. Although any vowel can be pronounced as oral or nasal. Most natural languages have only few or no nasal vowels while having a subset of oral vowels (Peterson 2015: 45).

There are also different types of vowels. One of them is diphthong which encompasses two vowel qualities. The sound starts with one vowel and ends with another one. Even rarer are triphthongs, where three vowel qualities can be heard (Crystal 2018: 237).

2.2. Phonology

Crystal (2018) describes phonology as "the study of the sound systems of languages, and of the general properties displayed by these systems." He contrasts it with phonetics, which is concerned with studying all the sounds humans are able to produce. Phonology is focused on the differences in sounds which alter the meaning in language.

2.2.1. Sound systems

To complete the definition above it is crucial to present two terms: phone and phoneme. A phone is an actual speech sound, the smallest unit studied in phonology. Phoneme, however, is a collection of abstract units that helps to distinguish the differences in meaning between the words, for example /p/ in "pat" and /b/ in "bat" – changing the phoneme changes the meaning (Roach 2009; Peterson 2015).

Another term connected to phone and phoneme is allophony. Allophony describes all different realizations of the same phoneme. To be qualified as allophones of the same phoneme there must be at least two other different phones. In English the allophones of the phoneme /l/ are clear /l/ and dark /ɬ/. Words that have different meaning and differ in one phonetic change are called minimal pairs. For example, why [waj] and vie [vaj] (Peterson 2015; Mahon 2020).

Every natural and constructed language has a complete set of sounds that create a sound system. Most languages have between four and six vowels and about twenty or thirty consonants. English for example has an average number of consonants and larger than average number of vowels. Even though it is still unknown how are the sounds chosen, linguists came up with a set of guidelines. One of the most important principles is acoustic economy. According to this principle languages fully utilize the sounds available to human beings. The reason they do so is not that some sounds are difficult to pronounce, but because certain sounds are more challenging to hear than others. Peterson (2015: 46-51) provides an example of the word *September*. English speakers can distinguish between /t/, /k/ and /p/, but what if the letter ⟨p⟩ in *September* was replaced by ⟨k⟩. From listener's perspective, if there was two distinctive words - *September* and *Sektember* – in noisy environment, lazily pronounced words would be extremely difficult to distinguish. Peterson also names another principle, which he calls brand identity. In the contemporary understanding of this compound, it refers to the fact that every piece of information relating to a brand should have characteristics of its identity. The same concept applies to languages, which use their characteristic sounds and make them a hallmark of a language. English is a perfect example of it with the sounds like /θ/ or /ð/ which do not exist in many languages. Even though the sound /ð/ is not present in many words, it has a high frequency usage in words, such as *the*, *this*, *that* (Peterson 2015: 46-51).

2.2.2. Phonotactics

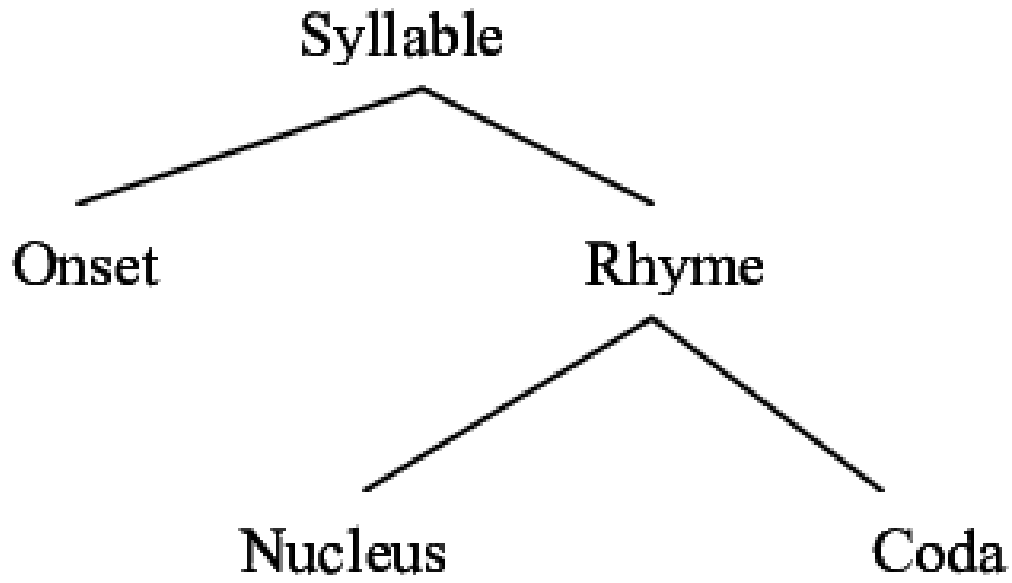
A set of rules that studies possible phoneme combinations of a language is called phonotactics. This set of rules aids in distinguishing between coherent words and sounds that do not match the language one is listening to (Roach 2009; Peterson 2015).

