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SYSTEMATIC MORPHONOLOGICAL ANALYSIS OF ENGLISH LONG AND SHORT VOWEL OPPOSITIONS

Doctoral dissertation
Humanities, philology (04H)

Kaunas, 2009

VILNIAUS UNIVERSITETAS

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SISTEMINĖ MORFONOLOGINĖ ANGLŲ KALBOS ILGŲJŲ IR TRUMPŲJŲ BALSIŲ OPOZICIJŲ ANALIZĖ

Daktaro disertacija
Humanitariniai mokslai, filologija (04H)

Kaunas, 2009

The research was carried in 2004-2008 at Vilnius University, the Kaunas Faculty of Humanities

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Disertacija rengta 2004-2008 metais Vilniaus Universitete Kauno humanitariniame fakultete

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INTRODUCTION

The doctoral thesis "Systematic Morphonological Analysis of English Long and Short Vowel Oppositions" belongs to the domain of structural linguistics. According to the Encyclopædia Britannica 2008, structuralism is a term for a number of linguistic approaches in the first half of the 20th century which are based on the works of Saussure but strongly divergent from one another. Structuralism includes the linguistic theories which focus on an isolated investigation of the language system. The most important centers of structuralism are the Geneva School concerned with the work of Saussure, the Prague represented by Trubetzkoy, Martinet, and Jacobson, the Copenhagen Linguistic Circle with Hjemslev's glossematics, London Firthian linguistics, and American structuralism, following the works of Bloomfield (Bussman 1998, 457-458).

Morphonology has not yet received enough attention and appreciation either in the world or in Lithuania. Insufficient research and complexity of morphonological problems and the non-heterogeneity of the phenomena caused a significant variety of viewpoints almost in all aspects of morphonological analysis. Moreover, until now, the concept of morphonology has not had a recognized understanding in linguistics – the uncertainty of its object, tasks and status among other linguistic disciplines, remains in force. There is neither a general theory of morphonology nor any unanimous opinion concerning the boundaries of this linguistic division among other branches of linguistics. The question, what exactly belongs to the morphonology but not to the bordering phonology and morphology, is solved by the researchers differently.

Morphonology, as well as other transitional disciplines, is difficult to define. In practical treatment it involves the investigation of phonological variations within morphemes, alternations intermediate between morphology and phonology, the analysis of phonological structure, properties and relations of morphologically complex words, etc.

Since morphonology is a controversial area of linguistics, there are various opposing viewpoints concerning its object and parameters. Though it remains as if in

the periphery of the language the problems it raises are central to the study of linguistics. The field of morphonology is in the zone of crossing phonological, morphological and word-building processes.

Morphonology, according to the Encyclopædia Britannica (2008 CD), is the part of linguistics studying the phonological structure of various types of morphemes and using those differences for the sake of morphology. In a narrow sense, the morphonological object is described as alternations of morphs in one morpheme. According to the founder of morphonology Trubetzkoy (2001, 76), the object of investigation comprises three major areas. *Firstly,* it includes the investigation of phonological structure of morphemes of various types and possible ways of their distinctions and oppositions. *Secondly*, it studies the alternations of morphemes, after they have joined into morphemic orders, in the process of word building and form building. And *thirdly,* it examines the changes and various phenomena at the boundary of intersection of two morphemes. The general purpose of the investigation of morphonological phenomena is to realize, maintain or to reinforce differentiation of forms on the morphological level. The phenomena of the phonological structure of morphemes and alternations are common in many languages of the world. The fundamental structuralist concept is the "distinctive principle", the principle of contrast. Linguistic signs form a system of values which stand in opposition to one another.

Accordingly morphonology investigates phonological structure of morphemes, the ways of their distinctions and oppositions, alternations of morphemes and the phoneme modification at the boundary of intersection of two morphemes.

Trubetzkoy, having laid the main principles of morphonology, has instigated a lot of discussion, not infrequently contradictory views and understanding, concerning this interdisciplinary subject. The linguists belonging to different linguistic schools tackled and analyzed individual aspects and phenomena of morphonology, such as, alternations, morphonological rules, the problems of morphoneme, allomorphy and others. However, they have not yet come to a unanimous decision concerning the

object, aims, scope, and methodology of morphonological investigations. A systematic research was necessary to grant morphonology a linguistic status, foregrounding it as an interface between the science of phonology and morphology.

It is important to note that several aspects of morphonology have been investigated in a number of languages. Morphonological apophony was analyzed in Semitic languages (Shimron 2003), Afroasiatic (Shimron Joseph (2003), Polish (Bendiaballah, et al, 2002), in the English language (Lockwood et al, 2000) and others. The phenomenon of morphonological alternations was elucidated in Slavonic, Germanic, Semitic, Romance, Caucasian languages (Dahl 2004, Haspelmath, 2004, Sabrina, Di Seivllo, 2003, 2002, Dressler, Pfeifer, 2002, Wiltshire 2001). Only a few comprehensive academic works on morphonology were published in Lithuania (Karosienė 1994, Girdenis 1996, Akelaitienė 1989, 1996, 2001, Mikulėnienė 1989, 2004). However, the issue of English vowel oppositions as a component of morphonology has not yet been tackled.

The English language has five long and short *uː–ʊ, iː–i, ɔː–ɒ, aː–ʌ, ɜː–e (ə)* vowel oppositions**.** This phenomenon of the English language has not been given adequate systematic scientific treatment. The morphonological structure of long and short vowel opposition pairs in the English language has not been systematically analysed. A systematic analysis presupposes a research of the morphonological structure of the whole system of long-short vowel oppositions and functional analysis.

The scientific issue of the thesis. The scientific treatment of the problem presupposes a systematic morphonological analysis of long and short vowel oppositions, determining the type of the morphemes created by phoneme oppositions, the composition and order of phonemes in a morpheme, as well as the coincidence and disparity of boundaries between syllables and morphemes. Since a systematic analysis includes the structure, the function, the organization and the characteristic of language elements, the base of a system is the total number of its elements and relations among them, i.e. their similarities, differences and stability in time. Generally, a systematic analysis seeks after the following tasks: firstly, it has to

determine the sequence of actions of objects or elements and describe them; secondly, it studies the consequences of actions; and thirdly; it provides the findings of the analysis. The present dissertation follows exactly the above presented general scientific issues.

The object of the thesis is 4,857 long and short vowel opposition pairs taken from the Longman Dictionary of Contemporary English (LDOCE) 2004. This research uses a created database of 105,846 words based on LDOCE 2004, which contains over 150.000 entries and collocations. 42.232 words were collected form the LDOCE, the rest 61.202 were derived by adding grammatical inflections to monosyllabic and multi-syllabic word-forms. The database has the following sections of information: word-form, word class, word grammatical category, morpheme, base/variant, syllable number, type of opposition pair, functional, and phoneme. In order to complete the database and reveal long and short vowel oppositions, the following operations were used: flexions were added to word-forms (analyzable in terms of phonemes): inflexion of plurality *-(e)s*, inflections 's, s' of the possessive cases to nouns, the comparative and superlative degree suffixes *-er, -est* to adjectives, flexion *-(e)s* to the third person singular verbs in the present simple tense, flexion *-ed* to the regular verbs of the past simple tense and the past participle, inflexion *-ing* to the verbs of the present participle forms. The investigation includes simple, complex and compound words with the varieties of their grammatical forms (inflections and affixes).

The hypotheses

This thesis aims at proving the following hypotheses:

1. Long and short vowel oppositions is a regular language phenomenon obeying language laws and liable to a systematic analysis of its structure and functions.
2. Free morphemes as well as derivational morphemes while subjected to analysis exhibit vowel oppositions.
3. Addition of a bound morpheme to the free morpheme significantly affects word disintegration: the morpheme and the syllable divisions in most cases do not coincide.

4. The morphonological oppositions in the English language discriminate lexical and lexical-grammatical meanings but do not differentiate grammatical meaning alone.
5. The syllable structure depends on the number of syllables in the opposition pairs. The more syllables a member of an opposition includes the more complicated its syllabic structure becomes.
6. The overall systematic analysis of long and short vowel oppositions of the English language is expedient in writing descriptions of computer programmes and can help to develop and perfect language synthesizer project.

The **aim** of the thesis is to provide a systematic structural and functional analysis of morphonological long and short vowel oppositions determining their morphonological structure and functions by this creating the preliminaries to mathematical expression for automatic speech recognition.

The following **objectives** of the research are set according to the main aim:

– to construct a database of the monosyllabic and multi-syllabic words of the contemporary English language and use it as the object of research discriminating the pairs of long-short vowel oppositions in roots, affixes and inflections;

– to analyze the morphonological structure of words having vowel oppositions on the following parameters:

- determining the constituent parts of words, i.e. stem and inflection;
- determining morphemes of the stem, i.e. root morphemes, derivational and inflectional morphemes;
- establishing quantitative analysis of oppositions and the number of syllables included in them;
- determining the type of syllables: closed or opened;
- determining the syllabic structure of word-forms: onset, nucleus, and coda;
- determining the initial and final series of consonants;
- making structural models and formulae of syllabic structures with the view of their future use in the algorithms for language synthesizers;

– to elucidate the grammatical, lexical, and lexical-grammatical meanings that discriminate qualitative vowel oppositions.

Scientific novelty of the research. The topicality of the dissertation lies in the fact that morphonological analysis of vowel oppositions of the English language has never been subjected to a systematic and consistent research. The present thesis concerns with filling this gap. The thesis is considered a systematic research of long and short vowel oppositions in the English language because the database embraces a complete word stock of the English language and the carried analysis includes the whole system of short and long vowel oppositions with the above explicated structural and functional investigations.

Morphonological decomposition of words is useful for scientific educational and practical purposes. It serves scientific needs because it meets the demand of advanced technologies alongside with linguistic study where versatile linguistic information is often used. The modern informational society is inconceivable without the interaction of language and computer.

Today it is crucially important to ensure the possibility to process language by computer and to computerize language data. Consequently, this systematic academic analysis of vowel oppositions may be beneficial for the development of computer programmes that relate human speech to the machine speech. This is done by a modern programme of speech synthesize when the text-to-speech, speech-to-text, and speech-to-speech systems generate speech from the phonetic transcriptions of the text. These programmes of speech synthesizer may use the results of the present research because they employ decomposition and syllabification of words.

The structure of the thesis. The thesis consists of an introduction, three chapters, conclusions, references, and appendices. Chapter One *Investigation into the Object and Development of Morphonology* presents the evolution of mophonology as science. Since this field of linguistics is relatively new and problematic it is necessary to include an overview of its development, to give an account of academic works that are essential for the theoretical background of the present thesis. This chapter also embraces the main conceptual trends in morphonological research. Phonological and morphological components necessary for the morphonological analysis are observed

as well. The linguistic components of morphonology make the basis of the research of this chapter. Chapter One also reviews the theoretical issues, which are indispensable in getting insight into morphonology.

Chapter Two *Systematic Structural Analysis of Long and Short Vowel Oppositions in the English Language* analyses the morphonological structure of words and morphemes. It concerns with the difference between morpheme structure and syllable structure. Morphonological analysis of the word structure determines the constituent parts of words, also establishes quantitative and qualitative analysis of oppositions, the number of syllables and their character and composition. This section also investigates the morphonological structure of morphemes. The structure of syllables and morphemes is expressed in formulae.

Chapter Three *Systematic Functional Analysis of Long and Short Vowel Oppositions in the English Language* analyses the phoneme oppositions which deal with meaning differentiation. Morphonological oppositions are analysed according to three aspects of meaning: grammatical, lexical- grammatical and lexical.

The thesis also features conclusions, a list of references and appendices containing the charts of statistical quantitative analysis of long and short vowel opposition pairs. The database of opposition pairs used to get data is provided on a compact disc.

Methods of Research. The main method employed in the doctoral thesis is the method of systematic analysis. *The systematic analysis* is the unity of methods designed to investigate, construct and model complicated objects. The systematic investigation holds requirements to record the components of linguistic research, to show the inner structure among the components, to organize the knowledge as the phenomenon, to show the main relations among various knowledge elements and show those relations as a system.

The systematic analysis of long and short vowel oppositions in this research is based on two structural tools: *segmentation and classification.* The data *segmentation* follows Bloomfield's analysis into Immediate Constituents (ICs) and Ultimate Constituents (UCs). In the thesis the analysis under the method of ICs and UCs is carried out on the root-principle and affix principle. According to the affix principle

the splitting of the word into its constituent morphemes is based on the identification of the affix within a set of words. According to the root-principle, the segmentation of the word is based on the identification of the root-morpheme in a word-cluster.

Classification of the data is carried out by *analytical morphonological method* which involves qualitative analysis i.e. classification according to the essential features and revealing relations among the members of the groups. The morphonological qualitative analysis includes the analysis of five vowel oppositions *ʊ–uː, i–iː, ɒ–ɔː, ʌ–aː, e(ə)– ɜː* determining the constituents and specific features of the opposition members, followed by systematization and classification into one-syllabic, two-syllabic, etc., according to the type of word-forms and meaning.

The research also operates on *statistical method: mathematical statistical method* (quantitative analysis of vowel oppositions) which evaluates the results by percentage and *descriptive statistical method* which employs graphical and numerical summaries of the data. The purpose of descriptive statistics is to facilitate the presentation and interpretation of the data. In this thesis additionally to the Microsoft Excel 2003 programme, SPSS 16.0 for Windows programme was employed for statistical analysis.

1. INVESTIGATION INTO THE OBJECT AND THE DEVELOPMENT OF MORPHONOLOGY

1.1. Overview of the Development of Morphonology

Morphonological studies trace back to the classical studies of *sandhi* rules in Sanskrit by Pānini (520-460 BC) and other Indian linguistic investigators. Indian scholars were interested in the alternations of vowels and consonants and the structure of words and syllables. The early Arab and Hebrew linguists also contribute to the phenomenon intermediate between morphology and phonology (Harasowska 1999, 15). The foundations of morphonology in European tradition are laid by Baudouin de Courtenay and Kruszewski. The significant steps were made by Kruszewski (1880) who adopted the algebraic notations to define types of alternations and also described how alternations arise, and de Courtenay (1876) was the first who "coined the term "phoneme" and worked on phonetic alternations which today are dubiously called either allophony or morphonology" (Kilbury 1976, 5). The next step is the investigation in the treatment of morphonology by major linguistic schools.

The Prague Linguistic School. The Prague Linguistic Circle puts emphasis on the grammatical function of alternations. The outstanding members of the Linguistic Circle of Prague were Trubetzkoy, Jakobson, Karcevskiy, Wellek, Mukařovský, Mathesius (Кондрашова, 1967). Trubetzkoy is considered the founder of morphonology and key theorist of the Prague School. The *Principles of Phonology* (Trubetzkoy, 1939) laid the foundation of the Prague School of phonology. As it has been mentioned above, Trubetzkoy determined the directions of morphonological investigation (Trubetzkoy 2001, 72-75), introduced his concept of "morphoneme" (Trubetzkoy 1934, 30).

One of the central figures in the Prague Linguistic Circle was Roman Jakobson who in collaboration with Morris Halle and Gunnar Fant (Jakobson, Fant 1960 Halle 1952, Jakobson & Halle 1956) developed the theory of distinctive features. The cardinal principles of Jakobsonian theory include the search for *function* in all varieties of language. This research identified 12 to 15 features which were claimed to handle all phonological contrasts in human languages. The Jakobsonian features were typically defined in terms of acoustic properties rather than articulatory

ones, since acoustic research was quite innovative at the time. Jakobson's universalising structural-functional theory of phonology is based on a markedness hierarchy of distinctive features. Trubetzkoy's (1939) distinctive features look beyond the physical aspect of language sound and focus on how phonetic properties function in a language to define a system of phonological contrasts i.e. oppositions. Jacobson's marking theory started from Trubetzkoy's observation about privative oppositions. Thus, Jacobson, using the Turkish vowel system as an example, showed that its eight phonemes and twenty-eight oppositions are reducible to a further set of three basic oppositions: high *vs* low, front *vs* nonfront, round *vs* unround (Lee 1997, 152).

In the 1950's, binary values were assigned to distinctive features to signify that the segment being described by the feature either possesses that phonetic property [+] (denotes the presence of a feature) or it does not posses [-].In contemporary Beats-and-Binding theory of phonology the unmarked sequence of sounds consists of CV's (i.e. CVCV(CV)). Markedness starts with the introduction of any new consonantal phoneme into the sequence, e.g. CVC or CCV. The clusters which arise can be ordered on the scale of preference from the least marked to gradually more marked. The measure of markedness is the overall sonority, understood as a perceptual effect brought about to the ear by manner of articulation of sounds as well as place of articulation (POA) and distance in voicing. (Dziubalska-Kołaczyk 1995, 2006, Weckwerth 2002, Dressler 2005). Jacobson saw phonemic representations as the essential expression of the communicative content and distinctiveness of a linguistic form and the role of a phonological representation is to provide the basis for the description of alternations. Jakobson was under a great influence of de Courtenay and Kruszewski's works. This proves his division of alternations into automatic and morphophonemic. Automatic alternations are treated as a part of the phonology while the morphophonemic ones are tied to morphology. The theoretical positions of morphonology were strengthened by the work *Russian Conjugation* (Jakobson, 1948) one-stem verb theory. Jacobson introduced the notion of one-stem Russian verb and he showed the way how to describe the morphonological system of Russian words. The description was done by determining

the series of morphonological transformations of a one-stem considered in connection with morphonological properties of its morphemic elements.

Trubetzkoy's input into morphonology. Trubetzkoy (Trubetzkoy 2001, 71) underlined the special position of morphonology in linguistics and the need for its discrimination and consolidation into an independent division: "Besides phonology (the study of the system of phonemes...) and morphology (the study of the system of morphemes) grammar must include a chapter on the morphological exploitation of phonological distinctions, which may be called *morphophonology* or, for short, *morphonology*…As the link between phonology and morphology, morphonology must assume the place of honour that it deserves, and not only in grammars of Semitic and Indo-European languages. Only languages without morphology proper can do without morphonology…" (Trubetzkoy 2001, 73). The scholar emphasises that phonemes not sounds take place in alternations, and indicates the existence of phonotactics and morphonotactics. He wrote: "strict rules govern both the place of the morphoneme in the morpheme and the categories of morpheme that may admit the given morphoneme. Some morphemes occur only in roots, not in prefixes, others … only in suffixes, and so on" (Trubetzkoy 2001, 74). Trubetzkoy's definition of morphonology is as follows: "Morphophonology or morphonology is the study of the morphonological uses of the phonetic material of a language" (Trubetzkoy 2001, 75).

Trubetzkoy (2001, 76-77) emphasized the special role of morphonology. "As the intersection of morphology and phonology, morphonology plays an extremely important role in the life of a language. The morphonological system must be borne in mind in diachronic as well as synchronic linguistics, in dialectology as well as single-language study … morphonological study will deepen our knowledge of languages significantly, especially with regard to linguistic typology … Morphonology is the ideal tool with which to prepare a comprehensive description of the characteristic features of language and a roster of language types according to morphonological criteria could perhaps serve as the bases for a rational typology of the languages of the world". The idea to study the morphnological phenomena in different languages was acknowledged by the majority of scientists; however, not all of them considered morphonology as the independent branch of linguistics. The most

complete work by Trubetzkoy dealing with morphonology is *Das morphonoligische System der russischen Sprache* (Morphonological System of the Russian language). He treats alternation in a narrow sense excluding automatic changes and introduces the notion of neutralization (context-determined and structure-determined) and archiphoneme. Some essential ideas on morphonology are found in his *Grundzüge der Phonolgie (Principles of Phonology).*

The merit of Trubetzkoy is not only in defining three postulates of morphonology, but also in showing the homogeneity of them and ascribing them to a separate domain of linguistic investigation.

American Descriptivists, Structuralists and Generativists. Morphophonemics. The most prominent representatives of American morphophonemics are Bloomfield 1923-1933, Hockett 1947, 1950, Martinet 1965, Harris 1942, 1951, Swadesh 1934, Harris 1942, Aronoff 1976, McCarthy 1990, Steriade 1999, Cohn 2001, Bloch 2000, Green 2006, Anderson 1985, Coetsem 1993, Halle 1994, Spencer 1988, 1991, 1998, Andrew, Zwicky, Arnold 1998, Kula 2000, Haspelmath 2002, Bauer 2003, 2004. The definition of American morphophonemics stems from three Bloomfield's statements that all morphemes are forms, all forms are composed of phonemes and some morphemes have different forms depending on their environment.

American Descriptivist Leonard Bloomfield recognized the need for underlying forms i.e. forms posited at a more abstract level of representation, to simplify the description of morphophonemic alternations. Only later (1939) he expressed the need for a separate discipline called morphophonemics whose basic units were morphophonemes (quoted in Anderson 1985, 270). He chose the forms and used ordered rules to achieve the simplest possible description. He even set up "artificial" underlying forms e.g. bound allomorphs to achieve a simpler description. Bloomfield's procedure was the following: one allomorph ("alternant" in his terminology) is taken as basic and others are derived from it by the rule, thus, for instance, in *knife* he takes a phonemic shape /naif/ as an underlying form or basic alternant and specifies a set of procedures for obtaining the correct alternants. Thus the peculiarity of the plural of *knives* is the final [f] underlying singular which is replaced by [v] before the bound form of plurality is added (Bloomfield 1933, 213).

Here two processes are applied to /naïf/: first, the change of final voiceless into voiced and second, the attachment of alternant of the plural suffix. Bloomfield introduced two notions that are mutation rules (rules that change one thing to another) and order rules which mean that processes must be applied in particular sequences to get the result. Bloomfield with his work *Menomini Morphophonemics* (1939) is the pathfinder of mophophonology in America. With reference to John Fought (1999, 13) *Menomini Morphophonemics* "is a well-known example of experimentation with synchronic morphophonemic rules". *Menomini Morphophonemics* contains a full description of the phonemic structure of morphemes and the distribution of alternations as well as the account of the alternations themselves. He also defines internal sandhi or morphophonemics as variation of morphological elements as they enter into different combinations. His approach is based on the rules of combinations. M[orpho] P[honological] R[ule]s can be defined as the rules with lexical or grammatical conditioning. For those who recognize the distinction between MPRs and P[honological] R[ule]s, the only grammatical conditioning allowable for PRs is boundaries. To quote Koerner "it seems reasonable to conclude that Bloomfild's choice of the title *Menomini Morphophonemics* […] was explicitly intended to honour Trubetzkoy and recognize his theoretical contribution. But neither this nor Bloomfield's earlier works give a picture of the position of morphophonemics within its own framework (Koerner 2002, 213).

Bloomfield provides general classifications of alternations in *A Set of Postulates for the Science of Language* (1926) and *Language* (1933); however, he does not distinguish between "regular" and "productive" alternations. Bloomfield's technique for morphophonemic description consisted of base forms (basic alternant) from which by means of rules the surface (phonemic) form was derived.

In American structuralism the term "morphophonemic" has been used to describe levels of representation and rules. It ignores the first task (the study of phonological structure of morphemes) of morphonology proposed by Trubetzkoy. Besides morphophonemics includes two types of alternations (automatic and allomorphic) that were excluded from European morphonology. American structuralists and generative grammarians tend to grammatical attitude when a lot of

European structuralists, as it has been mentioned above, have a preference to the functional aspect. Most American linguists in 1940s rejected the principle of neutralization and archiphoneme introduced by morphonology (Hockett 1947, 1950, Martinet 1965, Harris 1942, 1951). Hocket treats morphonology centrally important but not independent, an interlevel between grammar and phonology" (Malenkjer 2004, 362). Harris also investigated the area intermediate between phonology and morphology. In the book *Methods in Structural Linguistics,* in the section entitled *Morphophonemics* Harris discusses Bloomfield's arguments on this field. Later Americans modified the scholars' view towards neutralization and on the whole, this concept is seldom used. The opposition of American linguists rested on doctrine "once phoneme – always a phoneme". Swadesh 1934, Harris 1942, Hockett 1947, Aronoff 1976, McCarthy 1990, Steriade 1999, Cohn 2001, Bloch 2000, Green 2006, and others maintain that morphophonemics deals with two things only i.e. the study of the phonemic structure of morphemes and the study of interchange between phonemes as a morphological processes. The latter is called morpheme-structure rules. Swadesh showed the attempt to separate phonology and morphonology, but he met difficulties in discussing transcription. Within American structuralist theory, morphophonemics had no status other than as a "technique" for describing the sets of allomorphs that belong to individual morphemes.

Bloch made a distinction between partial and complete overlapping in *Phonetic Overlapping* (1914, 179). The fact that the sounds comprising the single phoneme – the allophones – sometimes differ strictly among themselves is well known, e.g. [k] in *cool* and *keep*. However, the scholar instigates to analyse the aspect of the phonemic interrelation of sounds i.e. phoneme intersection. He raises the question whether a given sound can belong to two or more different phonemes in the same dialect. This work provoked a discussion of scholars Harris, Hockett, and Pike. The discussion resulted in two different opinions. One group of the linguists maintained that grammar has to be excluded form phonemics (Hockett, Harris) and another group was of the opinion that grammar has not to be included (Pike, Bloch.). Those discussions showed clearly that linguists cannot reach any consensus towards morphophonemics.

Bloomfield's term "form" was unacceptable for structuralists. Harris (1942) introduced two units: "morpheme alternant" and "morpheme unit" and allowed several definitions of morpheme. The term "morpheme alternant" is acceptable to Hockett and he introduces the term "morph" on analogy with "allomorph" (1947), Nida, however, does not assign morph to any morpheme and considers it as an unbound structural unit or a part of allomorph. These discussions and the distinction of allomorph from morphemes led to the distinction of a new area of linguistic study – morphophonemics and its unit morphoneme (Harris1942, 1947, Nida 1948, Wells 1947, Hockett 1950, Bloomfield 1970,). Among the variety of proposed definitions of morphophonemics, Hockett (1958) finally developed a "broad" definition where he excluded all grammatically functional (significant) formal differences from its area of investigation and took alternations in a narrow sense that excluded the relation of inner flexion, for example, English *sing*, *sang* and *sung*. However, many contemporary linguists assign these alternations to mophophonemics and call them a bridge between the morphological and phonological levels. Also Hockett proposed three dichotomies: automatic alternations e.g. beat[s] – bead[z] correspond to phonological rules (PRs), non-automatic correspond to morphological rules (MRs) or allomorphic (AMRs) e.g. *electri[k] – electri[s]ity* and *feet-foot.* Hockett (1954) introduced two approaches to the description of alternations: item-and-process (lexeme-based) and item-and-arrangement (morpheme-based) methods. Morpheme based method was known for American linguists already in 1930s and many of them continued this method involving morphophonemes and rules, however, some linguists (Harris, Hockett) used both methods interchangeably.

Chomsky in his master thesis (1951) presented the innovation of linguistic techniques. A big part of the thesis dealt with morphophonemics. It specified a necessary ordering and a set of morphophonemic rules: X - Y is *take* + past → /tuk/. Chomsky considered morphonemes to be the units which compose morphemes. But in *The Sound Pattern of English* (1968) Chomsky and Halle speak only of "phonological" rules applying to "phonological" representations and the term "morphophonemic" representation is used only synonymously to "phonological" one. Classical Generative Phonology was against structuralist morphophonemics. *The*

Sound Pattern of English is considered the basis for Generative Phonology. In this view, phonological representations are sequences of segments made up of distinctive features. The authors represent speech sounds as bundles of plus-or-minus valued features (e.g. vocalic, high, back, anterior, nasal, etc.). The phonological component of each lexical entry is considered to be a linear sequence of these feature bundles. A number of rules transform the underlying form of a sequence of words into the final phonetic form that is uttered by the speaker. The Generativists folded morphophonemics into phonology.

Sapir (1921,62), another American scholar, analysing morphonological alternations emphasises the importance of the grammatical function of alternations in such pairs as *house* /s/ noun and *house /z/* verb where "internal changes" occur and noun is transformed to verb. He discusses the interaction of phonetic and grammatical processes which is very important for the present research. The apophony known as alternation within the word was also analyzed by Anderson 1985, Coetsem 1993, Halle 1994, Spencer 1988, 1991, 1998, Andrew, Zwicky, Arnold 1998, Kula 2000, Haspelmath 2002, Bauer 2003, 2004.

Thus, American structuralists looked upon morphophonemics as a study of phonemic structure of morphemes and the study of the interchange between phonemes that involve morphonological processes. They included alternations (inner flexion in a narrow sense) into morphophonemics and considered them a link between morphology and phonology.

Chomsky though later gave preference to phonology, at the beginning acknowledged morphophonemics and even set morphophonemic rules.

Interrelation between Phonology and Morphology. Paul Kiparsky (Kiparsky 1982, also Katamba 1989, Mohanan 1986, Durand 1990, Kaisse and Hargus 1993, Shaw 1985) developed a model of Lexical Phonology and Morphology (LPM) instead of morphonology, in which morphology and phonology are interrelated. Lexical phonology is an approach to phonology that accounts for the interactions of morphology and phonology in the word building process. The procedure is as follows: the first level is affixation where morphology is applied, then lexical phonological rules (rules which require morphological information are called lexical rules) are

applied to the structures, then follows affixation of the second level where more morphology applies, then the phonological rules are repeatedly applied. After the levels of affixation and phonology have been completed, the post-lexical phonology (rules which require access to syntactic information are post lexical rules) follows.

Kiparsky holds that allomorphy is a part of morphology, while morphonology is a part of phonology. He sees a distinction between morphophonology and allomorphy. According to him, morphophonology and phonology have narrow properties when Lexical Phonology and Morphology (LPM) presents three-way distinctions between allomorphy, lexical phonology and postlexical phonology.

Meanwhile the tradition of Item-and-Process (lexeme-based) morphology (Panini, Kruszewski, Baudouin de Courtenay, Sapir, Bloomfield in some studies, Jakobson, Dressler) distinguishes three types of rules: morpholexical (or allomorphy rules), morphophonological (or morphophonemic) rules and phonological rules (Bloomfield's "internal combination"). Thus allomorphy rules deal with suppletive, morpheme-specific alternations (*go – went),* morphophonemic rules deal with general phonological changes (*keep – kept)* and, phonological rules deal with automatic phonologically conditioned alternations (back[s] –bag[z]). However it is not always clear where to draw the boundaries between the three major rule types. Kiparsky comes to the conclusion that morphonological rules follow form the assumption that they belong to lexical phonology. The phonologically defined nature of alternation, the strict phonological locality and the way the process interacts with allomorphic and phonological alternations of the language all diagnose a rule of lexical phonology rather than an allomorphic alternation (Kiparsky 1994, 15).

Consequently, similar fields of investigation acquire different terminology. Lexical Phonology and morphology analyze the interrelation of morphology and phonology in the word-building processes while lexeme-based morphology, relying on three types of rules specifies suppletive alternations.

Natural Morphology. Natural Morphology (Darden 1971, 1977, 1979, 1981, Dressler 1988, Wurzel 1980, Mayerthalter 1977, 1980, 1996) emerged form Natural Phonology the representatives of which excluded morphonology from phonology. The essence of Natural Morphology is that every morpheme has one form and one

meaning, and every meaning or grammatical category corresponds to one form, for example, Dressler argues that the alternation in the English plural suffix between /s iz z/ is the result of phonological rules of epenthesis (is the addition of one or more sounds to a word) and voicing assimilation. The principles of Natural Phonology (R.de Beaugrande 1981, Mayerthaler 1988, Panagl 1988, Wurzel 1988, Barbaresi 1994, Dziubalska-Kołaczyk 2005) were extended to morphology by Dressler, the founded of Natural Morphology. Morphonology in Natural Morphology became understood as the area of interaction between phonology and morphology and studies were concentrated on morphonology. Thus, morphonology is based within an integration of the theories of Natural Morphology and Natural Phonology (Kilani-Schoch & Dressler 2005, Dressler 1996, Dziubalska-Kołaczyk & Weckwerth 2002).

Dressler, the investigator of morphonology, compared European and American morphonological traditions. According to Dressler (Dressler 1985, vii), there are two approaches to language, namely, grammatical and functional aspect. American structuralists and generative grammarians tend to grammatical attitude when most European structuralists have a preference for the functional aspect. Dressler (1985) claims that some of the principles which specify how morphemes are realized phonologically are phonological rules and belong to the phonology module; the others are allomorphic morphological rules, and should be ascribed to the morphology module; and finally, morphonological rules share properties with some phonological and some morphological rules. That means that mophonological rules do not have their own properties and cannot make their own grammatical module analogous to morphological and phonological modules. Dressler calls the set of pure morphonological rules -quasi-module.

Russian Linguistic Schools. The development of Trubetzkoy's principles of phonological (and morphonological) investigation was continued by Moscow Phonological School. The results of their investigations were fully presented in the works of representatives of Moscow Phonological School. For Avanesov (1956) the representative of the school the most important thing in his work was the introduction of two systems of plane expression of units. One system comprises phonemes in weak and strong position, the second implies phonetic series. These series were

labled “morphoneme” offered by Ulashin (1927) (Kilbury 1976, 58) In order to discriminate the units for the first system, morphonological information is not needed; the second system cannot exist without such information. Namely, this second system of units, phonemic series, should belong to the subject of morphonology.

Eskova (Еськова 1971) also (Tschurganova 1973, Iljina 1980, Kubriakova, Pankrac 1983, Tolstaja 1998, Shuba 1998, Itkin 2007, Aliferenko 1999) and other contemporary Russian scholars accept the point of view of Moscow phonological school (Avanesov 1930, 1995, 1956 Sidorov 1971, Kuznecov 1952, Reformatsky 1969-79), according to which the concept of *position* (i.e. conditions of realization of phoneme in speech or environment) is the central concept in the morphonological theory. The position is the conditionality of a phoneme in a root morpheme by affixations. This is true for the morphonological alternations of phonemes as well. Reformatsky (1975, 99) in his article written in Russian *Once More about the Status of Morphonology, its Boundaries and Tasks* says that morphonology is a necessary part of linguistics as structurally it joins two basic levels of language – phonology and morphology. Morphonology cannot be ascribed to phonology alone “it is not phonology any more” or to grammar (“it is not morphology yet”).

Leningrad phonological school (Bershtein 1968, Maslov 1968, 1979, Shcherba 1974, Kassevitch 1986, 2006) treated the phoneme as a perceptual unit; phonemic neutralization (e.g. vowel neutralizuotion, final devoicing) tended not to be recognized as a phonological phenomenon.

The Newest Morphonological Investigations. A lot of research deals with the morphonological phenomena in national languages, especially those which have retained their system of inflection. An extensive group of works deal with such issues as phonotactic constrains, morphonotactics in Polish, comparing it with other languages, phonological processes and phonetic rules employing Beats and Binding phonology (B&B phonology operates with units called beats (B's) and relations called bindings). Morphonotactics is treated as a subpart of morphonology based on Natural Morphology and Natural Phonology, notably the Beats-and-Binding model of phonotactics. Other investigations concern consonant clusters. The relations between morphonotactics and phonotactics are determined focusing on

morphonotactics in the English, German, Italian and Polish languages. The scholars investigate the impact of morphological and phonological typology on cross-linguistic differences in the number and nature of morphonotactic clusters. Dziubalska-Kołaczyk (2001, 2002, 2005, 2007), Sledzinski (2005), Zydorowicz (2005, 2006), Dressler and Dziubalska-Kołaczyk (2006), Dubisz (2006), Stanisław (2006) are the representatives of Polish morphonotactics.

Schwartz (2005), analyzing Slavonic languages, places morphonology into a Natural Phonology-based model of speech production and comprehension. This model has two basic assumptions. The first is that forms observed in speech are mapped either to a surface phonemic level, or a morphonological level, but not necessarily both. The second is that morphonology is on a different level from phonology, corresponding to "rules" as opposed to "processes" in Natural Phonology. The analysis divides phonology and morphonology along the lines of the listener oriented notions of phonetic perception and spoken word recognition. Morphonological alternations are instances where accurate perception may be violated, so long as word recognition is satisfied.

Maiden (1991), Claudio (2004), Jacobini (2004), Carota (2006) investigate the derivational strategies underlying the formation of suffixed words in Italian. The work explores empirically the suffixation process, i.e. morphonology, morphotactics and affixal semantics by drawing ample naturally occurring data on a Corpus of written Italian. The research also includes the phenomenon of metaphony and related word formation processes in the Italian language.

Alexander-Bakkeres (2005) devotes a complete chapter in his book on Cholon language (Netherlands) morphonology. The scholar investigates sounds within the framework of the word, as interrelated parts of a morphonological entity where vowels undergo processes of harmonization and suppression. These processes are linked to the syllable structure of the words.

Morphonological processes in French verbs in the framework of Natural Morphology are analyzed by Kilani-Schoch, Marianne and Dressler (2005), Jager (2003), Gainesville (2001) investigates morphonological processes in affixes and morphosyntax. Interaction of phonotactics and morphological productivity in the

Dutch language is analyzed by Jennifer, Baayen (2005). Cases of sandhi and other morphopnological phenomena in Tai language are described by Morev (2001). Van Der Berg (1998) analysis morphonology of Hunzib verb.

The analysis of phonotactics of German strong verbs and grammatical words is provided by Christopher (2005), and Beedham (2005). Turk (1992) describes the phonological system of the Croatian Language, determining the division of the phonemes into syllables, morphemes and words. She also investigates phonological, versus the morphonological distribution patterns together with distributional characteristics of the individual phonemes.

Linguists Babee (2005), (Lockwood D. et al 2000) investigate the lexicalization of sound change, alternating environments, the phonological changes in morphemes inside a word that produce new allomorphs and alternations, the cases when morpheme in different words take on different phonological shapes. Schreier (2005) analyzes the consonant change in the English language worldwide.

The investigation of Pirrelli, Federici (1996) has highlighted the significance of a paradigm-based treatment of morphonological phenomena and its theoretical implications. The scholar shows how derivational processes in morphology can be treated paradigmatically by using a morphonological network. This approach has been subjected to the practical test of a computer implementation.

Lithuanian Morphonology. Apart form aforementioned scientists Lithuanian philologists also made their contribution or certain projections into morphonology. Among Lithuanian scholars, the most extensive explorations of Lithuanian morphonology has been performed by Jakaitienė (1974) who investigated vowel alternations in Lithuanian verb prefixes, Akelaitienė (1989, 1993, 1994, 1999, 2001) who defined the object and tasks of morphonological investigation. She also analyzed morphonological vowel alternations in the Lithuanian language, and structural types of roots. Girdenis (1981, 1995, 1996, 2003) offered the description of morphonological phenomenon in Lithuanian. Stundžia (1994, 1997, 1998), Grumadienė (1983, 1987, 1989, 1991, 1994) investigated long and short vowel oppositions in town dwellers' speech, the causes of disappearance of vowel oppositions in town dwellers' speech, also analyzed the development of vowel

quantitative system in the Lithuanian language. Karosienė's (1994, 2000) investigations centre on the type of syllables and their frequency, Žeižienė (1994), Mikulėnienė (1989, 1994, 1995, 1998, 2004, 2005) analyzed such morphonological aspects of Lithuanian as morphonological structure of Lithuanian verbs, stress, types of syllables. Venckutė (1979, 1981, 1998) explored metaphony, apophony, ablaut, and umlaut. Poliakovas (2004) presented the guidelines of systematic morphonological analysis. In the book *Lithuanian Grammar* Ambrazas (2006) provides the first comprehensive description of the Lithuanian morphonological system in English. V.Rudžionis and A.Rudžionis (2008) analyse problems of voice command recognition based on discrimination of syllables. It is obvious that morphonological findings of Lithuanian linguists rest on the ideas of above analyzed foreign linguists.

Akelaitienė (1986, 109) states that phonemic structure has to be analysed not only by phonology but also by morphonology form different angles. Morphonology has to analyse what phonemes and in what composition create different types of morphemes (it differs from phonotactics): prefix, root, suffix or flectional morphemes), different word class morphemes (nouns, adjectives, and other parts of speech). One of the tasks of morphonology according to Akelaitiene is to provide the typological analysis: how structural types of morphemes differ in other languages.

According to Poliakovas (Poliakovas, 2004,110-112) morphonological analysis should determine syllable number of words and its type: open, closed; use a stress place as significant morphonological meaning discriminating means to determine oppositions such as (sūn[u]s-sūn[u:]s); use long and short vowel oppositions as morphonological means; use voiced and unvoiced consonant oppositions as morphonological means; use soft and hard consonant oppositions as morphonological means; determine what meaning: lexical, grammatical, or lexical and grammatical these oppositions discriminate.

Below a number of the basic problems dealt in the majority of the works, dedicated to morphonology, and the diversity of opinions is presented and summarized.

A group of linguists consider morphonology as a **binding link between phonology and morphology**, a mediator between the two but not belonging purely either to morphology or to phonology. This trend considers morphonology an independent but non-basic level of language. The representatives are: Trubetzkoy (1929, 1934), Bloomfield (1939), Hockett (1947, 1950, 1958), (Hall 1964), Makaev (1969), Shaumjan (1971), Akhmanova (1971), Jakaitiene (1974), Reformatsky (Реформатский 1975, 1979, 1979), Klobukov (1976), (Bulygina 1977), Lopatin (1977), Matthew (1991), Kubriakova and Pankrac (1983), Dressler (1985), Kassevitch (1985), Tolstaja (1998), Maslov (1998), Harasowska (1999), Girdenis (1996, 2003), Kreidler (2001), Poliakov (2004), Booij (2005), McCormick (2005), Dziubalska-Kołaczyk 2005, Puviarasan (2008), Aruna (2008), Palanivel (2008).

Some linguists assign the part of mophonological phenomena **to phonology and part of it to morphology.** This viewpoint was held by Durovič (1967), Makaev, Lopatin, Ulukhanov (1967) and by Kurylowicz (1967) who recognized morphonology as an area of morphology.

Other scholars treat morphonology as a special subdivision of phonology and assign it to **phonology**: Sapir (1933, 1963) Whorf (1956), Halle (1959), Chomsky (1951-1966), Hooper (1976), Kilbury (1976) Zolkhoyev (1980) Kiparsky (1994), Katamba (1989), Mohanan (1986), Durand (1990), Kaisse and Hargus (1993), Fasold (2006) acknowledge morphonology (author calls it also "phonology of morpheme") as the integral part of the phonology of word, because the morphemes are the components of words; Firth (1957) treats the English plural alternants /-s/, /-z/, /-iz/ as the examples of "morphological phoneme".

And finally, there is a group of scholars who ascribe morphonology to **morphology**: Van Wijk (1939), Pike (1947), Martinet (1965), Stankiewicz (1955-79), Andersen (1969), Baudouin de Courtenay (1969), Mohanan (1986), Lajtne (1965), Ford and Singh (1994), Meltčuk (2006) states that morphnology should be ascribed to the division of morphology, dedicated to the formal analysis of paradigms.

In resume the most conspicuous trends in morphonological research are the following: morphonology is considered to be a bridge between phonology and

morphology but it is not a fully independent science because it does not possess accepted its own unit. Another trend supports the former but insists that description of morphonology can take place after a complete description of phonology. Some linguists assign the part of mophonological phenomena to phonology and part of it to morphology. Other linguists assign it to phonology and still others maintain that morphology fully includes all morphonological processes.

After the presentation of a variety of opinions as to the objects and tasks of morphonology it is necessary to stress that the theory of the thesis fully rests on Trubetzkoy's concept of morphonology.

1.2. Circumference of Morphonological Field of Investigation

Investigations in a modern morphonology center round the functional importance of morphonological phenomena. A great attention is paid to alternations that perform morphological function, to the analysis of functions of various rows of alternations in various areas of grammar, for example, in paradigms of verbs, nouns, adjectives, in word-building, etc. Morphonology also describes the classes of phonemes that take place in morpheme building and investigates which classes of phonemes are involved into the system of alternations. It also asks if those alternations have the same position with regard to the structure of morphemes and what positions exactly they occupy – initial, central, or final, and many others.

In discriminating morphonology as a linguistic discipline it is purposeful to define first phonology and morphology and decide which components of each belong to morphonology.

Morphology and *Syntax* are interested in morphemes, words and sentences irrespective of their sound shaping. However, the study of language is the correlation between the meaning and the sound shape. *Morphonology* is interested in behavior of meaningful items from their sound point of view. In other words, on the one hand, morphonology is the phonology of meaningful items, and on the other hand, it is insonification of morphology, word-formation, syntax, etc. As it has been mentioned at the beginning, different scholars have different viewpoints on the scope and tasks of this transitional discipline.

Thus, before analyzing the problems that belong to morphonology alone it is worthwhile to inventory the elements which belong separately to phonology and morphology.

1.2.1. Linguistic Components of Phonology and Morphology

Generally talking, phonology investigates similarities and differences of sound elements of language. These sound elements perform three main functions: distinctive, delimitative, and culminative. Phonology, unlike morphonology, studies the sound structure of a language regardless of morphological boundaries (inside words and between words) and of morphological identities. These moments are essential for morphonology.

It is generally acknowledged that the basic element of phonology is the phoneme. According to Trubetzkoy, alongside with phonemes in the phonological system, there are special abstract units called archiphonemes. They represent a set of essential phonological features common to two phonemes (Rus. *краб* [крап] (crab) and *рыбка* [рыпкъ](a small fish). The archiphoneme has phonological features of labiality, plosiveness, hardness (such as |п| и |б|) and phonologically insignificant features of voicelessness act in these positions. Phonemes and archiphonemes according to Trubetzkoy (1960, 43), act in the structure of phonological units of higher order that of words and morphemes.

Another point to make is that phonemes cannot coincide with their own variants. Each phoneme has a unique set of variants. According to Girdenis (1981, 26), phonemes are linear which means that the certain order for phonemes is inherent in the text (phonotactics) i.e. precedence and ensuing. The set of differential features, on the contrary, realize themselves simultaneously.

Every language has its own complex of rules called phonotactics. Rules are divided into phonemic an allophonic. Phonemic rules determine what phonemes can be combined together, and what restrictions exist for phonemes in one or another phonological context. Allophonic rules determine what variants (allophones) can be used in a concrete situation or position (Kiparsky 1994, 13).

Phonological means can be divided into two groups: segmental (phonemes and syllables), and suprasegmental or prosodic (stress, tone and intonation). If a word is not monosyllabic then the syllables of the word that are unstressed make plateau areas that go before or peak areas that follow the stressed syllable (Roca, Johnson 1999, 21). These means are important in accentual languages that use stress as a specific phonological device.

Intonation is a prosodic means which is very closely connected with a stress. Intonation performs a whole series of functions: it consolidates words within the limits of syntagma and utterance; it differentiates types of utterance; it creates and transfers emotive state of a speaker; it establishes the semantic hierarchy of utterance components; it indicates the conformity of syntactic and semantic structures of utterance. It is possible to claim that each language has its own system of intonemes as specific phonological units. A problem exists concerning intonation outline, namely, whether the intonemes have to be treated as specific two-sided signs, for example, an interrogative intonation with a two-sided expression: increase of the basic tone and grammatical meaning of interrogative sentence and intonation, or one-sided without a plane of expression (meaning) and not signs like phonemes. With reference to Crystal, stress is a term used in phonetics and phonology "to refer to the degree of force used in producing a syllable". Depending on the stress, different kinds of syllables are distinguished, i.e. heavy (strong) and light (weak) syllables. A strong syllable is the syllable which is always stressed, whereas a weak syllable is always unstressed (Kreidler, 2001, 83; Crystal, 2003, 435).

Thus the phoneme has its identity that contrasts it to any other phoneme, has its main variant and enters the system of opposition. They do not undergo any neutralization. The identity of the phoneme also includes Trubetzkoy's archiphoneme – as a special abstract unit which acts on higher order than that of morpheme and word. When phonemes enter the morphemes and words they do it according to phonotactic rules with regard to phonological rules.

1.2.1.1. The nature of a syllable

Syllable is not an absolute phonological minimum in languages of syllabic type. These are onset that is the first vowel and coda that is all the rest part of a word.

Although the linguists agree that the syllable is a fundamental unit in phonology, there is no universal opinion concerning the definition of this phenomenon. With reference to Daniel Jurafsky and James Martin (2008, 223), a syllable is "a vowel-like sound together with some of the surrounding consonants that are most closely associated with it".

According to Féry, Vijver, and Florentius, there are two hypotheses about syllables, namely, the theory of universality and exhaustivity. The universality hypothesis insists that all languages have to have syllables, whereas exhaustivity requires all segments to belong to a syllable (Féry *et al*, 2003, 183).

Accordingly, all words of a language can be classified into monosyllabic (one-syllable), i.e. consisting of one syllable, disyllabic (two-syllable), trisyllabic (three-syllable) (Pope, 2002, 385). Each syllable has certain articulatory features. This characteristic of a syllable is useful for ascribing the intervocalic consonants to a certain syllable, since they occur in the middle of articulation. Sometimes such consonants are even described as ambisyllabic, i.e. belonging to both syllables (Robins, 1975, 130).

Regarding the typology of syllables, alongside with heavy and light syllables, such types as open and closed, core (the most basic syllable CV), maximal (English syllable, e.g. *stryexts*, /straiksts/ can be expressed in CCCVVCCCC series of symbols), etc. syllables are designated (Féry *et al*., 2003, 187). The first two types are tackled in present analysis.

1.2.1.2. The structure of a syllable

Each syllable has a certain internal structure. Usually, according to the structure of a syllable, the onset-rhyme model is identified. With reference to Strazny, the onset-rhyme division comes from two main sources, i.e. phonotactics and stress. According to this theory, onset and rhyme are regarded as the basic elements in the structure of a syllable. Rhyme further consists of the coda and the nucleus (Hulst, Ritter, 1999, 22, Yule, 2006, 47, Strazny, 2005, 1062 -1063, Radford, 1999, 88).

All segments that precede the peak of the syllable belong to the onset. Hence, the onset is the opening segment of a syllable. It usually comprises a consonant or a

group of consonants. The nucleus is the central segment of a syllable. As a rule, the nucleus consists of a vowel. A consonant, however, can function as a nucleus as well, e.g. *s* in *pst!* The coda is described as the end of a syllable. Kenstowicz (1994, 253) defines the coda as the complement of the nucleus, whereas the onset is regarded as a specifier of a syllable. Thus, only the nucleus is obligatory; meanwhile the other parts, i.e. the coda and the onset are optional (Roca *et al*., 1999, 241; Yule, 2006, 48).

Languages differ in the types of syllable structure they exhibit. Usually, a syllable must contain a vowel or a vowel-like sound and a consonant. Thus, CV is the universal syllabic segmental structure or, according to Hulst and Ritter, CV is the core syllable. This syllable structure is found in all languages. However, some languages allow for the syllabic structure to be more complex. English and German are the best examples (Hulst *et al.,* 1999, 22).

In English a single vowel can constitute a syllable, e.g. *ah, I.* Conversely, a syllable may contain a single consonant. English may have three consonants at the beginning and up to four consonants at the end of a word, e.g. *strengths.* Hence, in English both the onset and the coda consist of one or more than one consonant. English has two CC, e.g. *stop*, three CCC, e.g. *stress* or more consonant clusters functioning as the onset of a syllable (Robins, 1975, 131).

1.2.1.3. Phonological oppositions

The next important issue for the present analysis is the problem of opposition. "A phonemic system presupposes a system of oppositions, and the classification of phonemes presupposes classification of oppositions" (Trubetzkoy 2001, 15). A phonological opposition is a sound opposition that can differentiate meaning in a given language (ibid, 23).

Another point of consideration is the extent to which the phoneme is regarded as embedded within a system of structured oppositions. The system of phonemes was not considered as simply an inventory of building blocks of sounds used to construct words, but as a whole where each constituent has a specific importance and is related to the element to which it is opposed.

Phonemes do not undergo any neutralization known as the situation when two language units are recognizable in one context and is not recognizable in another because their exponents (denotatives) coincide. Or, in other words, neutralization is the contextual homonymy ("bank" a financial institution and a river side). Any phoneme as an individual member of the system holds its identity in any position, the only possible change in phonemes is phonological alternation.

Trubetzkoy (Trubetzkoy 2001, 23) says that the phoneme being meaningless itself helps to recognize and discriminate meaningful units.

Originally Trubetzkoy (1929) divided oppositions into correlative, e.g. p/b; t/d or i/i: o/o: and all the others called disjunctive. Later Trubetzkoy says "the study of a large number of phonological systems of the most diverse languages has led me to the conviction that it is impossible to group all phonological oppositions into only two classes (correlations and disjunctions)…" (Trubetzkoy 2001, 21). In 1936-1939 works the classification of oppositions covered: firstly, their relation to the overall system: bilateral and multilateral; isolated or proportional; secondly, the relation between the members of the opposition (privative, gradual or equipollent) and thirdly, their distinctive validity (constant or neutralizable). Some languages possess only constant oppositions in others all bilateral oppositions are neutralizable. Neutralization can be context-determined e.g. voiced-voiceless consonants, preceding stops, or fricatives in Russian and structure-determined neutralization e.g. voiced-voiceless in syllable-final position in German. Only minimal oppositions having one feature can be involved in neutralization. The neutralized sound is the archiphoneme, except the case when context-determined form of the archiphoneme corresponds to the unmarked member of the opposition. When different forms of the neutralized opposition are found in different positions, the position where the greater number of phonemes is distinguished has the unmarked member (Trubetzkoy 1999, 15-19).

All these above mentioned aspects of phonology comprise necessary preliminaries to the morphonological research.

1.2.1.4. Morphological decomposition of words

In order to be able to carry a morphonological analysis it is necessary to define certain morphological concepts and operations. The aim of morphology is to elucidate certain principles that apply to the structure of words in all languages.

The contemporary theory of morphology can be viewed according to three basic approaches: morpheme-based which is also called item-and-arrangement, lexeme-based or item-and-process and word-based or word-and-paradigm approaches. Morpheme-based morphology analyses word forms as sequences of morphemes and sees a morpheme as the minimum meaningful unit of the language. Every word is treated as the root or free morpheme plus a number of bound morphemes i.e. derivational and inflectional affixes. When analysing allomorphy, suppletive and irregular forms the zero morpheme is introduced and the analysis of complex linguistic phenomena is within the scope of morphonology. This model admits that a single element may perform more than one function.

Word-based approach concentrates on paradigms as an instrument for a specific word-form production. The paradigm-orientated strategy is more convenient when dealing with inflection problems rather than with word formation.

The lexeme-based morphology sees a word-form as a consequence of applying rules to a basic stem. The word is not split into segments, as the rules affect the specific stem according to their own requirements. This method is too abstract when dealing with the structure of and individual word.

According to the item-and-arrangement or morpheme-based tradition morphemes are divided into free morphemes and bound morphemes. Free morphemes are identical with roots as they function independently. Bound morphemes are affixes which are divided into prefixes and suffixes. The meaning of the root is more concrete which denotes a specific entity, than the meaning of affixes that tend to have abstract meanings. An affix is the part of the word attached to the stem or the base.