To create reliable phonotactic system it is crucial to determine what establishes a syllable. According to Peterson (2015) "a syllable is a prosodic unit of measurement used to divide words into smaller parts." There are different types of syllables depending on the number of units. Words containing only one unit are called monosyllabic. If the word consists of more than one unit it is referred to as a polysyllabic word (Peterson 2015; Crystal 2018).

Syllables are built of two major parts: an onset and a rhyme as it can be seen in Figure 2.4. Rhyme consists of a coda and the most important constituent which is nucleus.

While onset and coda are optional elements, nucleus is not. Normally a syllable consists of a vowel which is in the nucleus. Many words have consonants that precede the vowel, composing the onset of the syllable. Some syllables have consonants that follow the nucleus which construct the coda. There are also words that consist of both onset and coda (Peterson 2015; Crystal 2018; McMahon 2020).

Figure 2.3 The structure of a syllable



Source: An introduction to English phonology (2020), Creator: McMahon, A. M. S.

There are three types of syllables basing on the different approaches. In structural distinction based on phonotactics an open and closed syllable are featured. In case when a syllable ends with a vowel without a final consonant it is named an open syllable. On the other hand, if a syllable is terminated by a consonant, it is called a closed syllable (Laver 1994: 32).

Another type is heavy and light syllables. These terms refer to the syllable weight which depends on the number and type of segments. This approach is important in stress assignment and poetry. Typically, a light syllable has a short vowel and no coda. Conversely, a heavy syllable consists of a long vowel or ends in a consonant. A long vowel can be also replaced by a diphthong (Hyman 1985).

The last type are strong and weak syllables. They are tightly connected with stress and intonation. A strong syllable is stressed, often louder, longer and with a higher pitch.

Weak syllable, however, is unstressed and often reduces its vowels, for example to a schwa /ə/. (Awla n.d.)

2.2.3 Prosody

The last aspect that will be explored in this chapter is prosody. Roach (2002: 31) notes that prosody studies the elements of the speech, such as intonation, stress, rhythm and pauses. Prosody is it what gives a language its musical quality and aids to convey different emotions. The language used in poetry, songs and constructed languages heavily depends on prosody which plays a significant role since the language used there is often ambiguous or unapprehended.

2.2.3.1. Intonation

According to Roach (2002) intonation is 'the melody of speech' where the variations in pitch are studied. For a long time, it was hard to define, and it remains elusive. Some linguists describe intonation as an aspect that brings language into life. Despite many different definitions the one thing that always stands out is pitch. Human speech involves many different pitches, and it is uncommon to hear fixed pitch in daily conversations. When analysing intonation, the most important question one has to answer is the role of the particular pitch. Pitch is a spectrum which is described from high to low (Roach 2009: 97).

Intonation also serves many different functions. The basic one is the emotional function, which expresses emotions such as surprise, shock, anger, as well as semantic nuances like sarcasm or interest. Intonation serves as a grammatical marker in speech, playing a role similar to punctuation. Thanks to intonation it is easy to differentiate between questions and statements. Intonation also helps with providing information, by drawing attention to important news. In conversations it is recommended to use higher pitch to highlight something or to present new information for the listener. This trick is often used in radio and television, where important information is articulated with a higher pitch. Intonation also aids memorising large chunks of knowledge or numbers. Intertwining intonation into the process of memorising makes the task much easier. The last function is indexical. It refers to the prosodic features that are used by personal or social identities. Many occupations such as lawyers, preachers, army sergeants have different, characteristic prosody that is obvious to recognise (Crystal 2018: 249).

2.2.3.2. Stress

According to Peterson (2015) “stress is a property of certain languages whereby some combination of pitch, vowel length, and/or volume is used to lend acoustic prominence to a particular syllable.” He adds that stress is mostly tightly connected with words, but in some languages, it is concerned with phrases or clauses as well. Linguists distinguish fixed stress, which means that stress can be predicted thanks to specific rules or principles, and free or lexical stress, which is different in every word and must be learned by heart.

While describing different syllables phonologists recognise primary, secondary stress and unstressed syllables. Primary stress characterises with the highest pitch and is marked with [ˈ] symbol in IPA. Secondary stress occurs often in longer words but is not represented with the same level of pitch as a primary stress. In IPA it is represented by the [ˌ] symbol. The third level of stress which is called unstressed refers to parts without any amount of prominence (Roach 2009; Peterson 2015).

Chapter 3. The analysis of selected Constructed Languages

3.1. The method and the purpose of the study

The purpose of the study is to perform a comparative phonetic and phonological analysis of two constructed languages – Dothraki and High Valyrian – developed by linguist David J. Peterson for the HBO series *Game of Thrones*. The aim is to explore how these languages differ in terms of their phonetic and phonological features, and how they reflect the author's creative intentions.