With reference to Bloomfield morph(eme) plays the central role in the morphological decomposition of a word. Nowadays morpheme is defined as “the smallest meaningful unit of language” (Bussmann, 1996, 315).

Some linguists, however, e.g. Malenkjer (2004, 354), Strazny (2005, 712), Morley (2000, 151), etc. differentiate between morphemes and morphs. According to previously introduced researchers, morphemes are abstract forms such as negativeness, plurality, etc., whereas morphs are the actual forms that represent morphemes. The present thesis concerns with the abstract forms of words, i. e. morphemes. Next, the concept and nature of morpheme will be discussed.

Taking into consideration the phonological shape of a morpheme, it may be represented by a single sound, as the morpheme *a* in *amoral* or *asexual*. Moreover, it can be represented by single syllable, such as *child* and *ish* in *child-ish*. Naturally, a morpheme can comprise more than one syllable. A morpheme can contain two syllables as in *father*, three syllables, as in *crocodile*, or even four or more syllables, as in *onomatopoei*a. Thus, from the phonological point of view, morphemes may be divided into monosyllabic or polysyllabic in their nature (Fromkin, 2000, 77).

However, there is a variety of problematic cases in the morphological description of words. The same sequence of letters can be regarded as a morpheme in one word, but not in another. For example, the words *disorganize* and *discuss* have the same sequence of letters *dis* at the beginning of the words. However, the first word can be decomposed into *dis-* and *organize*, while the second is indivisable. *Discuss* is analyzed not into the sequence of morphemes, but as the single morpheme. Moreover, there are a lot of problems concerning the morphological description of words which have irregular formations, e.g. the irregular plural nouns in English *man – men, foot – feet, etc.,* strong verbs of English *find – found*. It is possible to segment such word as *tables*; however, the words like *men, found* which have several morphemes are analyzable in terms of morphemes only (Malenkjer, 2004, 355; Yule, 2006, 66).

Further on, morphemes are of various types. Generally, all morphemes in English can be divided into base morphemes, derivational morphemes, and inflectional morphemes. Consequently, in the following sub-section these types of morphs will be discussed.

1.2.1.5. The base, derivational and inflectional morphemes

Usually, a root is a free morpheme which can stand alone as a word, e.g. *help* in *helpful*. However, there are a variety of roots which are not independent, e.g. *ling* in *linguist*. Free roots, can be grouped into two parts, i.e. lexical root morphemes and functional root morphemes. Lexical root morphemes refer to items, attributes, actions, concepts, etc. and represent categories of words, such as nouns, e.g. *house*, verbs, e,g, *go*, adjectives, and adverbs, whereas functional morphemes represent such categories of words as determiners, articles, prepositions, etc. What is more, lexical root morphemes are not limited concerning their number in a language. They are produced as additions to vocabulary for the purposes of naming new products and the like. Moreover, new roots are taken from foreign languages as well (Fromkin, 2000, 27).

Sometimes the stem is considered to be a base of a word. "The main difference between stems and roots is that roots are morphologically unanalysable, whereas stems may include, in addition to their root, one or more derivational affixes". Hence, the stem is a combination of the root plus derivational affixes, e. g. *believe* is a root, whereas *believe + able (believable) is* the stem (Crystal, 1990, 89; Lyons, 1984, 112).

In addition, alongside with the root morpheme, compound morphemes have to be discussed as well, since they are the compositions of two or more roots. To quote Matthews (1997, 66), a compound is "a word formed from two or more units that are themselves words", e.g. *vineyard, millstone,* etc. The nouns which consist only of free roots without derivational morphemes are called root nouns. Furthermore, two or more roots occurring in a single word may or may be not be affixed, e.g. *aircraft* (root+root), *broadcaster* (root+root+affix). To sum up, the root is a base morpheme to which derivational and grammatical morphemes are added. Alongside with root morphemes, derivational and inflectional morphemes have certain characteristics as well.

The main characteristic of derivational morphemes is that they are used to derive or create new word forms. With reference to Birch, derivational morphemes

often result in a change of the word category and "a substantial and sometimes unpredictable change in the meaning of the word" (Birch, 2002, 108).

Usually, affixes are derivational morphemes. Depending on the position in relation to the root, affixes are subdivided into prefixes, infixes, suffixes, suprafixes, simulfixes, circumfixes, etc.

Inflectional morpheme is any segment, which indicates different grammatical forms of the same lexical unit and is not used to create new lexical items, but to indicate the grammatical information. Inflectional morphemes mark such properties as tense, number, gender, case, etc. The words to which certain inflectional morphemes are attached, constitute the single paradigm, e.g. *walk, walking, walked* and never change the syntactic category of a word which they are attached to, e.g. *I go home, She goes home, She is going home*, etc. In addition, the term *inflection* originally means "modification"; thus, one can imply that, for example, *son* is modified by the addition of -s to *sons* (Yule, 2006, 65).

1.2.1.6. Allomorph theory and morpheme

Allomorphy can result from a variety of different sources and can take several different forms. Where allomorphy is conditioned solely by the phonology of the component morphemes it is phonologically conditioned allomorphy. However, the allomorphy may be the result of purely morphological factors, for instance, a root, stem or affix shows allomorphy only when one particular type of the affix is added to it and not with other (phonologically similar or even identical) affixes. This is called morphologically conditioned allomorphy. Finally, allomorphy may vary from one arbitrarily defined class of lexemes to the next. For instance, some nouns have irregular plurals. In that case it is lexically conditioned allomorphy (Kiparsky 1994, 30).

The largest complexity in morphology is that one-to-one correspondence between meaning and form scarcely applies to every case in the language. Thus, for instance, such irregular cases in English word-form pairs like *ox/oxen, goose/geese, and sheep/sheep,* or even cases considered "regular", with the final *-s*, are not so simple; the *-s* in *dogs* is not pronounced the same way as the *-s* in *cats*, and in a plural

like dishes, an "extra" vowel appears before the *-s*. These cases, where the same distinction is affected by alternative changes to the form of a word, are called allomorphy.

There are several kinds of allomorphy. One kind is called pure allomorphy, where the allomorphs are just arbitrary. Another kind of allomorphy is called suppletion, where two related forms cannot be explained as being related on a phonological basis: for example, the past of *go* is *went*, which is a suppletive form.

Other kinds of allomorphy emerge due to the interaction between morphology and phonology. For instance, to make the plural form of the word *dish* by adding *-s* to the end of the word would result in the form [dɪʃs], which is not permitted by the phonotactics of English. Thus, a vowel sound is inserted between the root and the plural marker, and it results in [dɪʃɪz]. Similarly, the pronunciation of the *-s* in *dogs* and *cats* depends on the quality (voiced vs. unvoiced) of the final preceding phoneme. The study of allomorphy that results from the interaction of morphology and phonology belongs to the field of morphophonology (Mohanan 1994, 34).

Just as the phoneme presents itself in the system in two ways, as a complex of differential features and as the main variant, the morpheme, likewise, is multiversional. Firstly, one variant of the multiple-choice of morphs is the main one, and that main variant necessarily has to correlate with all the rest. Secondly, the inventory of morphemes has a certain system in a language.

The notion of the morpheme and the ways of its discrimination are important. The morpheme is the minimal meaningful, further indivisible language unit, which can be distinguished as a result of generalization of several morphs: [pli:z], [pleʒə], [plezənt]. Morley (2000, 151) describes the morpheme as a unit of a sign (sometimes it can be called "semi-sign" as often gets its meaning in combination with other signs e.g. "thought" – one morpheme) and also called meaningful, minimal, and further indivisible part of a word.

In relation to the morphs and allomorphs the morpheme can be characterized as invariant existing in its variants. The morpheme is the abstract unit existing in a language in the form of versions i.e morphs. The morph is a concrete unit of speech

or "a concrete morpheme". Therefore, there cannot be variations between a morpheme and a morph: an abstract unit cannot vary with a concrete (Brinton 2000, 63) or, in other words, a unit of speech cannot act as a variant of unit of language. Units of language are realized by units of speech. The relations of variation connect among themselves the concrete units of speech i.e. morphs. Thus allomorphs should be called the morphs which are in relations of variation.

1.2.2. Linguistic Components of Morphonology

An instance of the interface between morphology and phonology lies in the existence of cohering and non-cohering suffixes. "Cohering suffixes form one phonological word with the preceding morpheme, whereas non-cohering suffixes form phonological words of their own" (Booij 2000, 341). For instance, the English suffix *-ly* is a non-cohering one since the syllable boundary coincides with the morphological boundaries, e.g. *deep-ly*. Meanwhile, the suffix *-er* in *baker* is the cohering suffix, since it forms one syllable with the preceding consonant, e.g. *bak-er*.

Phonological influence on morphology lies in the word-formation. For example, suffix -al can only be attached to the verbs' ending in a stressed syllable, e.g. arrive – arrival. The reverse relationship, i.e morphological influence on phonology can be observed in the word-formation as well, since certain suffixes influence changes of stress, *se**lec**tive* + *-ity* – *selec**ti**vity*, *se**lect* + *-ness* – *se**lec**tiveness*. As the example indicates, *-ity* influences the location of the stress, whereas *-ness* does not. Accordingly, morphology plays a great role in determining phonological form of a word, and vice versa, phonology is of a great importance in the morphological combinations (Booij 2005, 153).

Thus, morphonology is the study of relationship and interface between morphology and phonology. Although a number of linguists have researched this field, there are a lot of conceptual diversities and disagreements concerning the very nature of morphonology, the area of terminology, and the distinction between pure morphology, phonology, and morphonology.

The subject of morphonological analysis should include the sound changes which are dictated by requirements of the higher, morphological level. Grammatical

conditionality of given sound units can be realized in that case if not sounds but more abstract units – the phonemes are used. Hence, the description of morponological structures of the language should be made in terms of phonology.

For the analysis of linguistic components of morphonology it is wise to turn once more to Trubetzkoy.

1.2.2.1. Morphonological programme by N.Trubetzkoy

The representatives of various linguistic schools rejecting, partially accepting, or fully supporting the ideas of Trubetzkoy, have not avoided the analysis of his works. Morphonological processes had been investigated long before the appearance of the term "morphonology". As it has been mentioned above, the first step towards the systematization and summarization of morphonological issues had been made by Trubetzkoy in his work *Thoughts on Morphonology* (Trubetzkoy 2001, 75). The scholar describes morphonology as the study of the morphological uses of the phonetic material of a language. The theoretical underpinnings of morphonology delineated by Trubetzkoy consist of three parts: "the study of the phonological structure of morphemes, the study of combinatory sound changes undergone by morphemes in contact, and the study of sound alternation series serving a morphological function" (Trubetzkoy 2001,76).

According to the scholar, **the first part of his programme,** namely, the study of the phonological structure of morphemes can be applied to any language. Different morpheme types (root, suffix, prefix, flexion, etc) have a limited number of possible sound clusters and the task of morphonology is to identify them. This field of morphonology as "the study of the phonological structure of morphemes" and emerging differences and oppositions were also confirmed by other linguists. These linguists paid attention to: "intramorphemic phonotactics or morpheme structure rules/constrains" (Dressler 1985, 1). Dressler illustrated this by an example from English phonotactics: no English morpheme (affix or monomorphemic word) may end in */md/* but bimorphemic can e.g. *scream-ed.* (ibid). However, as it has been mentioned above, some linguists, especially American representatives of morphophonemics (Kilbury 1976, Altman 2002, 2005, Krupa 1967), ignore the first

part of Trubetzkoy's morphonological programme. Dziubalska-Kołaczyk refers to morphonotactics the first Trubetzkoy's part of morphonology which analyses "…shapes of morpheme combinations, particularly when they differ from the phonotactics of lexical roots and thus signal morpheme boundaries, as in E. *seem+ed* /si:m+d/. This is a prototypical case of morphonotactics" (Dziubalska-Kołaczyk 2006, 70).

The second postulate of Trubetzkoy comprises the study of combinatory sound changes undergone by morphemes in contact. Here morphonology is described form the morphological point of view. For example, to English never belong such morphological modifications as the plural variant *roov-es* [ru:vz] of *roof-s* [ru:fs] (Dressler's example 1985, 2). Scholars who ascribe morphonology as a part of morphology ignore this postulate.

The third issue of morphonology is the study of sound alternation series serving a morphological function. Morphonology here is viewed from the angle of phonology: English velar softening applies only before certain suffixes: *electri[s]-ity scepti[s]-ism criti[s]-ize* (Dressler 1985, 2)

The principle of neutralization (ascribed by Trubetzkoy to sound alternation) was first introduced as a morphonological phenomenon by the Prague Linguistic Circle. The principle means that two phonemes cannot be recognized or lose contrast in the weak position: they are in the position of neutralization. However, it was completely rejected by most American linguists. Hockett (quoted in Kilbury 1976, 57) states that the notions of neutralization or archiphoneme confuse the facts.

American linguists accept only the second and the third tasks proposed by Trubetzkoy and they call it "morphophonemics". Morphophonemics deals with phonemic modifications in morphologically derived words and word-forms and they can be both monomorphemic and polymorphemic, as for instance, morphophonemic voicing in *hou[z]e* verb and *hou[s]e* noun. Some scholars attribute this instance to alternations between the phonemes */s/* and */z/,* others think */z/* is derived from */s/* by rules.

1.2.2.2. Morphonological alternations

The Routledge Dictionary of Language and Linguistics (1998, 18) describes alternations as paradigmatic relations among homogeneous language units that can change each other in the structure of bigger units. Alternating units must be structurally congruent that means they have to take the same place in the structure of the same unit of the higher level which appear in the diversity of this phonetic and grammatical form.

Alternation is the peculiarity of sound system – phonemes and sounds. They as alternants have to occupy one and the same place in the same morpheme. Thus, for instance, Ger. "*ver-lier-en* "lose, v.", "*ver-lor-en*" (lost, adj.), "*Ver-lier-en*" (loss, n.); Br.Eng. *run* (v.n) *ran* (v) ; *live* (v., adj.)- *life* (n.). The German root is presented by three phonologically different morphs that are identified by three different phonemes.

According to the characteristic of differential features, alternations can be divided into quantitative (according to length: long-short) and qualitative alternations (according to the place, the manner of formation, etc.) (Tsur 1992, 43). Alternations can be phonetic and non-phonetic that is traditional or historical. Some alternations are studied by phonology or morphology; others are the domain of morphonological investigation.

Phonetic alternations (allophony) that are conditioned by phonological position, have alternation sounds mutually exclusive in various phonetic positions. Phonological motivation is assimilation, dissimilation. The composition of phonemes in a morpheme does not change. Such alternations are investigated by phonology and serve to determine phonemes of a language, for example voiced and voiceless */l/ blue [blu:] and plow [plau]* (Tsur 1992, 41-42). However, some variations can be phonologically conditioned, but not purely phonological.

Non-phonetic alternations can be either positional (morphological) or non-positional (grammatical). The alternants of non-phonetic alternations are phonemes but their change cannot be explained by their phonetic position. For instance, Rus. *мазать-мажу-мажь* [з-ж-ш]. Here we can find two types of alternations - non-phonetic [з-ж], and phonetic [ж-ш]. Non-phonetic alternations in this example are positional as occur before certain affixes and because of that this alternation can be

called formally conditioned. For example, French /r/ - /z/ *dire* "to talk" *disons* "we talk"; Russian /д/-/ж/ *водить-вожу*. Alternations of this type take regular form in word building by means of morphemes, and they are investigated by morphonology.

The second type of non-phonetic alternations is non-positional ones, those that are not conditioned by the position before a certain morpheme. Such alternations serve for form and word building and are called grammatical, for example, *advice n.* [s] - *advise v.* [z]. The examples of non-positional alternations can be ablative and umlaut that, according to their function, can be both morphological and grammatical. Grammatical alternations can appear in the role of inner flexion and belong to grammar. These alternations are categorically conditioned. That means they belong only to some categories, contrary to the positional (morphological) alternations where formal conditioning coincides with categorical.

Different types of alternations have different degree of exceptions. Speaking about phonetic alternations it should be mentioned that they are very regular and nearly have no exceptions. Few exceptions can be found in inflections and few in word building. The least regular non-phonetic alternations are lexically conditioned.

Allomorphs are the morphs belonging to the same morpheme having identical meaning and phonemic closeness and are manifested in different phonological and morphological environments. They occur when a unit of meaning can vary in sound (phonologically) without changing the meaning. For example, in English, the past tense morpheme *ed*. It occurs in several allomorphs depending on its phonological environment */d/, /t/, /id/*. Alternation belongs to morphonological process as the modification occurred by adding the insertion of *[i] [d]* is taken as the basic form of the suffix *-ed* and a basic allomorph (Matthews 1991, 157; O'Grady 2001, 229). Allomorphs are divided into following types:

1) phonetically conditioned (regular) phonological allomorphs (*ɔрук - ɔругу*, English past tense morpheme *-ed /-id -t -d/*, caused by phonetic processes, the /s/, /z/, and / z/ allomorphs of the plural morphemes in *cats, dogs,* and *judges*, the /s/ occurs after /t/, the /z/ after /g/, and the / z/ after /j/. Another example of phonologically conditioned phonological allomorphy is the stem [li:v][lef]. The /v/ devoices to /f/ because of the voiceless suffix /t/. The vowel change is also phonologically

conditioned. Another case of purely phonological conditioning is derivational prefix *un-* which is attached to an adjective. Depending on speech rate and speech style, the /n/ sound will tend to assimilate to the point of articulation of the following consonant. This means that /n/ will tend to be pronounced as /m/ before a labial and [Ñ] before a velar. Thus the distribution of the various allomorphs can be stated in terms of their phonemic environments. These allomorphs are said to be phonologically conditioned.

2) historically conditioned allomorphs, as in Russian *друз'-, - дружс-, лоб – лба*, Italian *salga* (*salire*), Spanish, *valga* (*valer*) (Kuryłowicz 2007).

3) morphologically conditioned phonological allomorphs (irregular) (non-automatic alternations), caused by the features of notional morphemes, that connect morphologically conditioned allomorphs. In English such are irregular allomorphs, in *alumni, criteria, mice, women, oxen, and strata; irregular* stem allomorphs, as in *drank, brought, swam, was, had, put, took, fled, built* and so on; In *man-men, child-children, and deer-deer* the second item can be said to contain the "plural" morpheme. We refer to the morphemes "man", "child" and "deer" and specify the allomorph of the "plural" morpheme separately for each. This kind of variation among allomorphs is called morphological conditioning. Morphologically conditioned allomorphs are combined only with the certain types of notional morphemes.

As it has been already mentioned, the morphonology is interested in peculiarities of phonemic structure of morphemes because depending on their position in a word a morpheme can consist of phonemes that are in a strong position (*пол, (sex)),* but can also include the phonemes that are in a weak positions; *половой* [palavoj] (sexual).

4) Lexically conditioned (also non-automatic alternations) allomorphy depends on the particular morphemes involved, like German plurals *Jahr "*year" *Jahre*, *Tür* "door" *Türen.* This alternation is based on the lexical identity of the stem, so it can be said to have lexical conditioning. In the singular-plural pairs *knife-knives, loaf*-loaves, *house-houses, oath-oaths* the final consonant of the singular form is voiceless *([naíf, louf, haús, ouθ],* while in the plural form it is voiced: ([naív, louv, haúz, ouð]. They depend to the morphonological domain. This type of root/stem allomorphy is not found with all words ending in fricatives: other lexemes such as *fife,*

spouse or *sloth* do not undergo the allomorphy. In other words, the allomorphy depends on the identity of the lexeme and is hence lexically conditioned (Gussmann 2005, 16).

Lexical conditioning of allomorphy can be observed in derivation as well as in inflection. For a very restricted set of adjectives it is possible to form a property nominalization with the suffix *-th.* However, this suffix usually has an effect on the form of the stems to which it attaches: *long-length strong-strength wide-width deep-depth broad-breadth*. This sort of allomorphy is often the result of a phonological process which was perfectly regular and general at an earlier stage of the language but which since has acquired exceptions and changed so that it does not always apply. This is the process of lexicalization. Another example of lexical conditioning of allomorphy is similar to that observed with plurals of the *house/loaf* type, but in this case accompanying noun to verb conversion: *house [s] house [z], calf-calve, half-halve, breath-breathe, path-pave advice-advise.*

Alternations can be divided into automatic (also called complimentary) and non-automatic. Non-automatic alternations have specific content (platùs : plõtis) and automatic alternations have non-specific content (vakaraĩ : vakãris) (Girdenis 1996, 41-44).

Automatic alternations occur in phonological context. The difference between automatic and non-automatic change of phones is non-identical to allophonic. Some scholars especially the representatives of Moscow phonological school claim that automatic alternations (as in plural *beat*-[s] vs. *bead*-[z]) are phonologically conditioned and belong to phonology, and it is impossible to transfer automatic alternations into the morphonological field of investigations. For the linguists of Moscow phonological school such as Reformatsky, Avanesov, Alefirenko, Sidorov, Kuznetsov the division of alternations into automatic and non-automatic creates the conception which is one of the basic means of differentiating phonology from morphonology. They ascribe to morphology the alternations that are not conditioned by the phonological position (traditional) and all alternations that are conditioned by phonological position exclude form the domain of morphonology. Other linguists (Kassevitch, Girdenis, Matthews, O'Grandy most of others American linguists) on

the contrary, claim that it is quite possible to include automatic alternations into morphonology.

These linguists state that automatic alternation is the morphological alternation conditioned phonologically to which there are no exceptions. e.g. the Russian зуб [p]-зуба [b], the regular plural suffix /-s, -z, -ez/ *mass-masses, mop-mops, dog-dogs*. The suffix -s of the plural forms *cats* and *dogs* is pronounced [s] and [z] respectively, depending on whether the previous sound is voiceless or not. This alternation is absolutely systematic: a single plural inflection with two pronunciations. The plural ending occurs in two morphs, that is two distinct phonological forms. This kind of variation, as it has been mentioned above, in the phonology of roots or affixes is called allomorphy. The plural suffix has two allomorphs -s/-z. The /s/ allomorph only occurs in specifically defined phonological contexts and it is the specific allomorph. The /z/ allomorph occurs in the greatest variety of contexts. For this reason, it is generally taken to be the basic allomorph, and the /s/ variant is said to be a derived allomorph. This type of alternation can be ascribed either to phonology or to morphonology.

Non-automatic stem allomorphy includes total suppletion when certain inflected forms are phonologically unrelated to the rest of inflectional paradigm, e.g. *go*, past tense *went,* and partial suppletion when allomorphs are only partly similar: *bring* past tense *brought; man* plural *men.*

Non-automatic alternation are morphologically and lexically conditioned: e.g. English /f-v/ *wife- wives,* alternations electri[k] electri[s]ity, deci[d]e deci[□]ion; suffixes such as *-ize*, trigger a non-automatic /k s/ alternation: criti[k] criti[s]ize; the prefixes such as *con (com/corr/coll), de, e(x), extra, in (im/irr/ill), inter, mis, per, pre, pro, re, sub, super, trans*. e.g. *sub-mit, e-mit, per-mit, trans-mit,* etc. *sub-mit: submiss-ion - submiss-ive; pre-sume: presumpt-ion - presumpt-ive - presumpt-uous* etc. also belong to non-automatic alternations. Thus, non-automatic alternations are morphologically or lexically conditioned. Some scholars ascribe them to morphology while others rightly consider them the object of morphonology.

We hold the view that any types of phonemic alternations, conditioning various morphemes - both automatic and non-automatic - must be included in the

field of the morphonological examination. Since they indicate a certain unity of phonology and morphology, there are no reasons for rejecting the morphonological status for automatic alternation, if they give the special variants of morphemes. Thus, automatic alternations (one of the sources of allomorphy) belong to morphonology.

The difficulty of the problem lies in the fact that the difference between automatic and non-automatic alternations is highlighted not only by the grammatical context but also by its specifity: specific context for non-automatic and non-specific – for automatic alternations. In other words, lexical units have two planes: content and expression. Automatic alternations are interested in content, non-automatic alternations are interested in characteristics both in respect of expression and content. Non-automatic alternations can be separated form automatic in the way that non-automatic alternations require morphological context in addition to phonological. Thus they also belong to morphonology.

We cannot agree with some scholars who propose to analyse automatic alternations twice in phonology and in morphonology. The phonology studies the system of phonemes, their syntagmatic relations that do not depend on grammatical and lexical context, the place and role of phonemes, syllables and other phonological units of language. There are no alternations in the system of phonemes, but there are oppositions. Phonological syntagmatics has rules of phoneme compatibility that are not identical to the rules of phoneme change in the lexical units depending on the context. There are no alternations without combination of significant or lexical units. Thus, this proves once more that all alternations that are alternations of phonemes always belong to the domain of morphonology.

American representatives (Mattews 1991, Spenser 2001) of morphophonemics are of similar disposition. Their morphophonemic programme includes automatic alternations, which are clearly phonological, such as, devoicing of the plural */z/* and */s/* in En. *beat-s* and *bead-s*; and purely allomorphic alternations such as voicing in English *to house [z],* umlaut, inner flection or suppletion: *foot* → *feet*, and suppletions such as *were* vs. *was.*

Another object of discussion among linguists is whether inner/internal flection: can or cannot be treated as morphonological phenomenon.

We quite agree with some Russian scholars Kubryakova, Pankrats, and Itkin (Кубрякова, Панкрац 1983, 24, Иткин 2007, 11) who think that the morphonology should describe those alternations of phonemes which accompany affixation, and internal flections as well: morphonology should describe alternations of meaningful type according to their composition irrespective of whether their meanings appear in direct oppositions (Germ. *das warme Wetter* and *die Wärme*) or in accompaning of affixes (Germ. *warm - warmer*).

Other linguists claim that the internal inflection where the alternation of phonemes distinguishes forms and is the grammatical means of expression of grammatical meaning belong to morphology (Реформатский 1979, 117, Алефиренко 1999, 39). According to them, the inner flexion should not belong to morphonological phenomena. It is interesting to note that Trubetzkoy attributed inner flexion to morphonology and was criticized by Reformatsky.

Thus in resume, all kinds of above analyzed alternations and also inner/internal inflection are linguistic components of morphonology.

1.2.2.3. Principles of morphonological descriptions

On the basis of Trubetzkoy's programme other linguists developed and widened the field of morphonological research, first and foremost, the principle of morphonological description.

It is possible to speak of two opposite approaches to morphonological description: "deep" and "superficial" approaches. The "deep" approach generalizes dynamic, operational, predicting, generating, and synthesizing approaches (Vort 1973, Kassevitch 1986, Tolstaja 1998, Itkin 2007), the second - static, relational, ascertaining, descriptive, analysing and belong to "superficial" approach. The first approach follows some abstract initial form of a morpheme, from which all contextual variants are deduced. The second approach recognizes all alternants of a morpheme being equal in rights and also describes relations between them.

Only having discriminated one morpheme as the core among set of variants of each morpheme, ('deep') approach is possible to present the description of morphonology in the systematized state. Here arise two central problems of morphonology: a choice of the basic variant of a morpheme and definition of morphonological rules which are applied to this basic variant for producing all contextual allomorphs.

From Itkin's (Itkin 2007, 299) point of view a problem of morphonological descriptions can be solved going from the surface representation to deep, and vice versa. Accordingly, morphonological processes can be described in terms of transformations, oppositions, modification of morphemes in some morphonological positions. They include a choice of a contextual variant of a morpheme depending on a position. The morphonological position is understood as a context, environment, in descriptions of descriptive-distributive type, in which either unit comes out (class of units). For example, a morphonological position is the inflection of the first person, singular number, the present tense /u/ caused by the choice of a morph (Rus. /hoʒ/ in a word-form *хожу* (walk), and a morphonological position in the word-form *ходит* (walks) of a morph /hod'/ is an inflection of the third person, singular number of the present tense /it'/. Thus, in descriptions of operational (generating) type, a position is understood as a model (mechanism) of a choice of an environment and transformation (modification) of a unit according to the chosen environment. The word-forms *хожу* and *ходит* (I walk and walks) in this model are derived from the stem/ root /hod '/: /hod ' + u/ and /*hod'* + *it*/, and affixal morphs /u/ and /it/ are the "subject" of position and cause the certain changes in the root morphs which are the "object of a position" (/*d'*/ alternates with /ʒ/ before */u/* and remains constant before /*it'*/).

1.2.2.4. Sign character of morphonological phenomena. The basic morphonological unit

The question arises whether morphonological alternations have a sign character. A sign is a form and meaning. Language system of signs defines

morphemes as semi-signs and the phonemes as they have no meaning - not a sign. Morphonological alternations concerning this issue are treated dubiously.

In the process of the transition from phonemes to meaningful items certain morphonological events occur. Alternations find their place in this process. A phoneme itself is not associated with any meaning and that means that potentially it is associated with any meaning. It is impossible to say, for instance, which morpheme phoneme /a/ will enter. A word-form morpheme possesses a certain meaning and function, the range of that meaning and function is quite wide. Thus, for instance, case flections have quite different meanings (functions) but they are not limitless. Hence morphonological phenomena also help to clear this uncertainty of meaning. They signal what allomorphs of the morpheme we deal with and in what context. Firstly, showing the function of the morpheme by denoting its allomorphs by some morphonological characteristics is of probability character. It is because one and the same morphonological phenomenon can be associated with different grammatical forms. Secondly, the participation of morphonology in forming meaningful signs with certain features and functions does not mean that they (morphonological phenomena) have the status of sign. To get the status of sign the phenomenon has to be bilateral i.e. to have its denotation associated with certain meaning. Morphonological phenomena do not meet these requirements. If they met such requirements, they would belong to morphology.

Though some linguists ascribe sign character to morphonological phenomena, most of them are of the opposite opinion. Dressler (1985), for example, holds the position that morphonological rules have no characteristic properties of their own and do not constitute a grammatical module comparable to the phonology or morphology. Morphonological phenomena, firstly, are not independent because this or that morphonological characteristic is conditioned by phonological-morphonological context; secondly, the typical situation is when the same morphonological features accompany different grammatical processes, not possessing any functional and/or semantic generality.

As an example can serve the meaning of vowel *e* in the structure of allomorph of Icelandic morphemes gef- (The example is borrowed from Kubryakova and

Pankrats 1983) which also shows, that it is impossible to shift out some semantic component which would be inherent in the meaning of the present indicative, and verbal adjectives - all those word forms, in which the allomorph *gef-* presents.

However, another group of scientists are not so assertive and do not ascribe markers non-signs either to phonology or morphology. This group of scholars sees a basic difference between phonological and morphological descriptions. In phonology expression plane is not interested in the sign organization of the text (as phoneme is not a sign). Morphonology remains within the limits of expression plane and provides the analysis through a prism of morphology (morpheme is a semi-sign which has meaning in combination with other signs). That is why according to Alefirenko (Алефиренко 1999,5), the statement alone that there is an alternation к//ч in the Russian language is not enough as it does not give necessary information about the grammatical categories that characterize this alternation. Thus, the morphonology studies the phenomena of the plane of expression and organization of them which bear certain morphological information. Though phonological opposition within the paradigm is not decisive in morphology, those distinctions in word-forms are important for morphonology.

Thus, for instance, a root morpheme of a verbal paradigm of the present tense in Russian *пеку ~ печешь ~ печет ~ печем ~ печете ~ пекут,* (I bake ~ you bake ~ bakes ~ we bake ~ you bake ~ they bake), which is presented in morphs пек- (2 times) and печ- (4 times) is unchangeable in its lexical meaning despite of phonological distinction between phonemes [к] and [ч]. These distinctions are a part of meaning of this morpheme. Phonological distinction between [к] and [ч] is insignificant and irrelevant at a level of word-forms system of one word. However, the distinction between [к] and [ч] at a level of oppositions separates word-forms of a word and performs a special marking role. In the second case the relation between [к] and [ч] starts to function as the alteration which belongs to morphonology.

Thus, each step of alternation becomes one of indicators or markers of the word-forms that differentiate them from each other. In inflections morphonological alternation acts as an attribute of a word (i.e. as an attribute of all paradigm) whereas a separate step of alternation is an attribute of a word-form. Morphonological

alternation in the word-formation is the whole derivational line (or family of words), and a step of alternation is the attribute of one word-derivative.

The next step is the functioning of inflectional alternations. Markers can be simple (only inflections), or complex (an inflection + a step of alternation). Thus, two word-forms of one paradigm differ between themselves by means of certain markers which can be simple according to their structure or complex. However, two word-forms cannot differ among themselves exceptionally on the base of a step of alternation, i.e. on such distinctive indicator which does not possess any sign function. The step of alternation is always only accompanying, minor element in a set of markers of the given word-form. As an illustration we can look at: correlation of word forms *сту[ч]у ~ сту[ч]ишь (I knock –you knock)* and *гля[ж]у гля[д']ишъ (I look – you look)* where in the first case the role of a marker is carried out only with inflections, and in the second this role is performed by inflections and steps of alternation.

Thus, a conclusion can be made that a subject of morphonology includes those minimal distinctive features, which do not bear any sign function, but carry out certain marking (distinguishing) role in oppositions of word-forms of one word. Hence, the morphonology studies markers non-signs (alternations). Proceeding from this, we have reason to believe that the markers non-signs (alternations) of separate word-forms expressing significant oppositions in language create morphonological structure of language.

The separation of this phenomenon into a special area of linguistics (morphonology) is necessary because the structure of markers non-signs is characterized by certain laws and strict correlation of all elements which can be described by means of models; and the choice of a marker depends directly on grammar. Each word has its individual set of morphonological means. Consequently, it is necessary to elucidate functional properties of the morphonological phenomena in studying morphonology i.e. to specify a marker non-sign to certain grammatical or word-formation model. That is why it is necessary to distinguish inflectional and word-formation morphemes strictly in morphonological analysis. Thus, morphonological analysis uses the units of morphological level. These units are: 1) a

grammatical category, 2) a word as a set of word-forms (paradigm), 3) a set of word-forms of one word, realizators of paradigms; 4) an individual word-form which expresses individual meaning entering into the whole meaning of this or that grammatical category.

Consequently, the basic morphonological units are the following: a grammatical category as a class of words, a word as a set of word-forms, a word-form expressing individual meaning. The word-form is a minimal morphonological unit in the given hierarchy. Therefore the analysis of the morphological structures should proceed first of all from the grammatical analysis of concrete word-forms.

1.2.2.5. The problem of morphoneme

One of the central questions of morphonology is whether it is necessary to discriminate a special unit of morphonological descriptions. The term "morphoneme" already more than half a century is used in the language science for the designation of a special concept. Unfortunately, it is ambiguous as many other linguistic terms. A rather convincing interpretation of concept "morphoneme" is given by the Polish linguist Ulashin (Ułaszyn 1927, 58). He assigns the term "sound" to natural sounds; sounds of speech he calls phonemes, and morphonemes designate the sounds of speech which are carrying out semasiologically distinctive function. In works of linguists the morphoneme is understood as the number of phonemes including a phoneme in a strong position and a phoneme in a weak position. A morphoneme has the role of a unit incorporating strong and weak phonemes of one class in a morph. Moscow Phonological School calls it a union of positionally alternating sounds in a phoneme.

Trubetzkoy acquired Ulaszyn's term "morphonema" and used it in a different sense. "Two or more phonemes alternating according to the morphological structure of the word may be called morphophonemes or morphonemes" (Trubetzkoy 2001, 71). He examined Russian words *рука – ручной* and concluded that alternants */k//tʃ/* belonging to the same phoneme in two different phonetic forms are different from *рука - руки* where the variation of sounds in the same phoneme are conditioned by the phonetic environment. The alternation */k//tʃ/* appears due to morphological

structure of the word and is called “morphoneme”. Trubetzkoy made no real use of “morphonema” as a linguistic unit. The notion of the “morphonema” was reduced to that of alternation. Trubetzkoy built his theory of morphonology on the base of syntagmatic phonology. The morphoneme was necessary to unite the facts in a morpheme that are non-identical in phonology, but act as the unity in morphemics. Trubetzkoy’s morphoneme is acceptable to the Prague morphonology but rejected by Moscow Phonological School and also by Generative Phonology. Such understanding of a morphoneme subjected Reformatsky to critical analysis.

The theory of morphoneme has undergone severe criticism by various scholars’ but especially by Reformatsky. His main counterargument was that the units of morphonological alternations have no articulative-acoustic generality. However, the sameness includes not only similarity, but distinctions as well. When Reformatsky comes to the conclusion that sounds [a] and [o] can represent one phoneme [o] *(вода [вλда] воды [воды])* (water – waters) he, certainly, does not try to find in those sounds a feature of phonetic similarity. Reformatsky represents the group of linguists expressing the opposite point of view who consider that Trubetzkoy invented insignificant and unnecessary unit for the structure of language. According to Reformatsky, a subject of morphonology (morphonological phenomena) is the language reality, and the unit of language called a morphoneme is fiction.

Thus, Reformatsky (Реформатский 1955) is categorically against the introduction of concept of a morphoneme. He states that Trubetzkoy, striving for systematization created nonexisting and unnecessary unit for structure of language unit which has no objective validity of language; there is a correspondence, conformity or alternation of variants of morphemes (рук/руч, бег/беж, сон/сн – and so on), but [к/ч], [г/ж:], and [о/zero] do not form any real units of the language structure.

The term "morphoneme" is also rejected by many other linguists working on morphonology. Most opponents of morphoneme base their opinion on the fact that the basic (dictionary) variant of morphemes is described in terms of phonemes - but all the other variants of a morpheme (intermediate and text variants) are also

described in terms of phonemes. There are no language units which could not be described as sequence of morphemes, on the one hand, and sequence of phonemes (syllables) – on the other. Transition from the basic variant of phonemes to all the rest variants consists not in the change of level, but in the phonological variation of an exhibitor exponent of the morpheme caused by the context. Consequently, there is no need to discriminate morphoneme at all. But despite of this, the term "morphoneme" shows surprising vital capacity, and it again has entered into the use in researches of word-formation (Zemskaya), morphology (Bromlej), (Girdenis) phonology, etc.

The detailed development of basic units of morphonological level is done in Tshurganova's (Чурганова 1973, 34) book "Morphoneme". In this book morphoneme is described as an elementary unit providing the transition from phonological to morphonological system. The morphoneme in the Russian language more often acts as a row of phonemes including a phoneme in a strong position (under the stress) and one or more archiphonems i.e. phonemes in a weak position. Thus, Tshuganova (Чурганова 1973, 36) describes a morphoneme, as the item reflecting the unity of a class of the phonemes presented in different phonological and morphological positions considered as an element of a real morpheme. Akelaitienė (1996, 4) describes morphoneme as a unit which consists of alternating phonemes in the same morpheme.

In conclusion it may be stated that there are two chief variants of description of morphoneme: one in the sense of Ulashin where morphoneme is described as each of phonemes alternating in structure of morphemes, and a morphoneme in Trubetzkoy's sense - all series of alternating phonemes. Tolstaja (Толстая 1998, 21-22) thinks that both treatments of morphoneme should be reflected in morphonology as the independent substance and one unit is insufficient. The unit corresponding the notion of morphoneme, according to Ulashin, is the contextual representative of a morphoneme according to Trubetzkoy. Thus instead of a traditional binary opposition of the morphoneme (a component of a morpheme) and the phoneme (a component of a morph) Tolstaja offers to introduce a trinomial opposition "a morphoneme - a morphophoneme - a phoneme" (the term "morphophoneme" here corresponds to the term "morphoneme" in Ulashin's understanding). Accordingly, the units of a

morphemic level should be not two, but three. Tolstaja (Толстая 1998, 58) states that the morpheme as paradigmatic unit has a morph as the contextual (morphonological) representative (accordingly a morphoneme as the component of a morpheme is presented by a morphophoneme as a component of the morph, and a morph as the paradigmatic unit has an allomorph as the contextual (phonological) representative (accordingly morphophoneme as a component of a morph is presented by a phoneme as a component of the allomorph). Thus, the author offers the six-element scheme (Толстая 1998, 59):

allomorph	-	phoneme	Phonological level
morph	-	morphophoneme	Morphonological level
morpheme	-	morphoneme	Morphological level

We quite agree with the linguists that a variation of the phonological structure of one morpheme should be described both in terms of morphonemes, and in terms of phonemes. In the first case it will be a question of rules and conditions of transition from deep level of representation of a morpheme to surface, in the second – about the contextual distribution of different allomorphs of a morpheme.

1.2.2.6. Tasks of morphonology

We look upon morphonology as the study about the organization of the phonemes determined morphologically, i.e. morphonemes, in the morpheme and in the word. In other words, morphonology studies specific regularities of the phonological set of morphemes and words and this is its principal difference from the phonology, which studies the sound composition of language, separately from its relation to the morphological boundaries and the morphological identities. From the theoretical issues analyzed above we come to the conclusion that practical tasks of the morphonology are as follows:

- modification of order and composition of phonemes binding these elements into the word;
- rules of a morpheme choice depending on structure and the order of phonemes in them.

- regular models of modifications and their place in the system of word formation and inflections;
- laws governing the selection of morphological elements, which depend on the composition and order of phonemes in them.
- standard of the compatibility of vowel phonemes at the boundaries and at the junctions of morphemes;
- alternation of phonemes;
- the systematic description of phonemic variations in allomorphs of the same morpheme;
- the use of voiced and unvoiced consonant oppositions as morphonological means;
- the use of soft and hard consonant oppositions as morphonological means;
- *the use of long and short vowel oppositions as morphonological means;*
- *description of the phonemic structure of morphemes;*
- *order and composition of the phonemes, which participate in the formation of such elements as root, suffix, prefix, inflexion;*
- *determination of meaning: lexical, grammatical, or lexical and grammatical these oppositions discriminate.*

Naturally, this wide scale of tasks cannot be solved within the frames of a single doctor's thesis; consequently, this dissertation focuses on the last for tasks.

2. SYSTEMATIC STRUCTURAL ANALYSIS OF MORPHONOLOGICAL LONG AND SHORT VOWEL OPPOSITIONS IN THE ENGLISH LANGUAGE

Systematic language research in the dissertation includes two aspects of investigation: structural and functional. Structural morphonology analyzes the morphonological structure of words and morphemes which differs from morphological structure because it concerns itself with the difference between morpheme and syllable structure (Kenstowich 1994, 250). It is important to establish these differences because while speaking we utter syllables but comprehend morphemes. Morphological analysis is the decomposition of words in terms of the smallest meaningful units, i.e. morphemes (Crystal, 2003, 447). Morphonological analysis of the word structure requires the determination of constituent parts of words (stem, flexion), also the establishment of quantitative analysis of oppositions and the number of syllables and their character (open, closed, compositional character, etc.). Structural morphonology also investigates the morphonological structure of morphemes (or its phonotactics and morphonotactics). The onset, nucleus, and coda must be determined. The structure of syllables and morphemes is better comprehended when described in patterns and expressed in formulae (Akelaitienė 1986, 109). Various types of morphemes are analysed in this way, i.e. root morphemes, affix morphemes, and inflectional morphemes. In what follows a more detailed analysis of kinds of morphemes is presented.

In morpheme-based morphology, a zero morpheme is a morpheme that is realized by a phonologically invisible null affix. It is an empty string of phonological segments. The process of adding a null morpheme is called zero derivation. The zero morpheme is represented as the empty set symbol Ø. The existence of a zero morpheme in a word can also be theorized by contrast with other forms of the same word showing alternate morphemes.

With reference to H. Bussmann (1996, 409-410), the notion of a root has two meanings. Diachronically, it is the basic form of a word, reconstructed from comparison of related languages. It is the base for corresponding word families. Meanwhile, synchronically, the notion of root is a synonym of free morpheme. Since

the present thesis concerns synchrony, root is considered to be a base morpheme of a word and is defined as "a lexical content morpheme that cannot be analyzed into smaller parts" (Fromkin, 2000, 81).

In linguistics, a stem is the part of a word that is common to all its inflected variants. Stems can be roots, i.e. unanalyzable lexical morphemes, or morphologically complex, with compound words, for example: *meat ball*, or words with derivational morphemes: the derived verb *standard-ize*. The stem of the complex English noun *photo-graph-er* has the zero inflection and its only inflected form is the plural *photographers*.

Inflectional morphemes modify a word's tense, gender, number, case, aspect, person and carry grammatical information. Inflectional morpheme can only be a suffix and it creates a change in the function of the word, for example: the *ed* in *invited* indicates past tense. English has only seven inflectional morphemes. In addition, English also shows inflection by ablaut (mostly in verbs *write, wrote, written*) and umlaut (mostly in nouns *foot, feet*) or also known as inner flection, *foot, feet* (umlaut), c*hild, children* (vowel alternation, and also suffixing in the plural).

Derivational morpheme is the morpheme that changes the meaning of the word or the part of speech or both. Derivational morphemes often create new words, thus, for instance: the prefix and derivational morpheme *un* added to *invited* changes the meaning of the word.

And finally, a suprafix is a type of affix where a suprasegmental change (such as tone or stress) modifies an existing morpheme's meaning. An example in English proDUCE a verb and PROduce an initial-stress-derived noun changes a suprasegmental phoneme of a stem. (Encyclopaedia Britannica, CD, 2008).

The principles of phonological oppositions created by Trubetzkoy can be applied not only to phonology, but also to morphology, syntax, lexicology, and, what lies especially in our interest, to morphonology. This research comprises the morphonological investigation into oppositions of long and short vowels.

Phonological aspect of morphonological investigation deals with the analysis of syllables of the word. Humans rely on syllables as a way of analyzing the stream of speech to give it a rhythm of beats, both weak and strong. Thus, syllables are

tremendously influential in a language's conveyance of information (Puviarasan at al 2008, 225).

The phenomenon of syllabification includes the description of syllable typology, the nature of syllabification, the identification of syllable boundaries, indication of the internal structure and articulatory characteristic of syllables.

Since words as language signs can be divided not only into syllables but also into morphemes. The boundaries or the division line of syllables, morphemes, lexemes, and very often roots are stable and always coincide in the monosyllabic words of the English language; however, when word-forms consist of more than one morpheme or morpheme consists of more than one syllable, discrepancies might appear in syllabic and morphemic division of word-forms.

It is interesting to note that the cases when boundaries of morphemes and syllables do not coincide are numerous. Dictionaries often display only morphemic division of word-forms. Longman Dictionary of Contemporary English (LDOCE 2004) indicates syllables; however, very often the syllabification is confused with morphemic decomposition. For instance, LDOCE divides the word *think-ing* morphemically while the syllable boundaries after adding the derivational morpheme changes. The inflectional morpheme adds the last phoneme of the root and changes the division line. Thus, we pronounce *thin-king*, the same happens when flectional morphemes are added, the syllabic division also changes; according to Webster's dictionary, the word *syllabic* is divided into *syl-lab-ic*. However, this type of syllabification does not serve for pronunciation. Due to pronunciation, the word *syllabic* should be broken into *sy-lla-bic*. In the process of utterance of syllables the division line (and pause) very often is made insomuch as to be easier to pronounce it i.e. make the syllable open. This happens because while uttering the word we comprehend morphemes but pronounce syllables and make them more comfortable for articulation.

According to D. Crystal (2003, 447), syllabification is the division of a word into syllables. Breaking a word into syllables presents a lot of problems and diversities. Syllabification can be divided into phonological and orthographic. Phonological syllabification may be represented in different ways: in combination of

phonemes or in combination of graphemes (Birch 2002, 62). The present thesis focuses on the former type of phonological syllabification. Thus, problems can arise with syllabic divisions when a connected sequence of syllables is found and the division line is ambiguous. Taking into account phonological syllabification, different number of syllables in the same word is identified. For example, some speakers pronounce such words as *police* or *collapse* as one-syllabic, others as two-syllabic (Trask, 1999, 303). There are a lot of factors affecting the variation of pronunciation, as for example sociolinguistic factors, like gender, class, and dialect. Moreover, the same word can be pronounced differently due to register or style, i.e. "a speaker might pronounce a word in a different way depending on the social situation or the identity of the interlocutor" (Jurafsky *et al*., 2008, 229-230). In the view of language computerization sociolinguistic factors are especially important since they determine the division and the number of syllables in the pronounced word. If the synthesizing programme aims at careful British pronunciation the findings of the dissertation can be included into the description of the programme in teaching a computer to pronounce correctly the words while dividing them into the syllables according to the laws of the English language. Thus, according to Dale (2000) discussing the user's perspective on the technology, it should be clarified how the technology can actually be used in practice and what systems should be built.

According to Harris "calculating the number of syllables in a word involves identifying the number of peaks of perceptual prominence, each typically associated with a vowel" (Harris, 1994, 45). In some other traditions, by contrast, any VC sequence, even when the consonant is not followed by a vocalic peak, is regarded as a syllable boundary. For example, according to Harris a CVC word is rated as monosyllabic (CVC.), whereas according to other traditions, it is considered disyllabic (CV.C). Moreover, even within the same tradition, "there can be disagreements over the location of syllable boundaries in polysyllabic words" (ibid, 45). The difficulties arise mostly in the division among adjacent syllables. For example, the English word *busker* may be syllabified as *bus-ker* and *bu-sker* (Hamilton et al 1997, 179).

Some scholars argue that syllabification teaching is somewhat useless, "since syllabification generally occurs after the word is sounded and there seems to be a genuine value in knowing how to syllabicate" (Dechant, 1991, 334-335). Dechant lists the following syllabification rules in English. The suffix *-ed* is a syllable only when it follows *d* or *t*, e.g. *hund-ed, bunt-ed.* If a two syllable word ends in a consonant plus *le*, the consonant and *le* forms the last syllable, e.g. *ta-ble, a-ble*. When two consonants follow a vowel, the word is divided between the two consonants, e.g. *af-ter, pen-cil*, and the like. Alongside the rules, Dechant points out, however, a variety of exceptions.

Another accepted guideline to solve the problem is the maximum onset principle. This principle says that "where two syllables are to be divided, any consonant between them should be attached to the right hand syllable, not to the left, as far as possible … within the restrictions governing syllable onsets and codas … the syllable with a short vowel and no coda cannot occur" (Roach 2002, 78). Sometimes the division of a particular word might vary from one individual to another, but a division is always easy and always possible (McMahon 2004, 104).

Having analyzed all possible components of morphonological investigation, it is necessary to concentrate on the core research, that of morphonological opposition.

In order to investigate morphonological oppositions we should analyze the phoneme oppositions and their environment, which create different types of morphemes within the same class of words or morphemes of different word classes. Further on, morphonological processes are analysed inside of particular grammatical categories or various word-forms. Otherwise, morphonological oppositions investigate which phoneme oppositions differentiate morphemes or grammatical categories, i.e. different word-forms. Hence, the common investigation of phonological (phonemes differentiate meaning of words) and morphological (morphemes differentiate forms of one and the same word) oppositions is attributed to morphonology.

The following symbols are used to depict the environment of opposition:

V – vowel, ***C*** – consonant: ***R*** – vocal consonants /l/- lateral, /m n r ŋ/ - nasals, ***S*** – fricatives /s ʃ f v z h/, ***T*** – plosives /p b t d k g/, ***W*** – glide semivowels /j w/, ***Ø*** –

zero onset or coda, // - in formulae denotes boundaries between syllables, / – denotes boundaries between phoneme clusters, and **:** symbolizes opposition.

This investigation comprises five long and short vowel oppositions in the English language: *ʊ-uː, ɪ–iː, ɒ – ɔː, ʌ– aː, e (ə) – ɜː.* 4,857 long and short vowel opposition pairs of the English language were found in the database of 105,846 words. Opposition pairs make 4.6% of all words in the database. It proves that the phenomenon of vowel oppositions is not occasional. The variety of word-form structure participating in oppositions see in appendix 18.

The database presents 3,441 monosyllabic word-form pairs, 1,341 two-syllabic, 64 three-syllabic, and 11 four-syllabic word-form-pairs that make oppositions. It has 4,857 opposition pairs that make 1,211 basic opposition pairs, 544 are of mixed type: when one member of the opposition pair is basic word-form and the second is a variant of the basic form, and 3,102 variant opposition pairs. In practical analysis of oppositions the meaning of members is extracted from Longman Dictionary of Contemporary English 2004. Additionally, the definitions from Encyclopaedia Britannica Dictionary 2008 are also used.

2.1. Structural Morphonological Analysis of *ʊ-uː* Oppositions

The least numerous opposition in the English language is *ʊ-uː* opposition. All oppositions occur in root morphemes. It has 112 opposition pairs that make 25 basic opposition pairs, 11 are of mixed type: when one member of the opposition pair is basic word-form and the second is a variant of the basic form, and 76 variant opposition pairs.

The *ʊ-uː* opposition has 90 pairs of one-syllabic word-forms, and 13 pairs of two-syllabic word-forms, and 9 opposition pairs of three-syllabic word-forms. Statistically, *ʊ-uː* opposition makes 2.3% of oppositions in respect to all system of oppositions (see appendix 1).

2.1.1. Opposition *ʊ-uː* in the root morpheme

CVC type of word-forms

The analysis discloses twenty-two pairs of one-syllabic CVC type structure. The stems of both opposition members consist of the root morphemes and coincide with the syllable. The type of syllable is closed. Oppositions of this CVC type structure of word-forms are comparatively numerous in the frame of *ʊ-uː* opposition. The monomial onset has **S-** *f,* **T-** *k p s,* **W-** *w* phonemes and the monomial coda has **T-** *d t k,* **S -** *f*, **R-** *l* phonemes. Thus, for instance:

full /fʊl/ adjective 'containing as much or as many things or people as possible, so there is no space left' : fool / fuːl/ verb 'to trick someone into believing something that is not true'.

It takes the following expression:

S/T/W→ *ʊ*← T/S/R : S/T/W→ *uː* ← T/S/R

CVCC type of word-forms

A single pair of one-syllabic CVCC type structure was found. The bare stem consists of the root morpheme. The syllable is closed. The monomial onset of monosyllabic root morpheme consists of **T-** *p* phoneme and binomial coda consists of **TS-** *tʃ* phoneme cluster. Thus, for instance:

putsch /pʊtʃ/ noun 'a secretly planned attempt to remove a government by force' : pooch /puːtʃ/ noun 'a dog – often used humorously'.