Due to limited space of the thesis only two languages were chosen. The choice was made purely on personal affection towards the *Games of Thrones* series and disposition to evaluate how the author coped with creating two different languages set in one fantasy universe. The study encompasses the overview of phonetics, examining the sound systems; phonotactic constraints; and prosodic features. It utilizes the official sources which were created or approved by Peterson.

The study employs qualitative research methods, especially comparative linguistic analysis, as it aims to describe and compare sound systems through an examination of linguistic data collected from approved sources. This methodological design addresses the research question stated in the introduction: What are the key phonetic and phonological differences between Dothraki and High Valyrian and how do they reflect the author's initial objectives for each language? The chapter is divided into three sections in which two constructed languages are first analysed and then compared with each other and author's objectives.

3.2. Dothraki

Dothraki is a language created by David J. Peterson for the HBO series *Game of Thrones*. It is spoken by the Dothraki people who are a nomadic group of horse-riding warriors, gatherers and hunters. They appeared in a book series called *A Song of Ice and Fire* by George R. R. Martin on which the series is based. Dothraki is classified as an artlang, constructed for fantasy novel series, and as a posteriori conlang, based on several natural languages. Since most of the audience watching the show are English speakers, and the executive producers are Americans, Peterson, to make the language sound 'foreign', based Dothraki on Arabic, Russian, Turkish and Swahili. Peterson did not create a special

alphabet for Dothraki, since Dothraki is a crude tribe, instead he used the Latin alphabet which was already present in books. However, Carlos and Patrícia Carrion invented Dothraki alphabet which is constructed from simplified drawings of living creatures and everyday belongings (Peterson 2023).

Peterson started developing Dothraki from a small sample of words given in the books. The list consisted of fifty-six words with twenty-six of them being proper nouns. He adopted the vocabulary without making any changes. Knowing that the language must be learnt by actors, he needed to make it accessible but at the same time foreign sounding. With all these remarks in head, he started setting the rules (Peterson 2015: 90).

3.2.1. Linguistic analysis of Dothraki

Once Peterson started working with the given vocabulary, he noticed two interesting facts. The vowel ⟨u⟩ did not appear in any word as a vowel, and it only occurred in a cluster ⟨qu⟩. He also detected that the consonants *b* and *p* were not present in any word. With these two things in mind, he could set the direction for this language (Peterson 2015: 91).

Peterson gave every vowel their cardinal pronunciation, and they are always pronounced independently, even if they appear after each other. Most of the consonants were treated equally, being articulated the same as their English counterparts. However, there were some exceptions, one of them being /q/ which is pronounced as [q] (a plosive voiceless uvular sound) when occurring on its own. The cluster ⟨qu⟩ was given different pronunciation and spelling. It was changed into the sequence of sounds [k] and [w] and was spelled as ⟨kw⟩. The sound /h/ also went through several changes. In the digraphs ⟨ts⟩, ⟨sh⟩, ⟨kh⟩ and ⟨jh⟩ the pronunciation is changed into [θ], [ʃ], [x], and [ʒ], respectively, the spelling of ⟨jh⟩ is modified to ⟨zh⟩. If the letter ⟨h⟩ occurs outside of digraphs, it is always pronounced as [h], no matter its position in a word. Peterson also reworked the sound corresponding with the letter ⟨r⟩. Now every ⟨r⟩ at the beginning and the end of a word, even if it is doubled, is pronounced as a trilled [r]. If ⟨r⟩ occurs anywhere else, it is pronounced as [ɾ]. Peterson changed the place of articulation of coronal consonants, which are articulated with the flexible front part of the tongue, such as [t], [d], [n], [l], to dental, giving it a foreign sound. He also decided not to include sounds [u], [p] and [b], since they were not present in the initial vocabulary (Peterson 2015: 92). After establishing additional rules, Peterson formed a set of consonants, that are visible in Table 3.4.

Table 3.4 Consonant Chart of Dothraki

		Labial	Dental	Alveolar	Palatal	Velar	Uvular	Glottal
Nasal		m	n [n̪]					
Plosive/Affricate	voiceless		t [t̪]		ch [t͡ʃ]	k	q	
	voiced		d [d̪]		j [d͡ʒ]	g		
Fricative	voiceless	f	th [θ]	s	sh [ʃ]	kh [x]		h [h ~ ħ]
	voiced	v		z	zh [ʒ]			
Approximant		w	l [l̪]		y [j]			
Rhotic				r [r ~ ɾ]				

Source: David J. Peterson
https://wiki.languageinvention.com/index.php?title=Appendix:Dothraki_pronunciation

In total, Dothraki consists of 22 consonants. The IPA pronunciation symbol is presented in square brackets when it is different from the standard romanization. Doubled consonants occur commonly, and they are always pronounced geminated. Allophony occurs to enhance communication, since some phones are confused with each other. For example, some phonemes change when surrounded by other phones to facilitate pronunciation, as in the case of /h/ [h] which changes into [ħ] in syllable-final position. A similar situation occurs when stop sounds are produced at the same region of mouth as the following it fricative. In this case the stop consonant changes into geminate of the fricative. Allophony also occurs when two or more sounds appear is the same place without being considered as flawed by native speakers, which is called free variation. In Dothraki, labial plosives, [p] and [b] are not present since they developed into [f] and [v]. However, some speakers still use [p] and [b] sounds which is usually ignored. In case of voiceless stops, /t/ [t], /k/ [k], /q/ [q] and ⟨ch⟩ [t͡ʃ] it is common to hear them aspirated (Peterson 2023).