It takes the following expression:

T→*ʊ*← T/S : T→ *uː*← T/S

2.1.2. Opposition *ʊ-uː* in the root and the derivational* morpheme

CVCV type of word-forms

This scheme demonstrates two pairs of two-syllabic CVCV type word-forms. The stem of the first member of the opposition pair consists of the root and the derivational morpheme *-er*. The stem of the second member consists of the root. The boundaries of morphemes and syllables do not coincide. The added derivational morpheme changed the syllable division line and the syllable type. The syllables are open. The first syllable of the word-form has the monomial onset of **R-** *l* phonemes

* one or both members of the opposition pairs may take the derivational morpheme

and **Ø** zero coda and the second syllable has monomial onset of **R-** *n* phonemes and the **Ø** zero coda. Thus, for instance:

looker /lʊkə/ noun 'someone who is attractive, usually a woman' : **lucre** /luːkə/ noun 'money or wealth – used to show disapproval';

It may be generalized into the following:

$$\mathbf{R \rightarrow \upsilon \leftarrow \emptyset // R/V/\emptyset : R \rightarrow u: \leftarrow \emptyset // R/V/\emptyset}$$

2.1.3. Opposition *ʊ-uː* in the root with the inflectional* morpheme

CVC type of word-forms

This scheme presupposes six pairs of one-syllabic CVC type word-forms. The first member of the opposition pair has the stem consisting of the root and the stem of the second member consists of the root which takes inflectional morpheme *-ed* to show the past tense and the past participle of verbs added to the stem. The root morpheme does not coincide with the syllable in word-forms with added inflectional morpheme. The type of syllable is closed. The monomial onset is of **T-** *p,* **W-** *w* type. The monomial coda has **T-** *d* phoneme. Thus, for instance:

pud /pʊd/ informal noun 'a pudding' : **pooed** /puːd/ verb, the past tense 'passing waste from the bowels'.

It takes the following expression:

$$\mathbf{T/W \rightarrow \upsilon \leftarrow T : T/W \rightarrow u: \leftarrow T}$$

CVCV type of word-forms

The database discloses only one pair of two-syllabic CVCV type word-forms. The stem of the first member of the opposition pair consists of the root and the inflectional morpheme *-er*. The stem of the second member consists of the root. The boundaries of morphemes and syllables do not coincide in word-forms with derivational morphmes. The added inflectional morpheme changed the syllable division line and the syllable type. The syllables are open. The first syllable of the word-form has the monomial onset of **S-** *s* phonemes and **Ø** zero coda and the second syllable has monomial onset of **R-** *n* phonemes and the **Ø** zero coda. Thus, for instance:

* one or both members of the opposition pairs may take the inflectional morpheme

sooner /**suːnə**/ adverb, the comparative degree of 'in a short time from now, or a short time after something else happens : **Sunna** /**sʊnə**/ noun 'a set of Muslim customs and rules based on the words and acts of Muhammad'.

It can be summed up as follows:

$$\mathbf{S \rightarrow \upsilon \leftarrow \text{Ø}//\ R/V/\text{Ø} : S \rightarrow u: \leftarrow \text{Ø}//\ R/V/\text{Ø}}$$

CVCVCC type of word-forms

Two pairs of two-syllabic CVCVCC type word-forms were identified. The stem of word-forms consists of the root morpheme and the inflectional morpheme -*est* denoting the superlative degree of adjectives added to the stem. The first syllable is open, the second - is closed. The boundaries of morphemes and syllables do not coincide. The added suffix moves backwards the division line, decomposes the root morpheme and changes the syllable type. The first syllable has monomial onset **S**- *f* and **Ø** zero coda, the second syllable of the word-form has, **Ø** zero onset and binomial **S**- *s*, **T**- *t* type coda.

fullest /**fʊləst**/ adjective, the superlative degree of 'containing as much or as many things or people as possible, so there is no space left' : **foolest** /**fuːləst**/ adjective, the superlative degree of 'silly or stupid'.

The following generalization follows:

$$\mathbf{S \rightarrow \upsilon \leftarrow \text{Ø}//V/S/T :\ S \rightarrow u: \leftarrow\ \text{Ø}//V/S/T}$$

CVCC type of word-forms

One-syllabic CVCC type of word-forms are substantiated by fifty-seven pairs. The stems consist of the roots and the inflectional morphemes -*s* denoting the 3rd person singular of verbs, -*s* showing plurality, *'s, s'* the possessive case, and -*ed* morpheme denoting the past tense added to the stem. The type of syllable is closed. The boundaries of morphemes and syllables do not coincide. The monomial onset is of **T**- *k p t,* **W**- *w* type and **T**- *k t p*, **S**- *f*, **R**- *l* in monomial coda. Thus, for instance:

cooks /**kʊks**/ verb, the 3rd person singular of 'to prepare food for eating by using heat' : **kooks**$_1$ /**kuːks**/ noun, the plural of 'someone who is silly or crazy';
cooks' /**kʊks**/ noun, the plural possessive case of 'someone who prepares and cooks food as their job' : **kooks'**$_2$ /**kuːks**/ noun, the plural, possessive case.

The following formula is deduced:

$$\mathbf{T/W \rightarrow \upsilon \leftarrow T/S/R : T/W \rightarrow u: \leftarrow T/S/R}$$

The database provides four pairs of one-syllabic CVCC type of word-forms. The stem of the first member of the opposition pair consists of the root and the stem of the second member consists of the root morpheme with the inflectional morphemes *-s* denoting the 3rd person singular of verbs, *-s* showing plurality, *'s, s'* the possessive case added to the stem. The type of syllable is closed. The boundaries of morphemes and syllables do not coincide. The monomial onset is of **W-** *w* type and **T-** *p*, **S-** *s* in monomial coda. Thus, for instance:

whoops$_1$ /**wʊps**/ interjection 'said when someone has fallen, dropped something, or made a small mistake' : **whoops**$_2$ /**wuːps**/ verb, the 3rd person singular of 'to shout loudly and happily';
whoops$_1$ /**wʊps**/ interjection : **whoop's**$_3$ /**wuːps**/ noun, singular, the possessive case of 'shout loud and happy shouting'.

It could be expressed in the following way:

W→*ʊ*← T/S : T/W →*uː* ← T/S

CVCVC type of word-forms

One pair represents two-syllabic CVCVC type of word-forms. The stems consist of the root morpheme. The flexion morpheme *-ing* denoting present participle is added to the stem. The first syllable is open and the second is of a closed type. The boundaries of morphemes and syllables do not coincide. The syllable division breakes the root morpheme and the added flexion makes the first syllable open. The first syllable has the **T-** *p* onset phoneme and the **Ø** zero onset, the second syllable takes **R-** *l* type onset, **V-** *i* nucleus, and **R-** *ŋ* phonemes in coda. Thus, for instance:

pulling /**pʊlɪŋ**/ verb, the present participle of 'to use your hands to make something' : **pooling** /**puːlɪŋ**/ verb, the present participle of 'to combine your money, ideas, skills etc with those of other people so that you can all use them'.

It could be expressed in the following way:

T → *ʊ*← Ø//R /V/R : T → *uː*← Ø//R /V/R

CVCCVC type of word-forms

This type of word-forms is observed in nine pairs of two-syllabic words. The stems consist of the root morphemes. The inflexional morpheme *-es* denoting plurality, and *'s, s'* the possessive case are added to the stem. The first syllable is open and the second is of a closed type. The boundaries of morphemes and syllables do not coincide. The syllable division breakes the root morpheme and the added flexion

makes the first syllable open. The first syllable has the **T-** *p* phoneme in onset and **Ø** zero coda, the second syllable takes **T-** *t,* **S-** *ʃ* type onset, **V-** *i* nucleus, and **S-** *s* phoneme in coda. Thus, for instance:

putsches$_1$ **/pʊtʃiz/** noun, the plural of 'a secretly planned attempt to remove a government by forces': **pooches**$_2$ **/puːtʃiz/** noun, the plural of 'a dog – often used humorously';
putsches$_1$ **/pʊtʃiz/** noun, the plural: **pooches'**$_2$ **/puːtʃiz/** noun, the plural, the possessive case.

It takes on the following expression:

T→ʊ← Ø//TS/V/S : T→ uː← Ø//TS/V/S

2.1.4. Opposition *ʊ–uː* in the root with the derivational* and inflectional morpheme

CVCCVCCVC type of word-forms

The database includes only one pair of three-syllabic CVCCVCCVC type of word-forms. This is a two-dimensional opposition of *ʊ–uː* and *i–iː* oppositions in the same pair. The stem of the first member of the opposition pair consists of the root and the derivational morpheme *-ee*. The inflectional morpheme *-s* for the plurality and's, s' for the possessive cases are added to the stem. The boundaries of morphemes and syllables do not coincide. The first two syllables are open and the third - is closed. The second syllable decomposes the root morpheme and the syllable division line goes after the vowel of the root morpheme. The first syllable has **R-** *r* phoneme in monomial onset, **V**-e nucleus and the **Ø** zero onset, the second syllable **S-** *f*, **W-***j* onset, and **Ø** zero coda, and the third syllable has **T-** *d,* **S-** *ʒ* monomial onset **V-** i-i: nucleus and **S-** *z* coda.

refugees$_1$ **/refjʊ'dʒiːz/** noun, the plural of 'someone who has been forced to leave their country, especially during a war, or for political or religious reasons': **refuges**$_2$ **/'refjuːdʒiz/** noun, the plural of 'a place that provides shelter, or protection from danger';
refugees'$_1$ **/refjʊ'dʒiːz/** noun, the plural, the possessive case : **refuges**$_2$ **/'refjuːdʒiz/** noun, the plural.

The formula is the following:

R/V/Ø// S/W →ʊ← Ø//T/S/V/S : R/V/Ø// S/W → uː← Ø//T/S/V/S

* one or both members of the opposition pairs may take the derivational morpheme

Consequently, to recognize the difference in meaning and part of speech depending on the length of the vowel ʊ–ʊː is epecially important for language synthesizer in understanding the utterance. All the above indicated formulas may be expediently incorporated into the algorithms of programme description.

2.2. Structural Morphonological Analysis of ʊ–ɔː Oppositions

Statistically 903 ʊ–ɔː root opposition pairs were traced in the English word stock. From them 188 are basic opposition pairs, 155 are of mixed type: when one member of the opposition pair is basic word-form and the second is a variant of the basic form, and 560 belong to variant opposition pairs. The ʊ–ɔː opposition has 716 pairs of one-syllabic word-forms, and 185 pairs of two-syllabic word-forms, and 2 opposition pairs of three-syllabic word-forms.

All oppositions occur in root morphemes. Statistically, ʊ–ɔː opposition makes 18.6% of oppositions in respect of all system of oppositions. (see the appendix 2)

2.2.1. Opposition ʊ–ɔː in the root morpheme

CV type of words

Four pairs of one-syllabic CV type word-forms that make ʊ–ɔː opposition were found. The stems consist of root morpheme. The syllable is open. The boundaries of morphemes and syllables coincide. The syllable has **S-** ʃ onset and **Ø** zero coda.

shore /ʃɔː/ noun 'the land along the edge of a large area of water such as an ocean or lake : sure /ʃʊ/ adjective 'confident that you know something or that something is true or correct'.

This can be summed up in the following way:

$$\mathbf{S \rightarrow ʊ \leftarrow Ø : S \rightarrow ɔː \leftarrow Ø}$$

VCVC type of word-forms

Two pairs of two-syllabic VCVC type word-forms that make ʊ–ɔː opposition were found. The stems of both opposition members consist of the root morphemes. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and **Ø** zero coda

and the second syllable has **S-** ***f*** phoneme in monomial onset and **R-** *n* phoneme in monomial coda.

often /ɒfən/ adverb 'something happens often, it happens regularly or many times' : **orphan** /ɔːfən/ verb 'to become an orphan'.

It can be transformed into the following expression:

Ø→ ɒ ← Ø//S/V/R : Ø→ ɔː ← Ø//S/V/R

VCV type of word-forms

Two pairs of two-syllabic VCV type of word-forms were found where the stems of both members of the opposition pairs consist of the roots with the derivational morpheme *-er*. Both syllables are open. The boundaries of morphemes and syllables do not coincide. The monomial onset has the **Ø** zero onset and **Ø** zero coda and the second syllable consists of **T-** *d* monomial onset, **V-ə** nucleus**,** and the **Ø** zero coda. Thus, for instance:

odder /ɒdə/ noun 'a type of poisonous snake' : **order** /ɔːdə/ noun 'a situation in which rules are obeyed and authority is respected'.

This type of word-forms has the expression as follows:

Ø→ ɒ ← Ø//T/V : Ø→ ɔː ← Ø//T/V

CVC type of word-forms

A hundred and thirty-five pairs of one-syllabic CVC type of word-forms were discovered. The stem consists of the root. The type of the syllable is closed. The boundaries of morphemes and syllables coincide. The monomial onset has **T-** *b d k g p t*, **S-** *ʃ s h,* **R-** *m n,* **W-** *w* phoneme in onset and **T-** *d k p t*, **R-** *l n,* **S-** *z* phonemes in monomial coda. Thus, for instance:

bod /bɒd/ noun '*Spoken British English* – a person': **board** /bɔːd/ noun 'a flat wide piece of wood, plastic etc that you can use to show information';
cos /kɒz/ conjunction '*informal of* because' : **cause** /kɔːz/ verb 'to make something bad happen'.

The formula may be as follows:

T/S/R/W → ɒ ← T/S/R : T/S/R/W → ɔː ← T/S/R

CVCV type of word-forms

One pair of two-syllabic CVCV type of word-forms represents this case. The stems consist of the root moephemes. Syllables are open. The boundaries of

morphemes and syllables do not coincide as syllables split the root morpheme. The first syllable has **T-** *k* phoneme in the onset and the **Ø** zero coda, the second syllable has the **R-** *m* phoneme in the onset and the **Ø** zero coda. Thus, for instance:

comma /**kɒmə**/ noun 'the mark (,) used in writing and printing to show a short pause or to separate things in a list' : **korma** /**kɔːmə**/ noun 'an Indian dish made with meat and cream'.

The final expression is as follows:

T→ ɒ ← Ø//R/V/Ø : T→ ɔː ← Ø//R/V/Ø

CVCC type of word-forms

Three pairs of one-syllabic CVCC type of word-forms were discovered in the database. The stems consist of the root morphemes. The type of the syllable is closed. The boundaries of morphemes and syllables coincide. The monomial onset has **T-** *k d* phoneme in onset and **TS-** *ps* **TR-** *dl* phoneme clusters in a binomial coda. Thus, for instance:

copse /**kɒps**/ noun 'a group of trees or bushes growing close together' : **corpse** /**kɔːps**/ noun 'the dead body of a person'.

This can be expressed in the following way:

T→ ɒ ← TS/TR : T→ ɔː ← TS/TR

CVCVC type of word-forms

The database embraces five pairs of two-syllabic CVCVC type of word-forms. The stems consist of the root morphemes. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The monomial onset of the first syllable has **T-** *b k,* **W-** *w* phonemes and and the **Ø** zero coda. The second syllable has **T-** *b,* **S-** *s* phonemes in monomial onset and **T-** t, **R-** *l* phonemes in monomial coda. Thus, for instance:

corset /**kɔːsɪt**/ noun 'a piece of tight-fitting underwear that women wore to make them look thinner': **cosset** /**kɒsɪt**/ verb 'to give someone as much care as you can, especially too much'.

This can be generalized in the following way:

T/W → ɒ ← Ø//T/S/V/T/R : T/W → ɔː ← Ø//T/S/V/T/R

CVCCVVC type of word-forms

One pair of two-syllabic CVCCVVC type of word-forms presents the *ɒ–ɔː* opposition. The stems consist of two root morphemes. The word-form is two-syllabic. Both syllables are closed. The first syllable has **T**-*p* phoneme in a monomial onset and **T**- *t* in a monomial coda and the second syllable has **S**- *h* in a monomial onset and **R**- *l* phoneme in monomial coda.

porthole /pɔːthəʊl/ noun 'a small round window on the side of a ship or plane': pothole /pɒthəʊl/ noun 'a large hole in the surface of a road, caused by traffic and bad weather, which makes driving difficult or dangerous'.

Succinctly this can be marked in the following way:

W→ ɒ ← T//S/VV/R : W→ ɔː ← T//S/VV/R

CCVC type of word-forms

The database presents twenty-nine pairs of one-syllabic CCVC type of word-forms. The stems consist of the root morphemes. The type of syllable is closed. The boundaries of morphemes and syllables coincide. The binary onset of the syllable has **ST**- *sk st sp ʧ,* **SR**- *sn,* **SW**- *sw* and **R**- *n*, **T**- *t k* phonemes in monomial coda.

scone /skɒn/ noun 'a small round cake, sometimes containing dried fruit, which is usually eaten with butter' : scorn /skɔːn/ noun 'the feeling that someone is stupid or does not deserve respect'; chalk /ʧɔːk/ verb 'to write or draw something with chalk' : choc /ʧɒk/ informal noun 'chocolate'.

This can be expressed in the following formula:

ST/SR/SW → ɒ ← R/T : ST/SR/SW → ɔː ← R/T

CCVCC type of word-forms

Six pairs of one-syllabic **CCVCC** type of word-forms were distinguished. The stems consist of the root morphemes. The syllables are closed. The boundaries of morphemes and syllables coincide. The binary onset of the syllable has **ST**- *sk* phoneme cluster and the binary coda of **TS**- *ʧ* phoneme cluster.

Scotch /skɒʧ/ adjective 'old-fashioned Scottish' : scorch /skɔːʧ/ verb 'if you scorch something, or if it scorches, its surface burns slightly and changes colour';

This can be expressed as follows:

ST→ ɒ ← TS : ST→ ɔː ←TS

2.2.2. Opposition *ɒ–ɔː* in the root with the derivational* morpheme

CVCV type of word-forms

Three pairs of two-syllabic CVCV type word-forms make *ɒ–ɔː* oppositions. The stem of one opposition member consists of the root and the second member consists of the root and the derivational morphemes *-er*. All syllables are open. The division line of morphemes and syllables do not coincide. The first syllable has **T-** *k p* phoneme variety of onset and the **Ø** zero coda, the second syllable has the **R-** *l* **T-** *p* onset and the **Ø** zero coda.

caller /kɔːlə/ noun 'someone making a telephone call': collar /kɒlə/ noun 'the part of a shirt, coat etc that fits around your neck, and is usually folded over'.

The final expression is as follows:

T→ ɒ← Ø//R/T/V/Ø : T→ ɔː← Ø//R/T/V/Ø

Ten pairs of CVCV word-forms represent the type where the opposition members consist of the roots and the derivational morphemes *-y, -ie, -er, -ly*. All syllables are open. The division line of morphemes and syllables do not coincide. The root morpheme of both opposition members is split after the vowel phoneme which makes the first syllable open. The first syllable has **T-** *k t b p,* **S-** *h,* **R-** *n* variety of onset cluster and **Ø** zero coda, the second syllable has the R- *l,* **T-** *p t d* onset and **Ø** zero coda.

hottie /hɒti/ noun 'someone who is very sexually attractive' : haughty /hɔːti/ adjective 'behaving in a proud unfriendly way';
topper /tɒpə/ noun 'a top hat' : torpor /tɔːpə/ noun 'a state of being not active'.

The final formula can be deduced in the following way:

T/S/R→ ɒ ← Ø//R/T/V : T/S/R→ ɔː ← Ø//R/T/V

CVCCV type of word-forms

Two pairs of two-syllabic CVCCV type word-forms were found. The stems of both opposition members consist of the root and the derivational morphemes *-ly, -y*. The first syllable is closed and the second is open. The division line of morphemes

* one or both members of the opposition pair may take the derivational morpheme

and syllables coincide. The first syllable has **T-** *g,* **S-** *h* phoneme variety of onset and **T-** *d* phoneme in coda, the second syllable has the **R-** *l* onset and the **Ø** zero coda.

godly /gɒdli/ adjective 'obeying God and leading a good life' : **gaudily** /gɔːdli/ adverb 'brightly and cheaply'.

The final expression is as follows:

T/S→ɒ← T//R/V/Ø : T/S→ɔː← T//R/V/Ø

VCVCV type of word-forms

It is interesting to note that one pair of three-syllabic VCVCV type of word-forms makes two-dimensional opposition of long and short vowels. The stems of both members of the opposition pairs consist of two-syllabic root morphemes and the derivational morphemes *-ee* and *-y*. All syllables are open. The onset and coda of the first syllable is zero **Ø** and the second syllable has the **R** – *n* phoneme in monomial onset and the **Ø** zero coda, the third syllable of this pair has the **R-** *r* monomial onset and the zero **Ø** coda.

ornery /ɔːnəri/ adjective 'behaving in an unreasonable and often angry way, especially by doing the opposite of what people want you to do' : **honoree** /ɒnəriː/ noun 'someone who receives an award'.

This can be expressed in the following way:

Ø → ɒ ← Ø//R/V//R → iː ← Ø : Ø → ɔː ← Ø//R/V//R → i ← Ø

CVCVC type of word-forms

Two pairs represent two-syllabic CVCVC type of word-forms. The stem of the second member of the opposition pairs consists of the root with the derivational morphemes *-al* added to the root morpheme. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The monomial onset of the first syllable has **T-** *k* phoneme and the zero **Ø** coda, the second syllable has **R-** *r* phoneme in monomial onset and **R-** *l* phoneme in monomial coda. Thus, for instance:

coral /kɒrəl/ noun 'a hard red, white, or pink substance formed from the bones of very small sea creatures, which is often used to make jewellery' : **choral** /kɔːrəl/ adjective 'related to music that is sung by a large group of people together'.

This can be resumed in the following formula:

T→ ɒ ← Ø//R/V/R : T →ɔː ← Ø//R/V/R

CCVCV type of word-forms

The database displays two pairs of two-syllabic CCVCV type of word-forms that have ɒ – ɔː opposition. The stems consist of the root morphemes and the derivational morpheme *-y*. Both syllables are open. The division line of the syllable does not coincide with the morphemic one. The first syllable has **ST-** *sp, tʃ* onset phoneme cluster and the zero **Ø** coda**,** and the second syllable has **T-** *t k* onset and the zero coda **Ø.**

spotty /spɒti/ adjective 'someone who is spotty has small raised red marks on their skin, especially on their face' : sporty /spɔːti/ adjective 'someone who is sporty likes sport and is good at it'.
choccy /tʃɒki/ noun 'a chocolate' : chalky /tʃɔːki/ adjective 'similar to chalk or containing chalk'.

This leads to the following:

ST → ɒ ← Ø//T/V/Ø : ST → ɔː ← Ø//T/V/Ø

CCVCVC type of word-forms

Two pairs of two-syllabic CCVCVC type of word-forms that have ɒ – ɔː opposition were found. The stems of the word-forms consist of the root morphemes and derivational morpheme *-ing*. Adhering to the root affixes change the syllable division line in word-forms. The first syllable is open and the second - is closed. The division line of syllable and morphemes do not coincide. The binary onset of the first syllable has **ST-** *sp st* phoneme cluster and the **Ø** zero coda. The second syllable has **T-** *t, k* monomial onset and **R-** *ŋ* type coda.

stocking /stɒkɪŋ/ noun 'a close–fitting covering for the foot and part of the leg, usually knitted, of wool, cotton, nylon, silk, or similar material': stalking /stɔːkɪŋ/ noun 'the crime of following and watching someone over a period of time in a way that is very annoying or threatening '.

The formula is as follows:

ST → ɒ ← //T/V/R : ST → ɔː ← Ø //T/V/R

2.2.3. Opposition *ɒ–ɔː* in the root with the inflectional* morpheme

VC type of word-forms

Ten pairs represent one-syllabic VC type word-form structure. The stem of the first opposition member consists of the root. The stem of the second member the stem consists of the root and the inflectional morpheme -s added to form the 3rd person singular, and *'s, s'* to show the possessive case, -ed to show the past tense, and -(e)s to form plurality of nouns. The division line of syllables and morphemes coincide. The syllable has the zero **Ø** onset and **T-** ***d,*** **S-** ***z*** phonemes in monomial coda. Thus, for instance:

odd /ɒd/ adjective 'different from what is normal or expected, especially in a way that you disapprove of or cannot' : **awed**$_1$ /ɔːd/ verb, the past tense 'if you are awed by someone or something, you feel great respect and liking for them, and are often slightly afraid of them';
Oz$_2$ /ɒz/ noun 'a short way of saying Australia' : **awes**$_1$ /ɔːz/ verb, the 3rd person;
Oz$_2$ /ɒz/ noun : **oar's** /ɔːz/ noun, the possessive case of 'a long pole with a wide flat blade at one end, used for rowing a boat'.

This can be expressed in the formula:

$$Ø \rightarrow ɒ \leftarrow T/S : Ø \rightarrow ɔː \leftarrow T/S$$

VCC type of word-forms

Three pairs of one-syllabic VCC type of word-forms were found. The stem of the first member of the opposition pair consists of the root morpheme. The stem of the second member consists of the root morpheme with the inflecional morpheme -*s* denoting plurality, and '*s, s'* to show possessive case added to the stem. The syllable is closed. The boundaries of morphemes and syllables do not coincide in word-form with inflectional morpheme. The syllable has the zero **Ø** onset and **T-** *k* phoneme in coda. Thus, for instance:

ox$_1$ /ɒks/ noun 'a bull' *:* **auks**$_2$ /ɔːks/ noun, plural of 'a black and white seabird with short wings';
ox$_1$ /ɒks/ noun : **auks'**$_2$ /ɔːks/ noun, plural, the possessive case.

It has the following expression:

$$Ø \rightarrow ɒ \leftarrow T/S: Ø \rightarrow ɔː \leftarrow T/S$$

* one or both members of the opposition pair may take the inflectional morpheme

CVC type of word-forms

The database provides the analysis with fifty-six pairs of one-syllabic CVC type of word-forms. The stem of the first member of the opposition pair consists of the root. And the stem of the second member consists of the root and the inflectional morphemes *-s* denoting the plurality, and *'s, s'* showing the possessive case added to the stem. These words being two-morphemic should not be split by pause while uttering them as they consist of one syllable. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The monomial onset has **T-** *b g k p,* **S-** *s ʃ h,* **R-** *n r,* **W-** *w* phonemes and **T-** *d,* **S-** *z* in monomial coda. Thus, for instance:

was$_1$ /**wɒz**/ verb, the past tense 'the first and third person singular of the past tense of be' : **wars**$_2$ /**wɔːz**/ noun, plural 'there is fighting between countries'.
was$_1$ /**wɒz**/ verb, the past tense: **wars'**$_2$ /**wɔːz**/ the possessive case of noun, plural.

The generalized expression is as follows:

T/S/R/W → ɒ ← T/S : T/S/R/W → ɔː ← T/S

CVCC type of word-forms

This case is presented by three hundred and thirty-seven pairs of one-syllabic CVCC type of word-forms. The stems of both members of the opposition pairs consist of the root morphemes, and the inflectional morphemes *-s* denote the 3rd person singular of the verbs, *-s* to show plurality, *'s, s'* to show the possessive case, and *-ed* morpheme denoting the past tense are added to the stem. These words being two-morphemic should not be split by a pause while uttering them as they consist of one syllable. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has **T-** t *b d k p,* **S-** *ʃ h s,* **R-** *m,* **W-** *w* phonemes and **TS-** *ks ts ps,* **RT-** *nd*, **TR-** dz, **ST-** *st*, **RS-** *nz lz*, **TT-** *kt*, in binomial coda. Thus, for instance:

boards /**bɔːdz**/ the 3rd person of verb of 'a flat wide piece of wood, plastic etc that you can use to show information on a board' : **bods** /**bɒdz**/ noun, the plural of 'British English spoken a person';
dock's /**dɒks**/ the possessive case of noun 'a place in a port where ships are loaded, unloaded, or repaired': **dorks** /**dɔːks**/ noun, the plural of 'someone who you think is or looks stupid'.
woks' /**wɒks**/ the possessive case of noun, the plural of 'a wide pan shaped like a bowl, used in Chinese cooking' : **walks'** /**wɔːks**/ the possessive case of noun, the plural of 'a journey that you make by walking, especially for exercise or enjoyment';
cost /**cɒst**/ verb, the past tense of 'to have a particular price' : **coursed** /**cɔːst**/ verb, the past tense of 'a liquid or electricity courses somewhere, it flows there quickly'.

This can be expressed in the following way:

T/S/R/W→ɒ← TS/RT/TR/RS/ST/TT : T/S/R/W→ɔː← TS/RT/TR/RS/ST/TT

Fifty-one pairs of one-syllabic CVCC type of word-forms were found where the stem of the first member of the opposition pair consists of the root. And the stem of the second member consists of the root with the inflectional morphemes *-s* denoting the 3rd person singular of verbs; *-s* to show plurality, and *-ed* morpheme denoting the past tense added to the stem. The second constituent of the pair being two-morphemic should not be split by pause uttering them as they consist of one syllable. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The monomial onset has **T-** *b g k p s,* **S-** *ʃ h,* **R-** *n r,* **W-** *w* phonemes and **TS-** *ks, ps* **RT-** *nd*, **TR-** *dl*, **ST-** *st*, in binomial coda. Thus, for instance:

cox /**kɒks**/ noun 'someone who controls the direction of a rowing boat, especially in races': **caulks** /**kɔːks**/ verb, the 3rd person singular of 'to fill the holes or cracks in a ship with an oily or sticky substance in order to keep water out';
fox /**fɒks**/ noun 'a wild animal with reddish-brown fur, a pointed face, and a thick tail: **forks** /**fɔːks**/ verb, the 3rd person singular of 'to tell someone that something bad or dangerous may happen, so that they can avoid it or prevent it';
pond /**pɒnd**/ noun 'a small area of fresh water that is smaller than a lake, that is either natural or artificially made' : **pawned** /**pɔːnd**/ verb, the past tense of 'one of the eight smallest and least valuable pieces which each player has in the game of chess'.

This can be generalized in the following way:

T/S/R/W→ ɒ ← TS/TR/TR/ST : T/S/R/W→ ɔː ← TS/TR/TR/ST

CCVC type of word-forms

This case is represented by two pairs of one-syllabic CCVC type of word-forms where the stem of the first member of the opposition pair consists of the root. And the stem of the second member consists of the root with the inflectional morpheme *-ed* denoting the past tense added to the stem. Syllables are closed. The boundaries of morphemes and syllables do not coincide in word-form with the inflectional morpheme. The binomial onset has **TR-** *kl* phoneme cluster and **T-** *d* phoneme in monomial coda. Thus, for instance:

clod /**klɒd**/ noun 'a lump of mud or earth': **clawed** /**klɔːd**/ verb, the past tense of 'to tear or pull at something, using claws or your fingers'.

This can be expressed in the following way:

TR→ ɒ ←T : TR→ ɔː ←T

CVCVC type of word-forms

Twenty-eight pairs of two-syllabic CVCVC type of word-forms were found. The stems of both members of the opposition pairs consist of the root with the inflectional morphemes *-(e)*s forming plurality of nouns, the 3rd person singular of verbs, *'s, s'* to form possessive case, *-ed* denoting the past tense and *-ing* denoting the present participle of verbs added to the stem. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The monomial onset of the first syllable has **T-** *k p,* **W-** *w,* **S-** *h* phonemes and the zero **Ø** coda, the second syllable has **T-** k *t d p,* **S-** *z,* **R-** *n m* phonemes in monomial onset and **S-** *z,* **R-** *ŋ,* **T-** *d* phoneme in monomial coda. Thus, for instance:

donning /dɒnɪŋ/ verb, the present participle of 'to put on a hat, coat etc' : **dawning** /dɔːnɪŋ/ verb, the present participle 'if day or morning dawns, it begins';
potted /pɒtɪd/ verb, the past participle of 'to put a plant into a pot filled with soil' : **ported** /pɔːtɪd/ verb, the past participle of 'to move software from one computer system to another';
cozzies$_1$ /kɒziz/ noun, the plural of 'a swimming costume': **causes**$_2$ /kɔːziz/ noun, the plural of 'a person, event, or thing that makes something happen';
cozzies$_1$ /kɒziz/ noun, the plural : **cause's**$_2$ /kɔːziz/ noun, the possessive case.

This can be expressed in the following way:

T/S/W → ɒ ← Ø//T/R/S/V/T/R/S : T/S/W → ɔː ← Ø//T/R/S/V/T/R/S

CVCCVC type of word-forms

The database gives four pairs of two-syllabic CVCCVC type of word-forms. The stems consist of one-syllabic root morphemes with the inflectional morpheme *-es* denoting plurality of nouns and *'s, s'* forming possessive case. The division line of syllables and morphemes does not coincide. Both syllables are closed. The onset of the first syllable has **T-** *k* phoneme and **T-** *p* phoneme in monomial coda. The onset of the second syllable has **S-** *s* phoneme and **S-** *s* phoneme in the coda.

copses$_1$ /kɒpsiz/ noun, the plural of 'a group of trees or bushes growing close together': **corpses**$_2$ /kɔːpsiz/ noun, the plural of 'the dead body of a person';
copses$_1$ /kɒpsiz/ noun, the plural : **corpses'**$_2$ /kɔːpsiz/ noun, plural.

The opposition has the following expression:

T → ɒ ← T// S/V/S : T → ɔː ← T// S/V/S

CVCVCC type of word-forms

Twenty-three pairs of two-syllabic CVCVCC type of word-forms were discovered. The stems consist of the root morphemes with the inflectional morphemes: *-(e)*s forming plurality of nouns, *'s, s'* possessive case, the 3rd person singular of verbs, *-ed* denoting the past tense added to the stem. The boundaries of morphemes do not coincide with the syllabic division. The first syllable of the word-form is open and the second - is closed. The monomial onset of the first syllable has **T-** *k b*, **W-** *w* phonemes and the zero **Ø** coda, the second syllable has **T-** *b*, **S-** *s* phonemes in monomial onset and the binary **TS-** *ts,* **RS-** *lz,* **RT-** *ld,* phoneme in coda.

wobbled /wɒbəld/ verb, the past paraticiple of 'to move unsteadily from side to side, or make something do this' : warbled /wɔːbəld/ verb, the past participle of 'to sing with a high continuous but quickly changing sound, the way a bird does'.

corset's /kɔːsɪts/ noun, the possessive case of 'a piece of tight–fitting underwear that women wore especially in the past to make them look thinner': cossets /kɒsɪts/ verb, the 3rd person singular of 'to give someone as much care and attention as you can, especially too much'.

They have the following schematic expression:

T/W → ɒ ← Ø//T/S/V/TS/RS/RT : T/W -→ ɔː ← Ø//T/S/V/TS/RS/RT

CVCVCVC type of word-forms

This case is represented by one pair of three-syllabic CVCVCVC type of word-forms. The stems consist of the root morphemes. The flectional present participle morpheme *-ing* is added to the stem. The first two syllables are open and the third is closed. The division line of morphemes and syllables does not coincide: the second syllable splits the root morpheme. The last phoneme of the morpheme joins the third syllable-flectional morpheme. The first syllable has **W-***w* onset and the **Ø** zero coda**,** the second syllable has **T-** *b* onset and the **Ø** zero coda, and the third syllable has **R-** *l* onset and **R-** *ŋ*.

wobbling /wɒbəlɪŋ/ verb, the present participle of 'to move unsteadily from side to side, or make something do this' : warbling /wɔːbəlɪŋ/ verb, the present participle of 'to sing with a high continuous but quickly changing sound, the way a bird does'.

Succintly it can be generalized into:

W→ ɒ ← Ø//T/V/Ø//R/V/R : W→ ɔː ← Ø//T/V/Ø//R/V/R

CVCCVVCC type of word-forms

It is realized in nine pairs of **CVCCVVCC** type of word-forms. The stems of the word-form consist of two-root morphemes and the inflectional morpheme of plurality, *'s, s'* of the possessive case are added to the stem. Both syllables are closed. The boundaries of morphemes and syllables do not coincide in the word-form.The first syllable has **W**-*w* phoneme onset and **T**- *t* coda, and the second syllable has **S**- *h* onset with the binary **RS**- *z, l* coda.

potholes$_1$ /pɒthəʊlz/ noun, the plural of 'a large hole in the surface of a road, caused by traffic and bad weather, which makes driving difficult or dangerous' : portholes$_2$ /pɔːthəʊlz/ noun, the plural of 'a small round window on the side of a ship or plane'.
potholes'$_1$ /pɒthəʊlz/ noun, the plural, the possessive case : portholes$_2$ /pɔːthəʊlz/ noun, the plural.

This type bears the following expressionexpression will be the following:

W→ ɒ ← T//S/VV/RS : W→ ɔː ← T//S/VV/RS

CCVC type of word-forms

Two pairs of opposition of CCVC type were found. The first member of the opposition pair is the root morpheme with the inflectional morpheme *-ed* to form the past participle of verbs. The second constituent of the opposition consists of the root morpheme. All the syllables are closed. The binary onset of the root morpheme has **TR**- *kl* phoneme cluster and **T**- *d* phoneme in coda.

clod /klɒd/ noun 'a lump of mud or earth' : clawed /klɔːd/ verb, the past participle of 'to tear or pull at something, using claws or your fingers'.

This can be expressed in the following formula:

ST/SR/SW/SS/TR → ɒ ← R/T : ST/SR/SW/SS/TR → ɔː ← R/T

CCVCC type of word-forms

Seventy-four pairs of **CCVCC** type of word-forms illustrate this case. The stems of both members of the opposition pairs consist of the root morphemes. And the inflectional morphemes *-s* denoting the 3rd person singular of verbs, *-s* to showing plurality, also *'s, s'* showing the possessive case, and *-ed* morpheme denoting the past tense are added to the stem. The syllable is closed. Boundaries of morphemes and syllables do not coincide. These words being two-morphemic should not be split by a pause while uttering them as they consist of one syllable. The binary onset of the first

syllable is of **ST-** *sk sp st*, **TS-** *tʃ* and the binary coda of **RS** – *nz,* **TS-** *ts ks,* **TT-** *kt* phoneme clusters.

scones /**skɒnz**/ noun, the plural of 'a small round cake, sometimes containing dried fruit, which is usually eaten with butter' : **scorns** /**skɔːnz**/ verb, the 3rd person singular of 'to show that you think that something is stupid, unreasonable, or not worth accepting';
stocked /**stɒkt**/ verb, the past tense of 'if a shop stocks a particular product, it keeps a supply of it to sell' : **stalked** /**stɔːkt**/ verb, the past participle of 'to follow a person or animal quietly in order to catch and attack or kill them';
chalks /**tʃɔːks**/ noun, the plural of 'soft white or grey rock formed a long time ago from the shells of small sea animals' : **chocs** /**tʃɔks**/ informal noun 'chocolate';
stork's /**stɔːks**/ noun, the possessive case of 'a tall white bird with long legs and a long beak' : **stocks** /**stɒks**/ noun, the plural of 'a supply of a particular type of thing that a shop has available to sell'.

This can be expressed as follows:

ST/TS → ɒ ← RS/TS/TT : ST/TS → ɔː ← RS/TS/TT

CCVCCC type of word-forms

Four pairs of one-syllabic CCVCCC word-forms were found in a database. The stems consist of the root morphemes and the inflectional morpheme *-ed* to form past tense of verbs. The syllable is closed. Boundaries of morphemes and syllables do not coincide. The syllable has **ST-** *sk* onset and trinomial coda of **TST-** *tʃt* phoneme cluster.

scotched /**skɒtʃt**/ verb, the past tense of 'to stop something happening by firmly doing something to prevent it' : **scorched** /**skɔːtʃt**/ verb, the past tense of 'if you scorch something, or if it scorches, its surface burns slightly and changes colour'.

The formula is the following:

ST → ɒ ← TST : ST → ɔː ← TST

CCVCVC type of word-forms

Four pairs of two-syllabic CCVCVC word-forms represented this case. The stems of the word-forms consist of the root morphemes which add the inflectional morpheme *-ing* to form the present participle of verbs and *-ed* to form the past tense of verbs. Added affixes change the syllable division line in word-forms. The first syllable is open and the second – is closed. The division line of syllable and morphemes do not coincide. The binary onset of the first syllable has **ST-** *sp st*

phoneme cluster and the **Ø** zero coda**.** The second syllable has **T-** *t, k* onset and **T-** *d* **R-** *ŋ* phonemes in monomial coda.

spotted /**spɒtɪd**/ adjective 'having small round marks of a different colour on the surface' : **sported** /**spɔːtɪd**/ verb past tense 'to play together happily';

The formula is as follows:

ST → ɒ ← Ø //T/V/T/R : ST → ɔː ← Ø //T/V/T/R

CCVCCVC type of word-forms

Seventeen pairs of two-syllabic CCVCCVC word-forms were found. The stems consist of the root morphemes which add the inflectional morphemes *-ing* to form present participle of verbs, *-es* to form the plural form of nouns, *'s, s'* the possessive case and present 3rd person singular of verbs. The division line of syllables and morphemes differs and bound inflectional morpheme in the second syllable adds two last root phonemes to its onset. Thus, the first syllable is open and the second - is closed. The onset of the first syllable is binary and has the **ST-** *sk* type phoneme cluster, the coda is zero **Ø.** The second syllable has the **TS-** *ʧ* binary onset and **R-** *ŋ* **S-** *z* type coda.

scotching /**skɒʧɪŋ**/ verb, the present participle of 'to stop something happening by firmly doing something to prevent it' : **scorching** /**skɔːʧɪŋ**/ verb, the present participle of 'if you scorch something, or if it scorches, its surface burns slightly and changes colour'.
Scotches /**skɒʧɪz**/ noun, the plural of 'a strong alcoholic drink made in Scotland' : **scorche's** /**skɔːʧɪz**/ noun, the possessive case of 'a mark made on something where its surface has been burnt'.

The structure can be expressed in the following formula:

ST→ ɒ ← Ø// TS/V/R/S : ST → ɔː ← Ø// TS/V/R/S

2.2.4. Opposition *ɒ–ɔː* in the root with the derivational* and inflectional morpheme

VCV type of word-forms

Three pairs of two-syllabic VCV type of word-forms were found. The stem of the first member of the opposition pair consists of the root morpheme and the inflectional morpheme *-er* to form the comparative degree of adjectives and the stem

* One or both members of the opposition pairs may take the derivational or inflectional morphemes

of the second member consists of the root with derivational morpheme *-er*. Syllables are open. The division lines of syllables do not coincide with the morphemic ones and split the root morpheme. The first syllable has the **Ø** zero onset and the zero the **Ø** coda and the second syllable consists of **T-** *d* phoneme in monomial onset and the zero **Ø** coda:

odder /ɒdə/ adjective, the comparative degree of 'different from what is normal or expected, esspecially in a way that you disapprove of or cannot' : **order** /ɔːdə/ noun 'an instruction to do something that is given by someone in authority'.

The final expression is as follows:

Ø → ɒ ← Ø//T/V/Ø : Ø → ɔː ← Ø//T/V/Ø

CVCVC type of word-forms

Eleven pairs of two-syllabic CVCVC type of word-forms represent the case where the stem of one member of the opposition pair consists of the root morpheme and adds the inflectional morphemes *-ed* to form the past tense, *-ing* to form the present participle. The stem of the second member consists of the root with the derivational morpheme *-id, -ed, -ing*. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The monomial onset of the first syllable has **T-** *k p,***S-** *s,* **W**-*w* phonemes and the zero **Ø** coda, the second syllable has **T-** *k t d p* phonemes in monomial onset and **R-** *ŋ,* **T** *d* phoneme in monomial coda. Thus, for instance:

whopping /wɒpɪŋ/ adjective 'very large' : **warping** /wɔːpɪŋ/ verb, the present participle of 'if something warps, or if heat or cold warps it, it becomes bent or twisted, and loses its original shape';
potted /pɒtɪd/ adjective 'growing indoors in a pot' : **ported** /pɔːtɪd/ verb, the past participle of 'to move software from one computer system to another' :

The structure can be expressed by the following formula:

T/S/W →ɒ ← Ø//T/V/T/R : T/S/W →ɔː ← Ø//T/V/T/R

CCVCVC type of word-forms

This group includes six pairs of two-syllabic CCVCVC type of word-forms. The stem of the word-forms of the first member of the opposition consists of the root morpheme and derivational morphemes *-ing*, and *-ed*. The second member of the opposition pair has the stem of the root morpheme with the inflectional morpheme -

ing to form the present participle and *-ed* to show the past tense. The affixes added to the root change the syllable division line in word-forms. The first syllable is open and the second - is closed. The binary onset of the first syllable has **ST-** *sp st* phoneme cluster and the zero **Ø** coda**.** The second syllable has **T-** *t, k* in onset and **T-** *d* **R-** *ŋ* phonemes in monomial coda:

spotted /spɒtɪd/ adjective 'having small round marks of a different colour on the surface' : sported /spɔːtɪd/ verb past participle 'to play together happily'.

The generalized expression is as follows:

ST → ɒ ← Ø//T/V/T/R : ST → ɔː ← Ø//T/V/T/R

CCVCCC type of word-forms

One pair of one-syllabic CCVCCC type of word-forms was found. The stem of one opposition member consists of the root morpheme and the derivational morpheme *-ed* added to the root. The stem of the other member consists of the root morpheme and the inflectional morpheme *-ed* to show the past tense of verbs added to the stem. Boundaries of morphemes and syllables do not coincide. The syllable has **ST-** *sk* binary onset and binary coda of **TST-** *tʃt* phoneme cluster.

scotched /skɒtʃt/ verb, the past participle of 'if you scorch something, or if it scorches, its surface burns slightly and changes colour : scorched /skɔːtʃt/ adjective 'burnt'.

The formula is the following:

ST → ɒ ← TST : ST → ɔː ← TST

CCVCCVC type of word-forms

There is only one pair of two-syllabic CCVCCVC type of word-forms. The stem of the first opposition member consists of the root morpheme and the derivational morpheme *-ing*. The stem of the second member consists of the root morpheme and the inflectional morpheme *-ing* to form the present participle. The division line of syllables and morphemes differs and the bound morphemes in the second syllable add two last phonemes to the onset. Thus, the first syllable is open, the second - is closed. The onset of the first syllable is binary and has the **ST-** *sk* type

phoneme cluster. The coda is zero **Ø;** the second syllable has the **TS-** *ʧ* type onset and **R-** *ŋ* type coda:

scorching /skɔːʧɪŋ/ adjective 'extremely hot' : **scotching** /skɒʧɪŋ/ verb, the present participle of 'to stop something happening by firmly doing something to prevent it'.

The structure can be expressed in the following formula:

ST→ ɒ ← Ø//TS/V/R: ST →ɔː← Ø//TS/V/R

It is quite obvious that the teaching the computer to understand the difference in the semantic meaning and the part of speech of words with *ɒ* and *ɔː* oppositions is necessary and feasible task in creating language synthesizer. The systematized formulas can act as parts of algorithms of the programme description.

2.3. Structural Morphonological Analysis of *ʌ–aː* Oppositions

Statistically 959 pairs were traced in the English word stock that make root *ʌ–aː* oppositions. All oppositions occur in the root morpheme. The opposition pairs can be divided into three divisions: 220 basic opposition pairs, 121 are of mixed type: when one member of the opposition pair is basic word-form and the second is a variant of the basic form, and 618 variant opposition pairs. The *ʌ–aː* opposition has 655 pairs of one-syllabic word-forms, 299 pairs of two-syllabic word-forms, and 5 pairs of three-syllabic word-forms.

Statistically, *ʌ–aː* opposition makes 19.7% of oppositions in respect of all system of oppositions. A variation of syllables, word-forms structure, and number of words participating in opposition see in the appendix 3.

2.3.1. Opposition *ʌ–aː* in the root morpheme

VC type of word-forms

Two pairs of one-syllabic VC type of word-forms were found having *ʌ–aː* opposition in the root. The stems and roots coincide. The syllable is closed. The onset has the **Ø** zero onset and **R-** *m* phoneme in coda:

um /ʌm/ interjection 'used when you cannot immediately decide what to say next' : **arm** /aːm/ noun 'one of the two long parts of your body between your shoulders and your hands'.

The structure can be expressed in the following formula:

Ø→ ʌ ←R : Ø → ɑː ←R

CVC type of word-forms

This cluster is represented by one hundred and forty-six pairs of one-syllabic CVC type of word-forms. The stems and roots coincide. The syllable is closed. The monomial onset has **T-** *b d k p t*, **S-** *s ʃ f h*, **R-** *l m n* and in monomial coda there are **R-** *l n m,* **S-** *ʃ z s f,* **T-** *t b p k d* phonemes:

come /kʌm/ verb 'to move towards you or arrive at the place where you are' : calm /kɑːm/ verb 'relaxed and quiet, not angry, nervous'.

This can be expressed in the following formula:

T/S/R→ ʌ ←R/S/T : T/S/R→ ɑː←R/S/T

CVCC type of word-forms

Twenty-six pairs of one-syllabic CVCC type of word-form structure were found. The stem, root and syllable boundaries coincide. The syllable is closed. The monomial onset has **T-** *b d t,* ***R-*** *l m* phonemes and **RS-***ns,* **ST-** *st, sk,* **TS-** *tʃ, dʒ* phonemes in binomial coda:

much /mʌtʃ/ adverb 'by a great amount' : march /mɑːtʃ/ verb 'if soldiers or other people march somewhere, they walk there quickly with firm regular steps'.

This can take on the following formula:

T/R → ʌ ←RS/ST/TS : T/R → ɑː← RS/ST/TS

CCVC type of word-forms

Twenty-seven pairs constitute one-syllabic CVCC type of word-form structure. The stems consist of the root morpheme. The stem and the root and the syllable boundaries coincide. The syllable is closed. The binomial onset has **TR-** *gr pl kl,* **ST-** *sk sp st,* **SR-** *sm sn,* **TS-** tʃphoneme clusters and **S-** *f,* **T-** *k t d,* **R-** *m* phonemes in monomial coda.

chum /tʃʌm/ noun 'a good friend' : charm /tʃɑːm/ noun 'special quality someone or something has that makes people like them, feel attracted to them'.

This can be expressed in the following formula:

TR/ST/SR/TS→ ʌ ← S/T/R : TR/ST/SR/TS→ ɑː← S/T/R

CCVCC type of word-forms

Four pairs of one-syllabic CCVCC type of word-form structure were found in the database. The stems consist of the root morpheme. The stem and the root coincide. The syllable is closed. The binomial onset has **TR-** *gr* phoneme cluster and **RT-** *nt* phoneme cluster in coda.

grant /grɑːnt/ verb 'to give someone something or allow them to have something that they have asked for' : grunt /grʌnt/ verb 'to make short sounds or say a few words in a rough voice, when you do not want to talk'.

This can be expressed in the following formula:

TR → ʌ ← RT : TR → ɑː← RT

CCVCCC type of word-forms

There are two pairs of one-syllabic CCVCCC type of word-form structure in the database. The stems consist of the root morpheme.The stem and the root and the syllable boundaries coincide. The syllable is closed. The binomial onset has **TR-** *br* phoneme cluster and **RTS-** *ntʃ* phoneme cluster in trinomial coda.

brunch /brʌntʃ/ noun 'a meal eaten in the late morning, as a combination of breakfast and lunch' : branch /brɑːntʃ/ verb 'to divide into two or more smaller, narrower, or less important parts'.

The generalized formula is the following:

TR→ ʌ ← RTS : TR→ ɑː← RTS

CVCV type of word-forms

One pair of two-syllabic CVCV type of word-form structure was found. The stems consist of the root morpheme. The boundaries of roots and syllables coincide. The syllables are open. The monomial onset of the first syllable has **T-** *p* phoneme and the **Ø** zero coda and the second syllable has **T-** *k* phoneme in the onset and the **Ø** zero coda.

pukka /pʌkə/ adjective 'real or properly made and of good quality' : parka /pɑːkə/ noun 'a thick warm jacket with a hood'.

This can be expressed in the following formula:

T→ ʌ ← Ø//T/V/Ø : T→ ɑː← Ø//T/V/Ø

CVCVC type of word-forms

Two pairs represent two-syllabic CVCVC type of word-form structure. The stems consist of the root morpheme. The boundaries of syllables and root morphemes do not coincide. The first syllable is open and the second - is closed. The monomial onset of the first syllable has **T-** *k* phoneme and the **Ø** zero coda and the second syllable has **R-** *m* phoneme in the onset and the **R-** *n* phoneme in coda.

cumin /kʌmɪn/ noun 'the seeds of a plant that have a sweet smell and are used especially in Mexican and Indian cooking, or the plant that they grow on' : **carmine** /kɑːmɪn/ noun 'a dark red colour'.

This can be expressed in the following formula:

T→ ʌ ← Ø//R/V/R : T→ ɑː← Ø//R/V/R

2.3.2. Opposition *ʌ–ɑː* in the root with the derivational* morpheme

CVC type of word-forms

There are three pairs of one-syllabic CVC type of word-form structure were found. The stem of the first opposition member consists of the monosyllabic root morpheme. The stem of the second opposition member consists of the root morpheme and the derivational morpheme *-ed.* The syllables are closed. The monomial onset has **T-** *b* phoneme and **T-** *d* phoneme variety in coda.

barred$_1$ /bɑːd/ adjective 'a window, gate etc has bars across it': **bud** /bʌd/ verb 'to produce buds';
barred$_1$ /bɑːd/ adjective : **bud** /bʌd/ noun 'a young tightly rolled up flower or leaf before it opens'.

This can be expressed in the following formula:

T→ ʌ ← T : T→ ɑː← T

CVCC type of word-forms

This case includes four pairs of one-syllabic CVCC type of word-form structure. The stem of the first opposition member consists of the root morpheme and the stem of the second opposition member consists of the root morpheme and the derivational morpheme *-ed.* The syllables are closed. The monomial onset has **S-** *f* phoneme and **T-** *t* phoneme in coda.

fussed /fʌst/ adjective 'bothered' : **fast** /fɑːst/ adjective 'moving or able to move quickly'.

* One or both members of the opposition pair may take the derivational morpheme

This can be expressed in the following formula:

$$\mathbf{S \rightarrow \wedge \leftarrow T : S \rightarrow \alpha\text{ː} \leftarrow T}$$

CVCV type of word-forms

Thirty-two pairs of two-syllabic CVCV type of word-form structure were found in the database. The stem of the first member consists of the root morpheme and the derivational morphemes *-y, -er*. The stem of the second member of the opposition pair consists of the root.The syllables are open. The monomial onset of the first syllable has **S-** *f s*, **T-** *k p*, **R-** *l m r* phonemes and the **Ø** zero coda. The second syllable has **S-** *s v,* **T-** *t k g,* **R-** *m n r* phonemes in the monomial onset and the **Ø** zero coda.

lover /lʌvə/ noun 'someone's lover is the person they are having a sexual relationship with but who they are not married to' : larva /lɑːvə/ noun 'a young insect with a soft tube-shaped body, which will later become an insect with wings';
fussy /fʌsi/ adjective 'very concerned about small, usually unimportant details, and difficult to please' : Farsi /fɑːsi/ noun 'the language of Iran'.

The following formula can be written:

$$\mathbf{S/T//R \rightarrow \wedge \leftarrow Ø//S/T/R : S/T//R \rightarrow \alpha\text{ː} \leftarrow Ø//S/T/R}$$

CVCVC type of word-forms

Four pairs of two-syllabic CVCVC type of word-form structure were discovered. The stems of both opposition members consist of the root morphemes with the derivational morpheme *-ing*. The first syllable is open and the second - is closed. The division line of morphemes and syllables do not coincide. The monomial onset of the first syllable has **T-** *p* phoneme and the **Ø** zero coda. The second syllable has the **T-** *t* phoneme monomial onset and **R-** *ŋ* phoneme monomial coda.

putting green /pʌtiŋ/ noun 'a smooth area of grass with special holes in it for playing a simple type of golf' : parting /pɑːtɪŋ/ noun 'an occasion when people leave each other'.