In contrast to the ordinary set of consonants, Dothraki possess only four vowel phonemes, as it is visible in Table 3.5. Moreover, neither of the vowel can be long, which

limits the pool even more. Vowels also do not create diphthongs or triphthongs, making the set of vowels extremely poor (Peterson 2023).

Table 3.5 Vowel Chart of Dothraki

	Front	Back
Close	**i** [i]	
Mid	**e** [e]	**o** [o]
Open	**a** [a]	

Source: David J. Peterson
https://wiki.languageinvention.com/index.php?title=Appendix:Dothraki_pronunciation

Due to scarce number of vowels, it is possible for vowels to shift more easily. Most of the vowels are not pronounced precisely, as they are in English. When the vowel is preceded by the sound [q], which is pronounced far in the throat, it shifts into different sound. The sound [i] shifts into [e], [e] into [ɛ], [o] into [ɔ] and [a] into [ɑ] (Peterson 2023).

When it comes to phonotactics Dothraki exhibits a moderately permissive syllable structure, with the maximal syllable template being CCVCC, where C stands for consonant and V for vowel. This structure allows for a fair degree of consonant clustering both in onset and coda positions. However, several constraints and historical developments shape how syllables and words are formed. One of the key restrictions involve word-final consonants. In Dothraki, words cannot end in the consonants ⟨g⟩, ⟨q⟩, or ⟨w⟩. In any instance where a word would end in one of these sounds, an epenthetic vowel, specifically e, is suffixed to the word to preserve the permissible final structure. Initial clusters are also notably shaped by both synchronic and diachronic processes. The language permits onsets composed of a stop followed by a liquid, particularly ⟨l⟩ or ⟨r⟩. Moreover, some clusters have undergone phonological shifts, such as ⟨pl⟩, ⟨pr⟩, ⟨bl⟩, and ⟨br⟩, which evolved into ⟨fl⟩, ⟨fr⟩, ⟨vl⟩, and ⟨vr⟩, respectively. These changes result in new permissible initial clusters in the modern Dothraki and suggest a naturalistic evolution. Dothraki also allows a range of complex consonant combinations involving nasals and

aspiration. Specifically, nasal consonants can be followed by ⟨h⟩, and both liquids ⟨l⟩ and ⟨r⟩ can be either preceded or followed by ⟨h⟩. In contrast to many natural languages, Dothraki places no restrictions on adjacent vowels. Any vowel can occur next to any other vowel, and sequences of vowels, including those that might create hiatus or diphthong-like structures, are freely permitted. This lack of constraint on vowel adjacency contributes fluid and varied prosodic patterns (D. Peterson, personal communication, April 28, 2025).

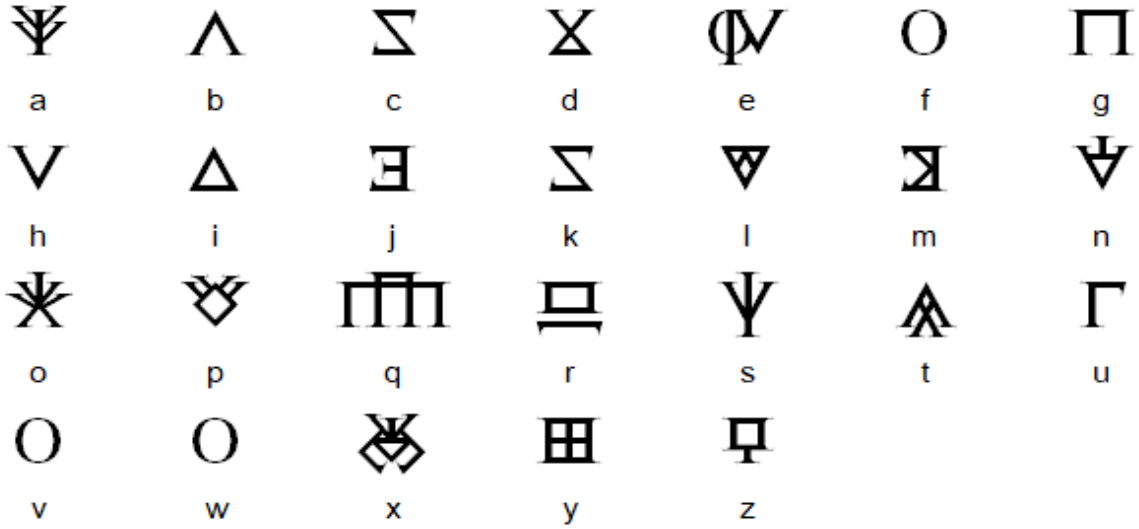
Peterson, while creating the stress system, aimed to make it completely different from the English one. In English language it is uncommon to notice a word stressed on the last syllable, unless it is a borrowed word, or a verb. However, in Dothraki words that end in a consonant receive stress on the final syllable. In Dothraki stress is determined by the ending of the words, utilising the syllable weight to establish it. If last syllable is heavy, or in other words it ends with a consonant or a long vowel, it is stressed. Otherwise, if the penultimate syllable is heavy, the stress is assigned there. If there is no heavy syllable, stress is distributed to the first syllable (Peterson 2015; Vinodh 2019).