This can be expressed in the following formula:

$$\mathbf{T \rightarrow \wedge \leftarrow Ø//T/V//R : T \rightarrow \alpha\text{ː} \leftarrow Ø//T/V//R}$$

CCVCV type of word-forms

Five pairs of two-syllabic CVCCV type of word-form structure were found in the database. The stem of the first member consists of the root and derivational morpheme *-er*. The stem of second member of the pair consists of the root morpheme. Syllables are open. The division line of morphemes and syllables do not coincide in word-forms with the derivational morpheme *-er*. The binomial onset of the first syllable has **TR-** *dr* phoneme cluster and the **Ø** zero coda. The onset of the second syllable has the **R-** *m* onset phoneme and the **Ø** zero coda.

drummer /drʌmə/ noun 'someone who plays drums' : drama /drɑːmə/ noun 'a play for the theatre, television, radio etc, usually a serious one'.

This can take on the following formula:

TR→ ʌ ← Ø//R/V/Ø : TR→ ɑː← Ø//R/V/Ø

CVCCCV type of word-forms

This structure has one pair of two-syllabic CVCCCV type of word-form. The stems of both opposition members consist of the root morphemes and the derivational morpheme *-ly*. The first syllable is closed and the second is open. The division line of morphemes and syllables do not coincide. The monomial onset of the first syllable is of **R-** *l* phoneme and **S-** *s* phonemes in coda. The binomial onset of the second syllable has **T-** *t,* **R-** *l* phonemes and the **Ø** zero coda.

lustily /lʌstli/ adverb 'strongly and healthily' : lastly /lɑːstli/ adverb 'used when telling someone the last thing at the end of a list or a series of statements.

This can be summed up in the following formula:

R→ ʌ ← S//TR/V/Ø : R→ ɑː← S//TR/V/Ø

CCVCVC type of word-forms

One pair of two-syllabic CCVCVC type of word-form structure was found. The stems of both opposition members consist of the root morphemes and the derivational morpheme *-ing*. The first syllable is open and the second - is closed. The division line of morphemes and syllables do not coincide. The binomial onset of the first syllable is of **ST-** *st* phoneme cluster and the **Ø** zero coda. The monomial onset of the second syllable has **S-** *f* phonemes and **R-** *ŋ* phoneme in monomial coda.

stuffing /stʌfɪŋ/ noun 'a mixture of bread or rice, onion etc that is put inside a chicken, pepper etc before cooking it' : **staffing** /stɑːfɪŋ/ noun 'the people who work for an organization'.

This can be expressed in the following formula:

ST→ ʌ ← Ø//S/V/R : ST→ ɑː← Ø//S/V/R

2.3.3. Opposition *ʌ–ɑː* in the root with the inflectional* morpheme

CVC type of word-forms

This structure consists of twenty-eight pairs of one-syllabic CVC type of word-form. The stem of the first opposition member has the monosyllabic root morpheme. The stem of the second opposition member consists of the monosyllabic root morpheme and the inflectional morpheme: *-ed* to show the past participle and the past tense of verbs. There are also inner flections of suppletive forms, as well as *-e(s)* to show the 3rd person singular, and *-s* for nouns to show plurality, and *'s, s'* for the possessive case. The syllables are closed. The monomial onset has **T-** *b d k,* **S-** *, f* **R-** *m* phoneme and **T-** *d t,* **R-** *m n*, **S-** *s z* phoneme variety in coda:

buzz /bʌz/ verb 'to make a continuous sound, like the sound of a bee' : **bars** /bɑːz/ verb, the 3rd person of 'to officially prevent someone from entering a place or from doing something';
bud /bʌd/ noun 'a young tightly rolled up flower or leaf before it opens' : **barred** /bɑːd/ verb, the past tense and the past participle of 'to officially prevent someone from doing something';
car's /kɑːz/ noun, the possessive case of 'a vehicle with four wheels and an engine, that can carry a small number of passengers' : **coz** /kʌz/ conjunction 'because';
cart /kɑːt/ verb 'to take something somewhere in a cart, truck etc' : **cut** /kʌt/ verb, the past tense of 'to reduce the amount of something'.

The following formula issues:

T/S/R→ ʌ ← T/R/S : T/S/R → ɑː← T/R/S

CVCC type of word-forms

This cluster is represented by forty-one pairs of one-syllabic CVCC type of word-form structure. The stem of the first opposition member consists of the root morpheme. The stem of the second opposition member consists of the monosyllabic root morpheme and the inflectional morpheme *-ed* for the past participle and the past tense of verbs; *-e(s)* the present Simple tense of the 3rd person singular, and *-s* for plural nouns, *'s, s'* to form possessive case of nouns added to the stem. The syllables

* One or both members of the opposition pairs may take the inflectional morpheme

are closed. The monomial onset has **T-** *d k p,* **S-** *ʃ f h,* **R-** *m r* phonemes and binomial coda has **ST-** *ft st*, **TS-** *ks ts* phonemes.

duffed /dʌft/ verb, the past tense of 'to fight someone and injure them' : **daft** /dɑːft/ adjective 'silly';
putz /pʌts/ verb 'to spend time doing little, or not doing anything important' : **parts** /pɑːts/ verb, the 3rd person of 'to move the two sides apart, or to move apart, making a space in the middle';
shark's /ʃɑːks/ noun 'a large sea fish with several rows of very sharp teeth that is dangerous to humans' : **shucks** /ʃʌks/ interjection 'used to show that one is a little disappointed about something'.

This can be summed up by the following formula:

T/S/R→ ʌ ← ST/TS : T/S/R→ ɑː← ST/TS

The database includes two hundred and forty-nine pairs of one-syllabic CVCC type of word-form structure. The stems of both pair members consist of the root morphemes and the inflectional morpheme *-ed* denoting the past participle and the past tense of verbs, inner flection in suppletive forms *-e(s);* the Present Simple tense of the 3rd person singular, and *-s* for plural nouns; also *'s, s'* for the possessive case of nouns. The syllables are closed. The monomial onset has **T-** *p b d k,* **S-** *ʃ f h s t,* **R-** *l m n* phonemes and binomial coda has **RS-** *lz mz nz,* **TS-** *ks ts bz ps,* **RT-** *md* **TT-** *pt kt,* **ST-** *ft* phonemes.

buns /bʌnz/ noun, the plural of 'a small round sweet cake' : **barns** /bɑːnz/ noun, the plural of'a large farm building for storing crops, or for keeping animals in';
bums /bʌmz/ verb, the 3rd person 'to ask someone for something such as money, etc' : **balms** /bɑːmz/ noun, the plural of 'an oily liquid with a strong pleasant smell that you rub into your skin';
bucked /bʌkt/ verb, the past tense of 'if a horse bucks, it kicks its back feet into the air, or jumps with all four feet off the ground' : **barked** /bɑːkt/ verb, the past tense of 'when a dog barks, it makes a short loud sound or series of sounds';
cast /kɑːst/ verb, the past participle of 'to provide new information about something, making it easier to understand' : **cussed** /kʌst/ verb, the past tense of 'to swear because you are annoyed by something';
lark's /lɑːks/ noun, the possessive case 'a small brown singing bird with long pointed wings' : **lucks** /lʌks/ verb, the 3rd person 'to be lucky'.

The following formula can be written:

T/S/R→ ʌ ← RS/TS/RT/TT/ST : T/S/R→ ɑː← RS/TS/RT/TT/ST

CVCV type of word-forms

Two pairs of two-syllabic CVCV type of word-form structure were found. The stems of both opposition members consist of the root morphemes and the

inflectional comparative morpheme *-er*. The syllables are open. The monomial onset of the first syllable has **T-** *k* phonemes and the **Ø** zero coda. The second syllable has **R-** *m* phoneme in the monomial onset and the **Ø** zero coda.

calmer /kɑːmə/ adjective, the comparative degree of 'relaxed and quiet, not angry, nervous, or upset' : comer /kʌmə/ noun 'anyone who wants to take part in an activity, especially a sporting competition'.

This can be expressed in the following formula:

$$\mathbf{T\rightarrow \Lambda \leftarrow \emptyset//R/V/\emptyset : T\rightarrow \alpha\text{ː}\leftarrow \emptyset//R/V/\emptyset}$$

CCVC type of word-forms

Four pairs of one-syllabic CCVC type of word-form structure were found. The stem of the first opposition member consists of the root morpheme. The stem of the second opposition member consists of the root morpheme and the inflectional morpheme *-ed* to show past participle and past tense of verbs, inner flection in suppletive forms are added to the stem. The syllables are closed. The binomial onset has **ST-** *sk* phoneme cluster and **T-** *d* phoneme in coda.

scud /skʌd/ verb 'if clouds scud across the sky, they move quickly' scarred /skɑːd/ verb past tense 'if a wound or cut scars you, it leaves a permanent mark on your body';
stark /stɑːk/ adverb 'very plain in appearance, with little or no colour or decoration': stuck /stʌk/ verb, past tense of 'to attach something to something else, or to become attached to a surface'.

This can be expressed in the following formula:

$$\mathbf{ST\rightarrow \Lambda \leftarrow T : ST\rightarrow \alpha\text{ː}\leftarrow T}$$

CVCCC type of word-forms

This structure is represented by fourty-two pairs of one-syllabic CCVC type of word-form structure. The stems of both members of the pairs consist of the root morphemes and the inflectional morphemes: *-ed* to show past participle and past tense of verbs, *-e(s)* present Simple tense of the 3rd person singular, the morpheme *-s* of plurality, and 's, s' the possessive case, singular and plural. The syllables are closed. The monomial onset has **R-** *l m*, **T-** *t b* phonemes and **STS-** *sts sks,* **STT-** *skt* phoneme cluster in trinomial coda.

busked /bʌskt/ verb, the past tense of 'to play music in a public place in order to earn money' : basked /bɑːskt/ verb, the past tense of 'to enjoy sitting or lying in the heat of the sun or a fire';

tusks /tʌsks/ noun, the plural of 'one of a pair of very long pointed teeth, that stick out of the mouth of animals such as elephants' : **tasks** /tɑːsks/ verb, the 3rd person singular of 'to give someone the responsibility for doing something'.

last's /lɑːsts/noun possessive case 'the person or thing that comes after all the others': **lusts** /lʌsts/ verb, the 3rd person singular of 'to want something very much that you do not really need'.

This can be summed up in the following formula:

R/T→ ʌ ← STS/STT : R/T→ ɑː← STS/STT

CVCVVC type of word-forms

Two pairs of three-syllabic CVCVVC type of word-form structure were discovered. Both members of the opposition pairs have stems consisting of the root morphemes and the inflectional morpheme *-ing* for the present participle of verbs. The first and the second syllables are open, the third one is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the monomial onset **R-** *m,* **T-** *b* phonemes and the **Ø** zero coda. The second syllable has **T-** *t* phoneme in monomial onset and the **Ø** zero coda, and the third syllable has the **R-** *r* phoneme onset and **R-** *ŋ* phoneme in monomial coda.

buttering /bʌtərɪŋ/ verb, the present participle of 'to spread butter on something' : **bartering** /bɑːtərɪŋ/ verb, the present participle of 'to exchange goods, or services for other goods rather than for money'.

This can be expressed in the following formula:

R/T→ ʌ ← Ø//T/V/Ø//R/V/R : R/T→ ɑː← Ø//T/V/Ø//R/V/R

CCVCC type of word-forms

Sixteen pairs of one-syllabic CCVC type of word-form structure were discovered. The stems of both members of the pair consist of the root morphemes and the inflectional morphemes *-ed* for the past participle and the past tense of verbs; *-e(s),* the present Simple tense of the 3rd person singular, and *-s* for nouns to show plurality; 's, s' to show the possessive case are added to the stem. The syllables are closed. The binomial onset has **TR-** *kl pl,* **ST-** *sk st,* **SR-** *sm sn,* **TS-** *tʃ* phoneme cluster and **TS-** *ks ts,* **TT-** *kt,* **ST-** *ft,* **SS-** *fz,* **RS-** *mz* phoneme cluster in binomial coda.

chums /ʧʌmz/ noun, the plural of 'a good friend' : **charms** /ʧɑ:mz/ verb, the 3rd person singular of 'to attract someone and make them like you, sometimes in order to make them do something for you';
stuffs /stʌfz/ verb, the 3rd person singular of 'to put something into a small space, especially in a quick careless way' : **staffs** /stɑ:fz/ verb, the 3rd person singular 'provides the workers for an organization';
scuffed /kʌft/ verb, the past tense of 'to make a mark on a smooth surface by rubbing it against something rough' : **scarfed** /skɑ:ft/ verb, the past tense of 'to eat something very quickly';
clerks' /klɑ:ks/ noun, the plural, the possessive case 'someone who keeps records or accounts in an office' : **clucks** /klʌks/ noun, the plural of 'a low short noise made by chickens'.

This can take on the following formula:

TR/ST/SR/TS→ʌ← TS/TT/ST/SS/RS : TR/ST/SR/TS→ɑ:←TS/TT/ST/SS/RS

CCVCCC type of word-forms

This case is represented by two pairs of one-syllabic CCVCCC type of word-form structure. The stems of both pair members consist of the root morphemes and the inflectional morphemes *-e(s)* the present Simple tense of the 3rd person singular, and *-s* for nouns to show plurality, 's, s' denote the possessive case, singular and plural. The syllables are closed. The binomial onset has **TR-** *br* phoneme cluster and **RTS-** *ntʃ* phoneme cluster in trinomial coda.

grunts /grʌnts/ verb, the 3rd person singular of 'to make short sounds or say a few words in a rough voice, when you do not want to talk' : **grants**$_1$ /grɑ:nts/ noun, the plural of 'an amount of money given to someone, especially by the government, for a particular purpose';
grunts /grʌnts/ noun, the plural of 'a short low sound that a person or animal makes in their throat' : **grants**$_1$ /grɑ:nts/ noun, the plural.

This can be expressed in the following formula:

TR→ ʌ ← RTS : TR→ ɑ:← RTS

CVCV type of word-forms

One pair of two-syllabic CVCV type of word-form structure was found. This two-dimentional opposition has ʌ–ɑ: opposition in the root. The stem of the first member of the opposition pair consists of the root morpheme and the stem of the second member consists of the root with added Latin inflection *-ea* of plurality. The syllables are open and do not coincide with the boundaries of morphemes. The monomial onset of the first syllable has **R-** *l* phoneme and the **Ø** zero coda. The second syllable has **S-** *v,* phonemes in the monomial onset and the **Ø** zero coda.

luvvie /ˈlʌvi/ noun 'an actor who behaves to other people in a very friendly way that is not sincere': **larvae** /ˈlɑːviː/ noun, the plural of 'a young insect with a soft tube-shaped body, which will later become an insect with wings'.

This can be expressed in the following formula:

$$\mathbf{R\rightarrow\ \wedge\leftarrow\ \emptyset//\ S/V/\emptyset\ :\ R\rightarrow\ a\text{ː}\leftarrow\ \emptyset//\ S/V/\emptyset}$$

CVCVC type of word-forms

Twelve pairs of two-syllabic CVCVC type of word-form structure were discovered. The stems of both members of the pairs consist of the root morphemes and with the inflectional morphemes *-s* for nouns to show plurality, *-e(s)* for the 3rd person singular of verbs, *-ed* for the past participle and the past tense of verbs, and *-ing* for the present participle of verbs added to the stem. The first syllable is open and the second - is closed. Boundaries of syllables do not coincide with the boundaries of morphemes. The monomial onset of the first syllable has **S-** *f h,* **T-** *k p b*, **R-** *l m* and the **Ø** zero coda. The second syllable has the monomial onset **S-** *s f*, **R-** *m* **T-** *p t k* phonemes and **S-** *z*, **T-** *d*, **R-** *ŋ* phonemes in monomial coda.

fusses /fʌsiz/ verb, the 3rd person singular of 'to worry a lot about things that may not be very important' : **farces** /fɑːsiz/ noun, the plural of 'an event or a situation that is very badly organized or does not happen properly, in a way that is silly and unreasonable';
bucking /bʌkɪŋ/ verb, the present participle of 'if a horse bucks, it kicks its back feet into the air, or jumps with all four feet off the ground' : **barking** /bɑːkɪŋ/ verb, the present participle of 'when a dog barks, it makes a short loud sound or series of sounds';
muttered /mʌtəd/ verb, the past tense of 'to speak in a low voice, especially because you are annoyed about something, or you do not want people to hear you' : **martyred** /mɑːtəd/ verb, the past participle of 'killed because of their religious beliefs'.

The following formula issues:

$$\mathbf{S/T/R\rightarrow\ \wedge\leftarrow\ \emptyset//S/R/T/V/S/T/R\ :\ S/T/R\ \rightarrow\ a\text{ː}\leftarrow\ \emptyset//S/R/T/V/S/T/R}$$

CVCCVC type of word-forms

Eighteen pairs of two-syllabic CVCCVC type of word-forms structure were found. The stems of both members of the pairs consist of one-syllabic root morphemes with the inflectional morphemes *-s* for nouns to show plurality, 's, s' to show the possessive case, *-e(s)* the 3rd person singualar of verbs, *-ed* – the past participle and the past tense of verbs, and *-ing* the present participle of verbs added to the stem. The first syllable is open and the second - is closed. Boundaries of syllables

do not coincide with the boundaries of morphemes. The monomial onset of the first syllable has **T-** *b*, **R-** *l* phonemes and the **Ø** zero coda. The second syllable has the binomial onset **ST-** *s t*, **TS-** *sk dʒ* phonemes and **S-** *z*, **T-** *d*, **R-** *ŋ* phonemes in monomial coda.

budges$_1$ **/bʌdʒiz/** verb, the 3rd person of singular of 'to make someone or something move' : **barges**$_2$ **/bɑːdʒiz/** noun, the plural of 'a low boat with a flat bottom, used for carrying goods on a canal or river';
lusted /lʌstɪd/ verb, the past tense of 'to be sexually attracted to someone, and think about having sex with them' : **lasted /lɑːstɪd/** verb, the past tense of 'to continue for a particular length of time';
busking /bʌskɪŋ/ verb, the present participle of 'to play music in a public place in order to earn money' : **basking /bɑːskɪŋ/** verb, the present participle of 'to enjoy sitting in the heat of the sun or a fire';
budges$_1$ **/bʌdʒiz/** verb the 3rd person of singular : **barge's /bɑːdʒiz/** noun, the possessive case of 'a low boat with a flat bottom, used for carrying goods on a canal or river'.

This can be expressed in the following formula:

T/R→ ʌ ← Ø//ST/TS/V/S/T/R : T/R→ ɑː← Ø//ST/TS/V/S/T/R

CCVCVC type of word-forms

The database includes four pairs of two-syllabic CCVCVC type of word-form structure. The stems of both opposition pair members consist of the root morphemes with the inflectional morpheme *-ing* for the present participle of verbs added to the stem. The first syllable is open and the second - is closed. Boundaries of syllables do not coincide with the boundaries of morphemes. The binomial onset of the first syllable has **TR-** *kl*, **ST-** *sk st,* **SR-** *sn* phonemes and the **Ø** zero coda. The second syllable has the monomial onset **S-** *f*, **T-** *k* phonemes and **R-** *ŋ* phonemes in monomial coda.

clucking klʌkɪŋ/ verb, the present participle 'if a chicken clucks, it makes a short low sound' : **clerking /klɑːkɪŋ/** verb, the present participle of 'to work as a clerk'.

This can be resummed into the following formula:

TR/ST/SR→ ʌ ← Ø//S/T/V/R : TR/ST/SR→ ɑː← Ø//S/T/V/R

CCVCCVC type of word-forms

Five pairs of two-syllabic CCVCCVC type of word-form structure were discovered. The stems of both members of the opposition pairs consist of the root morphemes with the inflectional morphemes *-ing* for the present participle of verbs

and *-ed* for the past participle and the past tense of verbs added to the stem. The syllables are closed. Boundaries of syllables do not coincide with the boundaries of morphemes. The binomial onset of the first syllable has **TR-** *gr* phoneme cluster and **R-** *n* phoneme in coda. The second syllable has the monomial onset **T-** *k* phoneme and **R-** *ŋ,* **T-** *d* phonemes in monomial coda.

grunted /grʌntɪd/ verb, the past tense of 'to make short sounds or say a few words in a rough voice, when you do not want to talk' : **granted** /grɑːntɪd/ verb, the past tense of 'to give someone something or allow them to have something that they have asked for';
grunting /grʌntɪŋ/ verb, the present participle of 'to make short sounds or say a few words in a rough voice, when you do not want to talk' : **granting** /grɑːntɪŋ/ verb, the present participle of 'to give someone something or allow them to have something that they have asked for'.

This can be expressed in the following formula:

TR→ ʌ ← R//T/V/R/T : TR→ ɑː← R//T/V/R/T

CCVCCCVC type of word-forms

Twelve pairs of two-syllabic CCVCCCVC type of word-form structure were identified. The stems of both opposition pair members consist of the root morphemes with the inflectional morphemes *-e(s)* for the present Simple tense of the 3rd person of singular and *-s* for the plural nouns, 's, s' to show the possessive cases. The syllables are closed. Boundaries of syllables do not coincide with the boundaries of morphemes. The binomial onset of the first syllable has **TR-** *br* phoneme cluster and **R-** *n* phoneme in coda. The second syllable has the binomial onset **TS-** *tʃ* phoneme cluster and **S-** *z* phoneme in monomial coda.

brunches$_1$ /brʌntʃiz/ noun, the plural of 'a meal eaten in the late morning, as a combination of breakfast and lunch' : **branches** /brɑːntʃiz/ verb, the 3rd person singular of 'to divide into two or more smaller, narrower, or less important parts';
brunches$_1$ /brʌntʃiz/ noun, the plural : **branches'** /brɑːntʃiz/ noun, the plural, the possessive case of 'a part of a tree that grows out from the trunk and that has leaves or smaller branches growing from it'.

This can be expressed in the following formula:

TR→ ʌ ← R//TS/V/S : TR→ ɑː← R//TS/V/S

2.3.4. Opposition ʌ–aː in the root with derivational and inflectional* morpheme

CVCV type of word-form

Two pairs of two-syllabic CVC type of word-form structure were found that present two-dimentional opposition of ʌ– aː and i– iː. One member of the pair consists of the root morpheme with the derivational morphemes *-y, -ed* and another member of the pair consists of the monosyllabic root morpheme and adds inflection *-ae* to show plurality of nouns. The syllables are open. The first syllable has monomial onset **R-** *l* phoneme and the **Ø** zero coda. The second syllable has monomial onset **S-** *v* phoneme and the **Ø** zero coda.

lovey /ˈlʌvi/ noun 'a word used to address a woman or child, that many women think is offensive' : **larvae** /ˈlɑːviː/ noun, the plural of 'a young insect with a soft tube-shaped body, which will later become an insect with wings'.

The following formula can be deduced:

R→ ʌ ← Ø//S/V/ Ø : R→ ɑː← Ø//S/V/ Ø

CVCC type of word-form

This structure exhibits two pairs of one-syllabic CVCC type of word-form. One member of the pair consists of the monosyllabic root morpheme with the derivational morpheme *-ed* and another member of the pair consists of the monosyllabic root morpheme and adds the inflection *-ed* to show the past participle and the past tense of verbs. The syllables are closed. The monomial onset has **R-** *m* phoneme and **TT-** *kt* binomial phoneme cluster in coda.

mucked /mʌkt/ verb, the past tense 'to behave in a silly way, especially when you should be working or paying attention to something' : **marked** /mɑːkt/ adjective 'very easy to notice'

This can be expressed in the following formula:

R→ ʌ ← TT : R→ ɑː← TT

CCVCC type of word-forms

This cluster includes two pairs of one-syllabic CCVCC type of word-form structure. One member of the pair consists of the monosyllabic root morpheme with the derivational morpheme *-ed* and the second member of the pair consists of the

* one or both opposition members can take derivational or inflectional morphemes

monosyllabic root morpheme and adds the inflection *-ed* for the past participle and the past tense of verbs. The syllables are closed. The binomial onset has **ST-** *st* phoneme cluster and **ST-** *ft* binomial phoneme cluster in coda.

stuffed /stʌft/ adjective 'completely full, so that you cannot eat any more' : **staffed** /staːft/ verb, the past tense of 'to be or provide the workers for an organization'.

This can be summed up in the following formula:

ST→ ʌ ← ST : ST→ ɑː← ST

CVCV type of word-forms

Sixty-four pairs of two-syllabic CVCV type of word-form structure were discovered. The stem of one member of the opposition pair consists of the root morpheme with the derivational morpheme *-er* and *-y* and another member of the pair consists of the monosyllabic root morpheme and adds the Latin inflection *-ae* to show plurality of nouns, *-er* for the comparative degree of adjectives and 's, s' morphemes to show the possessive case of the nouns. The syllables are open and do not coincide with the boundaries of morpheme. The monomial onset of the first syllable has **R-** *l m* phonemes and the **Ø** zero coda. The second syllable has **S-** *v,* **R-** *m* phonemes in the monomial onset and the **Ø** zero coda.

lovey /lʌvi/ noun 'a word used to address a woman or child, that many women think is offensive' : **larvae** /laːviː/ noun, the plural of 'a young insect with a soft tube-shaped body';
calmer /kɑːmə/ adjective, the comparative degree of 'relaxed and quiet, not angry, nervous, or upset' : **comer** /kʌmə/ noun 'anyone who wants to take part in an activity, especially a sporting competition';
garners /gɑːnəz/ verb, the 3rd person singular of 'to take or collect something, especially information or support' : **gunners'** /gʌnəz/ noun, the plural, the possessive case of 'a soldier, sailor etc whose job is to aim or shoot a large gun'.

This can be compressed into the following formula:

R→ ʌ ← Ø//S/R/V/Ø : R→ ɑː← Ø//S/R/V/Ø

CVCVC type of word-forms

Nineteen pairs of two-syllabic CVCVC type of word-form structure were found. The stem of one member of the opposition pair consists of the root and the derivational morphemes *-ed, -ing* added to the stem. The second member consists of the root morpheme and the inflectional morphemes *-ed* for the past participle and past tense of verbs; *-ing* for the present participle of verbs added to the stem. The first

syllable is open and the second one is closed. The boundaries of syllables do not coincide with the boundaries of morphemes. The monomial onset of the first syllable has **T-** *k p b,* **R-** *m* phonemes and the **Ø** zero coda, and the second syllable has monomial onset **R-** *m*, **T-** *t k* and **R-** *ŋ*, **T-** *d* monomial coda.

muttered /mʌtəd/ verb, the past tense of 'to speak in a low voice, especially because you are annoyed about something, or you do not want people to hear you' : **martyred** /maːtəd/ adjective 'an unhappy look or expression that is intended to make other people feel sorry for you';
putting /pʌtiŋ/ noun 'a smooth area of grass with special holes in it for playing a simple type of golf' : **parting** /paːtɪŋ/ verb, the present participle of 'to move the two sides of something apart, or to move apart, making a space in the middle'.