3.3 High Valyrian

High Valyrian is a language created by David Peterson for the HBO series *Game of Thrones*. It also appeared in the prequel series called *House of the Dragon*. Similarly to Dothraki, High Valyrian is based on material from George R. R. Martin's book series *A Song of Ice and Fire*. High Valyrian was spoken in the ancient Valyrian Freehold and in the conquered cities on the Continent of Essos. After the doom of Valyria, High Valyrian ceased to be widely spoken. It became a dead language, much like Latin is today. Although it was used by a few families, scholars and priests, it did not survive and was assimilated into the local languages of conquered cities, creating a Valyrian language family. Example of such language is Astapori Valyrian, which was created after High Valyrian and old Ghiscrai language were mixed together (Peterson 2025).

High Valyrian is also an a posteriori artlang, created for a means of series for a fictional civilization. Peterson also created a writing system for the prequel *House of the Dragon*. It combines logographic glyphs that represent words, paradigmatic glyphs that represent nominal paradigms and inflections, and alphabetic glyphs that represent sounds, that are written in horizontal lines from left to right, as it is shown in Figure 3.5.

Figure 3.4 High Valyrian Writing System



Source: https://www.omniglot.com/conscripts/highvalyrian.htm

High Valyrian constructed for the purpose of the series was based on six High Valyrian words found in the books, namely—*valonqar*, *valar*, *morghulis*, *dohaeris*, *dracarys*, and *maegi*—along with numerous proper names found in the books (Peterson 2015: 199), which provided Peterson with significant creative freedom.

3.3.1. Linguistic analysis of High Valyrian

Due to the limited sample of High Valyrian words, David J. Peterson, was afforded greater flexibility in shaping its phonological system compared to languages like Dothraki. This creative freedom is reflected in the language's extensive phonemic inventory in Table 3.6. However, it is vital to notice that the pronunciation varies across the fictional world, and no one, except the Targaryens, speaks proper High Valyrian (Peterson 2025).

Table 3.6 Consonant Chart of High Valyrian

		Labial	Dental	Alveolar	Palatal	Velar	Uvular	Glottal
Nasal		m [m]		n [n]	ñ [ɲ]	(n [ŋ ~ ɴ])		
Plosive	**voiceless**	p [p]		t [t]		k [k]	q [q]	
	voiced	b [b]		d [d]		g [g]		
Fricative	**voiceless**		(th [θ])	s [s]		(kh [x ~ χ])		h [h]
	voiced	v [v ~ w]		z [z]	j [ɟ ~ d͡ʒ ~ ʒ ~ j]	gh [ɣ ~ ʁ]		
Approximant								
Lateral				l [l]	lj [ʎ]			
Rhotic	**voiceless**			rh [r̥]				
	voiced			r [r ~ ɾ][1]				

Source: David J. Peterson
https://wiki.languageinvention.com/index.php?title=Appendix:Dothraki_pronunciation

High Valyrian possesses eighteen distinct consonant phonemes, with two additional phonemes occurring exclusively in loanwords. The language demonstrates considerable phonetic variation, especially across regional dialects, which affects pronunciation. The phoneme /j/, for instance, exhibits four phonetic realizations: [ɟ], used in antiquity, typically before front vowels like [i], [y], and sometimes [e]; as well as the modern variants [j], [ʒ], and [dʒ], whose usage varies according to region and the speaker's linguistic background (Peterson 2025).

The phoneme /n/ undergoes allophonic variation when adjacent to certain consonants, producing [ŋ] before velars and [ɴ] before uvulars. This assimilation is illustrated in examples such as *ēngos* /ˈeːngos/ "tongue" ([ˈeːŋgos]) and *valonqar* /vaˈlonqar/ "little brother" ([vaˈlonqar]) (Peterson 2025).

Another notable feature is the behaviour of the rhotic /r/, which is realized as a trill [r] in most environments but is reduced to a tap [ɾ] when it follows a stop within an onset cluster (Peterson 2025).

The phoneme /v/ represents a particularly complex case. While in contemporary High Valyrian it is consistently realized as [v], historical records indicate a range of realizations depending on the surrounding vowels. When preceding the vowels /i/ and /e/, it is pronounced as [v]. In case of /o/ and /u/ it changes into [w]. If it occurs before /a/ or

/y/, the pronunciation varies and can be either realized as [ɥ] or [ʊ]. In case when /v/ occurs after a vowel and behind a consonant, it functions as the second part of a diphthong and is pronounced as [u] or [w]. This variation of the /v/ phoneme is difficult to track, leaving interpretation partially to the speakers (Peterson 2025).

High Valyrian incorporates vocabulary from neighbouring tongues but often adapts foreign phonemes to conform to native phonotactic constraints. When a non-native sound is encountered, it is typically substituted with the closest native phoneme. If a word does not conform to the language's native inflectional patterns, it may be declined according to a specialized paradigm for foreign words. One of the common digraphs is ⟨kh⟩, which corresponds to /x/ sound. In High Valyrian it is often changed into /k/, however, some speakers could pronounce it as /h/, for example the Dothraki's word *arakh* [aˈɾax] would be pronounced as [aˈɾak] or [aˈɾah]. Another digraph ⟨th⟩ represents the /θ/ sound. Most of Valyrians would realize it as regular /t/, for instance *dothraki* [do'θraki] is pronounced as [do'traki]. The ⟨sh⟩ digraph corresponds to /ʃ/, and is typically realized as /s/, though /ʃ/ may be retained in some dialects. The /f/ sound can be represented by different letters and digraphs, such as ⟨vh⟩, ⟨ph⟩, or ⟨f⟩. The pronunciation varies mostly between /p/ and /v/ in standard High Valyrian, for example *Winterfell* is pronounced as [vinter'pelli] (Peterson 2025).

In High Valyrian, there are six vowel qualities, each of which can be either long or short, as it is visible in Table 3.7. The pronunciation of the vowels closely resembles that of English, except for the /y/ sound, which is often confused with /i/, as both are often realised as [i] (Peterson 2025).

Table 3.7 Vowel Chart of High Valyrian

	Short			Long		
	Front		Back	Front		Back
	unrounded	rounded		unrounded	rounded	
Close	i [i]	y [y]*	u [u]	ī [iː]	ȳ [yː]*	ū [uː]
Mid	e [e]		o [o]	ē [eː]		ō [oː]
Open	a [a]			ā [aː]		

Source: David J. Peterson
https://wiki.languageinvention.com/index.php?title=Appendix:Dothraki_pronunciation

High Valyrian, in contrast to Dothraki, has diphthongs which are divided into two categories: falling and rising, which are presented in Table 3.8. The falling diphthongs ends with ⟨e⟩ or ⟨o⟩ and possess more official status in the language. The rising, also called on-glide, diphthongs typically begin with ⟨i⟩ or ⟨u⟩, and are considered either short or long, depending on the length of their last vowel (Peterson 2025).

Table 3.8 Diphthong Chart of High Valyrian

Coda		-a	-ā	-e	-ē	-o	-ō
Falling	a-			ae [aẹ]		ao [aọ]	
	ā-			āe [a:ẹ]		āo [a:ọ]	
Rising	i-	ia [i͡a]	iā [i͡a:]	ie [i͡e]	iē [i͡e:]	io [i͡o]	iō [i͡o:]
	u-	ua [u͡a]	uā [u͡a:]	ue [u͡e]	uē [u͡e:]	uo [u͡o]	uō [u͡o:]

Source: David J. Peterson
https://wiki.languageinvention.com/index.php?title=Appendix:Dothraki_pronunciation

The stress in High Valyrian is based on the syllable weight. The syllables can be either heavy or light. The light syllable ends with a short vowel, except the rising diphthongs that are concluded with a short vowel. The heavy syllable contains either a long vowel (e.g. *zō-*), a falling diphthong (e.g. *glae-, rāe-*), a long rising diphthong (e.g. *jiō-*) or ends with a consonant (e.g. *lok-*). When it comes to placing the accent, all imperative verbs are accented on the last syllable (e.g. *kelītī́s* "halt!"), as well as words in which the final vowel is lengthened for coordination (e.g. *pérzys ānogā́r* "fire and blood"). The stress of other words depends on the syllable weight of the second-to-last syllable, called the "penult", and the third-to-last syllable, called the "antepenult". When both the penult and the antepenult are light, the stress falls on the penult, resulting in a paroxytone stress. In case when penult is heavy, the penult is stressed. However, if the penult is light and the antepenult is heavy, then the antepenult is accented that results in a proparoxytone stress (Peterson 2025).

In High Valyrian the maximal allowed syllable structure is CCCV:CC, where C stands for consonant and V for vowel. The onsets that begin with a single consonant, or a permitted cluster are allowed. Permitted cluster are composed of an oral stop (plosive) followed by either a liquid, a consonant consisting of rhotic or lateral approximant sound, or a sibilant, a fricative consonant of higher pitch. A nucleus can only consist of a short vowel, a long vowel or a permitted diphthong. In terms of codas, the only sounds that are not permitted are the palatals [ɲ], [ʎ], and [j], as well as [h] and [r̥]. There are also special rules governing the word-final coda. The word can only end with a vowel /s/, /m/, /n/, /t/, /z/, /l/, /r/. The only permitted consonant cluster is /ks/ (Peterson 2025).

Similarly to Dothraki, High Valyrian geminates consonants, however, only some of them are permitted to appear as geminates. The primary geminates include /t/, /d/, /n/, /s/, /l/, /r/, and /m/. However, geminate /d/ is marginal and so far, observed only in limited forms such as *ridda*. Consonants like /p/ and /k/ are presumed to be allowable as geminates, though there are no examples yet. Geminate /v/ may also be permitted. Importantly, palatal /j/, /ɲ/, and /ʎ/ are prohibited from geminating. Additionally, /z/ does not geminate in the standard dialect but may do so in non-standard varieties. Consonants such as /q/, /b/, /g/, /h/, /ɣ/, and /r̥/ are not permitted as geminates. There are also rules concerning the appearance of two vowels next to each other. When two vowels appear adjacent to each other and cannot form a valid diphthong, they are generally pronounced separately. However, to avoid hiatus, epenthetic /h/ may be inserted, especially in inflectional forms (e.g., *Junkae* ~ *Junkaeho*). Certain vowel sequences are explicitly disallowed, particularly combinations of /i/ and /u/ (such as /iu/, /iːu/, /ui/, /uːi/) where at least one vowel is short. In such cases, /i/ may become /j/, /u/ may become /v/, or the sequence may merge into /yː/. If both vowels are long, the hiatus is preserved, as demonstrated by forms like /uːiː/ (Peterson 2025).

3.4. Comparative analysis of Dothraki and High Valyrian

This part of the chapter presents analysis of two constructed languages from the *Game of Thrones* series: Dothraki and High Valyrian. The analysis focuses on three core areas of linguistic structure: phonology, phonotactics and prosody. These domains are evaluated in relation to the creator's artistic and functional objectives, particularly how each language reflects the culture and narrative role of its fictional speakers.

The sound systems of these languages are diverse which contributes to their cultural stylization; however, they have some features in common. The number of distinct phonemes is similar when it comes to consonants, however, vowels show the largest difference. Dothraki operates on four vowel phonemes, neither of which can be a long vowel and diphthongs do not occur. Conversely, High Valyrian possess six distinct vowel qualities, each of which can either long or short. Moreover, diphthongs are common in High Valyrian and present higher level of complexity. The relatively simple vowel system in Dothraki, compared to that of High Valyrian, may be associated with the crudeness of a nomadic tribe. In case of consonant inventory, Dothraki features distinctive and forceful sounds such as the voiceless velar fricative [x], the uvular stop [q], and a particularly strong [h], which is often pronounced more harshly as the voiceless pharyngeal fricative [ħ]. These sounds contribute to its characteristic harsh auditory aesthetic. These consonants are also used in high frequency words, highlighting the uniqueness of this language. In contrast, High Valyrian contains aspirated stop consonants, such as /pʰ/, /tʰ/ or /kʰ/, which are rare in Indo-European languages. Palatal consonants are another hallmark of High Valyrian with sounds like [ʎ], [j] and especially palatal nasal [ɲ] which is pronounced like the Spanish ñ. In High Valyrian, hiatus between certain vowel clusters is permitted, contributing to the language's breathy quality. Despite their numerous differences, both Dothraki and High Valyrian share a unique feature which is the contrast between the /r/ sound. In High Valyrian the trill [r] is used more frequently than the tap [ɾ]. In contrast, Dothraki utilizes both variants with equal frequency, however, the use of either does not result in a change of meaning.

Dothraki has a fairly permissive syllable structure, with not many restrictions on the onset and coda positions. This allows a fair degree of different syllables, with geminates or doubled vowels. Such structures may indicate that Dothraki tribe does not possess stable grammatical rules, and they can evolve or be changed at the moment of speaking. In comparison to Dothraki, High Valyrian exhibits more convoluted syllable structures, including CVV and CVC patterns, as well as complex clusters, particularly in medial and final positions, for instance in the word *kēli* meaning 'cat'. The complexity of phonotactical rules in High Valyrian denotes long evolution of a language, as well as written and literary usage.

The prosodic features of both languages align with the cultural and narrative roles of their speakers. Dothraki's generally fixed stress, usually on the first syllable, gives

rhythmic sound to the language. It mimics straightforwardness of communication in natural languages, which fits the nomadic warrior culture. The grittiness which is apparent in many words and numerous shouts supports the energetic impression of the language. In contrast, High Valyrian possess abundant resources that stunt the speech, such as long vowels and vowel hiatus. It makes the language sound regal and posh. The predictable stress system upholds this impression, giving the language light and melodic delivery. Intonation is another notion that matches the historical prestige of the Valyrian Freehold.

When creating Dothraki and High Valyrian, David J. Peterson drew inspiration from other natural languages, so it is possible to notice some similarities between them. Dothraki was mainly based on languages such as Arabic, Swahili, Turkish and Russian. Peterson aimed to construct a language that would sound "wild" and barbaric to a typical American viewer; thus, he took inspiration from the languages of Middle East and Africa, since the audience might perceive them as untamed or exotic. From a phonological perspective, Russian and especially Arabic, contain characteristic for Dothraki consonants such as velar fricative [x], uvular plosive [q] and harsh pharyngeal fricative [ħ]. These sounds are a hallmark of Dothraki, contributing to its harsh, grim aesthetic. In contrast, the vowel system shows less resemblance, since Arabic possesses long vowels and Russian allows diphthongs, both of which differ from the simpler vowel inventory found in Dothraki. In terms of phonotactics, Dothraki incorporates elements from Swahili and Turkish, where syllable structures are simple and predictable. To an American viewer unfamiliar with many languages, Dothraki may seem primitive or crude. High Valyrian, on the other hand, was primarily based on Latin and Ancient Greek. Latin distinguishes between short and long vowels, though it includes fewer diphthongs than High Valyrian. Moreover, the stress system is based on syllable weight. However, the rules governing the phonotactics are more straightforward in Latin than in High Valyrian. The influence of Ancient Greek is less defined, limited mainly to similarities in vowel inventories and the presence of diphthongs. Given that High Valyrian was designed as the language of noble and scholar empire, the choice to model it on Latin and Greek is highly appropriate, as both were conceived as powerful languages of science and literature.

When developing both Dothraki and High Valyrian, David J. Peterson aimed to create languages that authentically reflected and extended the existing material presented in George R. R. Martin's *A Song of Ice and Fire* series. His primary objective was to construct a language that reflected the pronunciation of the fifty-six Dothraki words found

in the books, as interpreted by American fans, since Martin did not include a pronunciation guide (D. Peterson, personal communication, April 28, 2025). Peterson also had to consider that the languages needed be learnt by actors within short period, so their pronunciations could not be overly difficult. When it comes to his phonological and aesthetic objectives, he wanted languages to sound consistent with the limited examples already found in the source texts, ensuring that they felt natural and believable within the fictional world. For Dothraki, this meant developing a language that was harsh, rhythmic, and grounded, aligning with the nomadic, warrior culture it represented. Its prosody needed to evoke energy, with structures that could be spoken quickly and forcefully. In contrast, High Valyrian was intended to sound regal, ancient, and elegant, reflecting its role as a classical and scholarly tongue in the world of Westeros and Essos. Peterson drew inspiration from Latin and other lingua francas to construct a phonological system that was formal and linguistically rich. Despite their contrasting phonetic characteristics, the main goal in both cases was to develop languages that were not only internally consistent but also credible and immersive, effectively gripping the viewer and immersing them in the fictional world.

Conclusion

This thesis aimed to explore and compare the phonetics and phonology of two constructed languages—Dothraki and High Valyrian—developed by linguist David J. Peterson for the television adaptation of *A Song of Ice and Fire* called *The Game of Thrones*. The main research question was: "What are the key phonetic and phonological differences between Dothraki and High Valyrian"? By closely analysing their sound systems, phonotactics and prosodic patterns the study has demonstrated how each language was crafted and how they differ from each other, presenting a detailed analysis in chapter 3.4. The study utilized the official sources which were created or approved by Peterson. The research also addressed and evaluated an additional research question concerning whether the author's initial objectives were achieved. The findings of the study prove that David J. Peterson achieved his goals by developing two functional and credible constructed languages, each with complex and distinct phonetic and phonological features that gained recognition not only among the American society but also worldwide.

Furthermore, this study has shown that constructed languages can serve as legitimate subjects of linguistic analysis. Despite their artificial origins, they can be examined using the same tools as natural languages. Developments in the field of language construction have the potential to contribute to both linguistic studies as well as cultural one. Although the amount of academic work on constructed languages remains relatively limited, the growing popularity of conlangs in popular media suggests that scholarly interest in this area is likely to increase.

One limitation of this study is the lack of an in-depth analysis of the phonetic features in actual spoken dialogue. A comprehensive phonetic study would require detailed examination of audio material from the series, including prosody, intonation, and speaker variation. Future research could explore these domains to provide a fuller picture of how these languages function in real conversations and how their phonetic qualities contribute to the viewer's perception.

In conclusion, the comparative analysis of Dothraki and High Valyrian highlights the depth and creativity that skilled conlangers can bring to language construction. By designing the linguistic features to reflect the fictional cultures, David J. Peterson has created languages that not only support narrative immersion but also withstand academic scrutiny. As conlangs continue to evolve and gain visibility in media and academic

contexts, they will likely offer a better understanding of what language is, and what it can become.

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