This can be reduced to the following formula:

T/R→ ʌ ← Ø//R/T/V/R/T : T/R→ ɑː← Ø//R/T/V/R/T

CVCCVC type of word-forms

This case is represente by one pair of two-syllabic CVCVC type of word-forms structure. The stem of the first member of the opposition pair consists of the root and the derivational morpheme *-ing* and the stem of the second member of the opposition consists of the root morpheme and the inflectional morpheme *-ing* for the present participle of verbs added to the stem. Syllables are closed. The boundaries of syllables do not coincide with the boundaries of morpheme. The monomial onset of the first syllable has **R-** *l* phonemes and **S-** *s* phoneme in coda, and the second syllable has monomial onset **T-** *t* and **R-** *ŋ*, **T-** *g* monomial coda.

lasting /lɑːstɪŋ/ adjective 'strong enough, well enough planned etc to continue for a very long time' : **lusting** /lʌstɪŋ/ verb, the present participle 'to be strongly sexually attracted to someone, and think about having sex with them'.

This can be expressed in the following formula:

R→ ʌ ← S//T/V/R/T : R→ ɑː← S//T/V/R/T

CCVCVC type of word-forms

Three pairs of two-syllabic CCVCVC type of word-form represent this structure. The stem of the first member of the opposition pair consists of the root and the derivational morpheme *-ing* and the stem of the second member of the opposition consists of the root morpheme and the inflectional morpheme *-ing* for the present participle of verbs added to the stem. Syllables are closed. The boundaries of syllables do not coincide with the boundaries of morpheme. The binomial onset of the first

syllable has **TR-** *kl*, **ST-** *st* phoneme clusters and the **Ø** zero coda and the second syllable has monomial onset **T-** *k*, **S-** *f* and **R-** *ŋ* monomial coda.

clucking /klʌkiŋ/ adjective 'making a short low sound' : clerking /klɑːkɪŋ/ verb, the present participle of 'to work as a clerk'.

This can take on the following formula:

TR/ST→ ʌ ← Ø//T/S/V/R : TR/ST→ ɑː← Ø//T/S/V/R

CCVCCVC type of word-forms

Two pairs of two-syllabic CCVCVC type of word-form structure were found. The stem of the first opposition member consists of the root morpheme and the derivational morpheme *-ed*. The second member has the stem consisting of the root morpheme that takes inflectional morpheme *-ed* for the past participle and the past tense of verbs added to the stem. Syllables are closed. The boundaries of syllables do not coincide with the boundaries of morpheme. The binomial onset of the first syllable has **TR-** *gr* phoneme clusters and **R-** *n* in coda and the second syllable has monomial onset **T-** *t* and **T-** *d* phoneme in monomial coda.

granted /grɑːntɪd/ adverb 'used when you admit that something is true' : grunted /grʌntɪd/ verb, the past tense of 'to make short sounds or say a few words in a rough voice, when you do not want to talk'.

This can be expressed in the following formula:

TR→ ʌ ← R//T/V/T : TR→ ɑː← R//T/V/T

CVCVC type of word-forms

The database incorporates a hundred and nineteen pairs of two-syllabic CVCVC type of word-form structure. The stems of both members of the opposition pairs consist of the root and the derivational morphemes *-y, -er* with the inflectional morpheme *-ed* for the past participle and the past tense of verbs, *-e(s)* the present Simple tense of the 3rd person singular, *-s* for plural nouns are added to the stem. The boundaries of morphemes and syllables do not coincide. The first syllable is open and the second - is closed. The first syllable has the monomial onset **T-** *g k p b*, **R-** *l* and the **Ø** zero coda. The second syllable of the word-form has **R-** *n*, **T-** *t g*, **S-** *v* phonemes in monomial onset and **S-** *z*, **T-** *d* phonemes in coda.

lager's /**laːgəz**/ noun, the singular, the possessive case of 'a beer stored from six weeks to six months for aging before use in a barrel or bucket made of lags' : **lugger's** /**lʌgəz**/ noun, the plural, the possessive case of 'small fishing boat rigged with one or more lugsails'.
gunners /**gʌnəz**/ noun, the plural of 'a soldier, sailor etc whose job is to aim or shoot a large gun' : **garners** /**gaːnəz**/ verb, the 3rd person singular of 'to collect something, information or support'.

The following formula issues:

T/R→ ʌ ← Ø//R/T/S/V/S/T : T/R→ ɑː← Ø//R/T/S/V/S/T

CCVCC type of word-forms

Two pairs represent one-syllabic CCVCC type of word-form structure were found. One opposition member has the stem consisting of the root morpheme with the inflectional morpheme *-ed* for the past tense added to the stem. The second member of the pair has the stem consisting of the root morpheme with the derivational morphemes *-ed*. The boundaries or morphemes and syllables do not coincide. The first syllable is open and the second - is closed. The first syllable has the binomial onset **TS-** *st* and **ST-** *ft* phonemes in binomial coda.

staffed /**staːft**/ verb, the past tense of 'to be or provide the workers for an organization' : **stuffed** /**stʌft**/ adjective 'completely full, so that you cannot eat any more'.

The following formula can be deduced:

TS→ ʌ ← ST : TS→ ɑː ← ST

CVCCVC type of word-forms

This case presents one pair of two-syllabic CVCCVC type of word-form structure. The stem of the first opposition member consists of the root morpheme and the inflectional morpheme -s denoting plurality of nouns, added to the stem. The stem of the other member consists of the root, the derivational morpheme *-ie* and the inflectional morpheme -s denoting plurality of nouns added to the stem. The syllables of CVCCVC word-form structure are closed. The first syllable has the monomial onset **T-** *b* phoneme and the **Ø** zero coda. The second syllable has **TS-** *dʒ* phonemes in binomial onset and **S-** *z* phoneme in coda.

barges /**baːdʒiz**/ noun, plural of 'a large low boat with a flat bottom, used for carrying goods on a canal or river': **budgies** /**bʌdʒiz**/ noun, plural of 'a small brightly coloured bird that people keep as a pet'.

This can be resumed into in the following formula:

T→ ʌ ← Ø//TS/V/S : T→ ɑː← Ø//TS/V/S

One pair of two-syllabic CVCCVC type of word-form structure was found where the stem of the first opposition member consists of the root morpheme and the inflectional morpheme *-ing* denoting the present participle. The stem of the other member consists of the root and the derivational morpheme *-ing* added to the stem. The syllables of CVCCVC word-form structure are closed. The first syllable has the monomial onset **T-** *b* phoneme and the **Ø** zero coda. The second syllable has **TS-** *dʒ* phonemes in binomial onset and **S-** *z* phoneme in coda.

lasting /lɑːstɪŋ/ adjective 'strong enough, well enough planned etc to continue for a very long time' : **lusting** /lʌstɪŋ/ verb, the present participle of 'to be strongly sexually attracted to someone, and think about having sex with them'.

This can be expressed in the following formula:

T→ ʌ ← Ø//TS/V/S : T→ ɑː← Ø//TS/V/S

CCVCVC type of word-forms

Twenty-nine pairs of two-syllabic CVVCVC type of word-form structure were discovered. The stem of the first opposition member consists of the root morpheme and the inflectional morpheme *-s* denoting plurality, and 's, s' showing the possessive cases are added to the stem. The stem of another member consists of the root morpheme and the derivational morpheme *-er* with the inflectional morpheme *-s* of plurality, and 's, s' for po the possessive cases added to the stem. The binomial onset of the first syllable has **TR-** *dr* phoneme cluster and the **Ø** zero coda, and the second syllable has **R-** *m* onset and **S-** *z* coda.

drummers$_1$ /drʌməz/ noun, the plural of 'someone who plays drums' : **dramas**$_2$ /drɑːməz/ noun, the plural of 'a play for the theatre, television, radio etc, usually a serious one, or plays in general'; **drummer's**$_1$ /drʌməz/ noun, the possessive case : **dramas**$_2$ /drɑːməz/ noun, the plural.

This can be expressed in the following formula:

TR→ ʌ ← Ø//R/V/S : TR→ ɑː← Ø//R/V/S

The fact that all *ʌ–aː* oppositions appear in the root morpheme is very important in determining the meaning of the word. The carried analysis and its results can be successfully used in speech synthesizer's programme, helping the computer to discern the meaning of the word depending on the vowel length.

2.4. Structural Morphonological Analysis of *e–ɜː* Oppositions

Statistically 853 pairs were traced in the English word stock that make *e–ɜː* root oppositions. All oppositions occur in the root morphemes. All opposition pairs can be divided into three divisions: 274 basic opposition pairs, 124 are of mixed type: when one member of the opposition pair is base word-form and the second is a variant of the base form, and 455 variant opposition pairs. The *e–ɜː* opposition has 564 pairs of monosyllabic word-forms, 276 pairs of two-syllabic and 13 three-syllabic word-forms. Statistically, *e–ɜː* opposition makes 17.6% of oppositions in respect of all system of oppositions.

A variation of syllables, word-forms structure, and number of words participating in opposition see in the appendix 4.

2.4.1. Opposition *e–ɜː* in the root morpheme

VC type of word-forms

Eight pairs of one-syllabic VC type structure were found in the database. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has the **Ø** zero onset and **T-** *g*, **R-** *n* phonemes in coda. Thus, for instance:

> **egg** /eg/ noun 'a round object with a hard surface, that contains a baby bird, snake, insect etc and which is produced by a female bird, snake, insect etc': **urgh** /ɜːg/ interjection 'said when you have seen or tasted something that you think is extremely unpleasant'.

This can be expressed in the following formula:

Ø →e←T/R : Ø→ ɜː←T/R

CV type of word-forms

Fourteen pairs of one-syllabic CV type structure were discovered. The stems of both members of the opposition pairs consist of root morphemes. Syllables are open. The boundaries of morphemes and syllables coincide. The syllable has the monomial **S-** *f*, **T-** *p*, **W-** *w* onset and the **Ø** zero coda. Thus, for instance:

> **per** /pə/ preposition 'during each hour etc': **purr** /pɜː/ verb 'if a cat purrs, it makes a soft low sound in its throat to show that it is pleased'.

This can be compressed into the following formula:

S/T/W→ e←Ø : S/T/W→ ɜː←Ø

VCC type of word-forms

This case presents four pairs of one-syllabic VCC type structure. The stems of both members of the opposition pair consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has the **Ø** zero onset and binomial **TS-** *dʒ* phoneme cluster in coda. Thus, for instance:

edge /edʒ/ noun 'the part of an object that is furthest from its centre': **urge** /ɜːdʒ/ verb 'to strongly suggest that someone does something'.

This can take on the following formula:

Ø → e←TS : Ø → ɜː←TS

CVC type of word-forms

The database provides eighty pairs of one-syllabic CVC type structure. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has monomial **T-** *b d g p t*, **S-** *ʃ f h s,* **W-** *j w* onset and **T-** *d k t,* **S-** *z θ,* **R-** *n l,* phonemes in monomial coda. Thus, for instance:

deck /dek/ verb 'to decorate something with flowers, flags etc': **dirk** /dɜːk/ noun 'a heavy pointed knife used as a weapon in Scotland in the past'.

This can be expressed in the following formula:

T/S/W→ e←T/S/R : T/S/W→ ɜː←T/S/R

CVCVV type of word-forms

Five pairs of two-syllabic CVCVV type structure were found. The stems of both members of the opposition pairs consist of the root morphemes. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has monomial **S-** *f s* onset and the **Ø** zero coda. The second syllable has **S-** *v,* **R-** *l* phonemes in monomial onset the diphthong **VV-** *əʊ eɪ* in the nucleus and the **Ø** zero coda. Thus, for instance:

fellow /feləʊ/ adjective 'fellow workers etc are people that you work with, or study with, etc' : **furlough** /fɜːləʊ/ noun 'a period of time when a soldier in another country can return to their own country'.

A suprafix, a suprasegmental change, such as stress, modifies the meanings of morphemes in one opposition pair. Thus, for instance:

> **survey** /sɜːveɪ/ noun 'a set of questions that you ask a large number of people in order to find out about their opinions or behaviour': **survey** /sə**veɪ**/ verb 'to ask a large number of people questions in order to find out their attitudes or opinions'.

This can be compressed into the following formula:

S→ e←Ø//S/R/VV/Ø : S→ ɜː←Ø//S/R/VV/Ø

CVCC type of word-forms

Ninety-eight pairs of one-syllabic CVCC type structure were discovered. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has monomial **T-** *b k,* **S-** *f s v,* **W-** *w,* **R-** *l m* onset and **TS-** *tʃ dʒ,* **ST-** *st,* **RT-** *nt,* **TR-** *tl* phoneme clusters in binomial coda. Thus, for instance:

> **fest** /fest/ noun 'an informal occasion when a lot of people do a fun activity together, such as drinking beer, singing songs, or eating food': **first** /fɜːst/ adjective 'coming before all the other things or people in a series'.

This can be expressed in the following formula:

T/S/W/R→ e←TS/ST/RT/TR : T/S/W/R→ ɜː←TS/ST/RT/TR :

CCVC type of word-forms

Seven pairs of one-syllabic CVCC type structure were found. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has binomial **TS-** *dʒ,* **SW-** *sw* onset and **R-** *m l* phoneme clusters in monomial coda. Thus, for instance:

> **gem** /dʒem/ noun 'a beautiful stone that has been cut into a special shape': **germ** /dʒɜːm/ noun 'a very small living thing that can make you ill'.

This following formula issues:

TS/SW→ e←R : TS/SW→ ɜː←R

VCCV type of word-forms

This case is represented by one pair of two-syllabic CVCC type structure. The stems of both members of the opposition pairs consist of the root morphemes. The first syllable is closed and the second is open. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and **R-** *n* phoneme in monomial coda. The second syllable has **T-** *t* in monomial onset and the **Ø** zero coda. Thus, for instance:

inter /ɪntɜː/ verb 'to bury a dead person': **into** /ɪntə/ preposition 'to the inside or inner part of a container, place, area'.

This can be expressed in the following formula:

Ø/V/R//T→ e← Ø : Ø/V/R//T→ ɜː← Ø

CVCVC type of word-forms

One pair of two-syllabic CVCVC type structure was found. The stems of both members of the opposition pairs consist of two root morphemes. The vowel opposition occors in the second root or the compound word. The first syllable is open and the second is cosed. The boundaries of morphemes and syllables do not coincide. The first syllable has **S-** *s* phoneme in onset and the **Ø** zero coda. The second syllable has **T-** *b* phonemes in monomial onset and **T-** *d* phoneme in monomial coda. Thus, for instance:

seabed /siːbed/ noun 'the land at the bottom of the sea': **seabird** /siːbɜːd/ noun 'a bird that lives near the sea and finds food in it'.

This can be expressed in the following formula:

S/V/Ø//T→ e←T : S/V/Ø//T→ ɜː←T

CCVCV type of word-forms

Five pairs of two-syllabic CCVCV type structure were discovered. The stems of both members of the opposition pairs consist of the root morphemes. Both syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has the **ST-** *st* binomial onset and the **Ø** zero coda. The second syllable has **T-** *d* phoneme in monomial onset and the **Ø** zero coda. Thus, for instance:

steady /stedi/ adjective 'continuing or developing gradually or without stopping, and not likely to change': **sturdy** /stɜːdi/ adjective 'strong, well-made, and not easily broken'.

This can be expressed in the following formula:

ST→ e←Ø//T/V/Ø : ST→ ɜː←Ø//T/V/Ø

2.4.2. Opposition *e–ɜː* in the root with the derivational* morpheme

CVC type of word-forms

Four pairs of one-syllabic CVC type structure were identified. The stem of the first member of the opposition pair consists of the root morpheme and the stem of the second member consists of the root and the derivational morpheme *-ed.* Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has monomial **S-** *f* onset and **T-** *d,* phoneme in monomial coda. Thus, for instance:

fed /**fed**/ noun 'a police officer in the FBI': **furred** /**fɜːd**/ adjective 'having fur'.

This can be summarized in the following formula:

S→ e←T : S→ ɜː←T

CVCC type of word-forms

This cluster is represented by two pairs of one-syllabic CVCC type structure. The stem of the first member of the opposition pair consists of the root morpheme and the stem of the second member consists of the root and the derivational morpheme *-ed*. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has monomial **S-** *v* onset and **ST-** *st* phoneme clusters in binomial coda. Thus, for instance:

versed /**vɜːst**/ adjective 'knowing a lot about a subject, method': **vest** /**vest**/ noun 'a piece of underwear without sleeves that you wear on the top half of your body'.

The following formula follows:

S→ e←ST : S→ ɜː←ST

CCVC type of word-forms

Two pairs of one-syllabic CVCC type structure were found. The stem of the first member of the opposition pair consists of the root morpheme and the second stem consists of the root morpheme with the derivational morpheme *-ed*. Syllables

* one or both members of the opposition pairs may take the derivational morpheme

are closed. The boundaries of morphemes and syllables do not coincide. The syllable has binomial onset **TR-** *bl* phonemes and monomial **T-** *d* phoneme clusters in coda. Thus, for instance:

bled /**bled**/ verb 'to lose blood, especially because of an injury': **blurred** /**blɜːd**/ adjective 'unclear in shape, or making it difficult to see shapes'.

The following formula follows:

TR→ e←T : TR→ ɜː←T

CVCV type of word-forms

Thirteen pairs of two-syllabic CVCV type structure were found. The stem of both members of the opposition pair consists of root morpheme and derivational morpheme *-er, -y*. Both syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has **T-** *t d*, **S-** *s f* phoneme in onset and the **Ø** zero coda. The second syllable has **S-** *ð v f* **R-** *n* phonemes in monomial onset and the **Ø** zero coda. Thus, for instance:

tenner /**tenə**/ noun '£10 or a ten-pound note': **turner** /**tɜːnə**/ noun 'someone who uses a lathe to make shapes out of wood or metal';

This can be summed up in the following formula:

T/S→ e←Ø//S/R/V/Ø : T/S→ ɜː←Ø//S/R/V/Ø

This case includes fourteen pairs of two-syllabic CVCV type structure. The stem of one member of the opposition pair consists of the root and the stem of the second member consists of the root and the derivational morphemes *-er, -y, -ie*. The first syllable has **T-** *t b d*, **S-** *f,* **R-** *m* phonemes in onset and the **Ø** zero coda. The second syllable has **S-** *ð s,* **T-** *k g,* **R-** *n l* phonemes in monomial onset and the **Ø** zero coda. Thus, for instance:

ferry /**feri**/ noun 'a boat that carries people or goods across a river or a narrow area of water': **furry** /**fɜːri**/ adjective 'covered with fur or short threads';
mercy /**mɜːsi**/ noun 'if someone shows mercy, they choose to forgive or to be kind to someone who they have the power to hurt or punish': **messy** /**mesi**/ adjective 'dirty or untidy'.
techie /**teki**/ noun 'someone who knows a lot about computers and electronic equipment': **turkey** /**tɜːki**/ noun 'a bird that looks like a large chicken and is often eaten at Christmas and at Thanksgiving'.

This can result in the following formula:

T/R→ e←Ø//S/T/R/V/Ø : T/R→ ɜː←Ø//S/T/R/V/Ø

CVCVC type of word-forms

Seven pairs of two-syllabic CVCVC type structure were found. The stems of both members of the opposition pairs consist of the root morphemes with the derivational morphemes *-ed, -ing, for-, fore-*. The first syllable is open and the second is cosed. The boundaries of morphemes and syllables do not coincide (except in cases with prefixes). The first syllable has **S-** *f,* **W-** *w,* **T-** *p* phonemes in onset and the **Ø** zero coda. The second syllable has **S-** *v,* **W-** *w,* **T-** *d* in monomial onset and **T-** *t d,* **R-** *ŋ* phonemes in monomial coda. Thus, for instance:

foreword /fɔːwɜːd/ noun 'a short introductory statement in a published work, as a book, esp. when written by someone other than the author' : **forward** /fɔːwəd/ adjective'directed toward a point in advance; moving ahead; onward';
wedding /wedɪŋ/ noun 'a marriage ceremony, especially one with a religious service': **wording** /wɜːdɪŋ/ noun 'the words and phrases used to express something'.

A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes in one opposition pair. Thus, for instance:

pervert /pəvɜːt/ verb 'to change something in an unnatural and often harmful way': **pervert** /pɜːvɜːt/ noun 'someone whose sexual behaviour is considered unnatural and unacceptable'.

This can be expressed in the following formula:

S/W/T/V/Ø//S/W/T→ e←T/R : S/W/T/V/Ø//S/W/T→ ɜː←T/R

VCCVC type of word-forms

This cluster includes eight pairs of two-syllabic VCCVC type structure. The stems of both members of the opposition pairs consist of the root morphemes and the derivational morpheme *in-*. Both syllables are closed. The boundaries of morphemes and syllables coincide. The first syllable has the **Ø** zero onset and **R-** *n* coda. The second syllable has **S-** *s* phoneme in monomial onset and **T-** *t* phoneme in coda. Thus, for instance:

insert /ɪnsɜːt/ verb 'to put something inside or into something else': **inset** /ɪnset/ noun 'a small picture, map etc in the corner of a page or larger picture etc, which shows more detail or information'.

This can be succinctly in the following formula:

ØV/R//S→ e←T : ØV/R//S→ ɜː←T

CCVCVCV type of word-forms

It includes one pair of two-syllabic CCVCVCV type structure. The stems of both members of the opposition pairs consist of the root morphemes and the derivational morphemes *-y -ly*. All three syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has the **ST-** *st* binomial onset and the **Ø** coda. The second syllable has **T-** *d* phoneme in monomial onset and the **Ø** zero coda and the third syllable has **R-** *l* phoneme in monomial onset and the **Ø** zero coda. Thus, for instance:

steadily /stedili/ adverb 'continuously, developing gradually or without stopping': sturdily /stɜːdili/ adverb 'in a sturdy manner'.

This can be expressed in the following formula:

ST→ e←Ø//T/V/Ø//R/V/Ø : ST→ ɜː←Ø//T/V/Ø//R/V/Ø

CCVCVCVC type of word-forms

This instance concerns one pair of three-syllabic CCVCVCVC type structure. The stems of both members of the opposition pairs consist of the root morphemes and the derivational morphemes *-y, -ness*. All three syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has the **ST-** *st* binomial onset and the **Ø** coda. The second syllable has **T-** *d* phoneme in monomial onset and the **Ø** zero coda and the third syllable has **R-** *n* phoneme in monomial onset and the **S-** *s in* monomial coda. Thus, for instance:

steadiness /stedɪnis/ noun 'the quality of being steady–regular and unvarying': sturdiness /stɜːdɪnis/ noun 'the state of being vigorous and robust '.

This can be realized into the following formula:

ST→ e←Ø//T/V/Ø//R/V/S : ST→ ɜː←Ø//T/V/Ø//R/V/S

CVCCVCV type of word-forms

Two pairs of three-syllabic CVCCVCV type structure were found. The stems of both members of the opposition pairs consist of the root morphemes and the derivational morpheme *-ar*. All three syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has the **S-** *s* monomial onset and the **Ø** coda. The second syllable has **TW-** *kj* phoneme in binomial onset

and the **Ø** zero coda and the third syllable has **R-** *l* phoneme in monomial onset and the **Ø** zero coda coda. Thus, for instance:

> **circular** /sɜːkjʊlə/ adjective 'shaped like a circle': **secular** /sekjʊlə/ adjective 'not connected with or controlled by a church or other religious authority'.

This can be expressed in the following formula:

S→ e←Ø//TW/V/Ø//R/V/Ø : S→ ɜː←Ø//TW/V/Ø//R/V/Ø

VVCVCVC type of word-forms

Six pairs of three-syllabic VVCVCVC type structure were identified. The stems of both members of the opposition pairs consist of the root morphemes and the derivational morpheme *over-*. The first and the second syllable are open and the third is closed. The boundaries of morphemes and syllables do not coincide. The first syllable consists of pure nucleus diphthong **VV** - *əʊ* has the **Ø** zero onset and the **Ø** zero coda. The second syllable has **S-** *v* phonemes in monomial onset and the **Ø** zero coda, and the third syllable has **S-** *h* phoneme in monomial onset and **T-** *d* phoneme in monomial coda. Thus, for instance:

> **overhead** /əʊvəhed/ adverb 'above your head or in the sky': **overheard** /əʊvəhɜːd/ verb, the past tense of 'to accidentally hear what other people are saying, when they do not know that you have heard'.

This can be expressed in the following formula:

Ø/VV/Ø//S/V/Ø//S/→ e←T : Ø/VV/Ø//S/V/Ø//S/→ ɜː←T

2.4.3. Opposition *e–ɜː* in the root with the inflectional* morpheme

VC type of word-forms

The database provides three pairs of one-syllabic VC type structure. The stem of the first member of the opposition pair consists of the root morpheme. The stem of the second member of the opposition pair consists of the root morpheme and the inflectional morpheme *-s* added to the stem to denote the 3rd person singular of verbs. Syllables are closed. The boundaries or morphemes and syllables do not coincide. The syllable has the **Ø** zero onset and **S-** *z* phoneme in coda. Thus, for instance:

* one or the both members of the opposition pair may take the inflectional merpheme

as /**əz**/ preposition 'used when you are comparing two people, things, situations': **errs** /**ɜːz**/ verb, the 3rd person of 'to be more careful than is necessary, in order to make sure that nothing bad happens'.

This takes on the following formula:

Ø→ e←S : Ø→ ɜː←S

VCC type of word-forms

Seven pairs of one-syllabic VCC type structure were discovered. The stem of the first member of the opposition pair consists of the root morpheme. The stem of the second member of the opposition pair consists of the root morpheme and the inflectional morpheme *-s* denoting the 3rd person of the present Simple tense of verbs or *-ed* for the past participle and the past tense of verbs, added to the stem. Syllables are closed. The boundaries or morphemes and syllables do not coincide. The syllable has the **Ø** zero onset binomial **TS**- *ks,* **RT**- *nd* phoneme cluster in coda. Thus, for instance:

ex /**eks**/ noun 'someone's former wife, husband': **irks** /**ɜːks**/ verb, the 3rd person singular of 'if something irks you, it makes you feel annoyed';
end /**end**/ noun 'the last part of a period of time, event, activity, or story' : **earned** /**ɜːnd**/ verb, the past tense of 'to receive a particular amount of money for the work that you do'.

This can summed up in the following formula:

Ø → e←TS/RT : Ø → ɜː←TS/RT

CVC type of word-forms

Thirty-seven pairs of one-syllabic CVC type structure were found. The stem of the first member of the opposition pair consists of the root morpheme. The stem of the second member of the opposition pair consists of the root morpheme and the inflectional morphemes *-s* the plurality of nouns, *'s, s'* denoting the possessive cases, *-s* denoting the 3rd person singular of verbs or *-ed* denoting the past participle and the past tense of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has monomial onset **S**- *f,* T- *k t,* **W**- *w* phonemes and monomial **T**- *d,* **S**- *z* phonemes in coda. Thus, for instance:

fed /**fed**/ noun 'a police officer in the FBI': **furred** /**fɜːd**/ verb, the past tense of'to become covered with an unwanted substance';
cuz /**kəz**/ conjunction 'a short form of "because" : **cur's** /**kɜːz**/ noun, the possessive case of 'an unfriendly dog, especially one that is a mix of several breeds';

wed /wed/ verb 'to marry – used especially in literature or newspapers': **whirred** /wɜːd/ verb, the past tense of 'to make a quiet regular sound, like the sound of a bird or insect moving its wings very fast';
fez /fez/ noun 'a round red hat with a flat top and no brim' : **firs** /fɜːz/ noun, the plural 'a tree with leaves shaped like needles that do not fall off in winter'.

This can be commpressed into the following formula:

S/T/W→ e←T/S : S/T/W→ ɜː←T/S

CVCVC type of word-forms

Twenty-six pairs of two-syllabic CVCVC type structure were discerned. The stems of both members of the opposition pairs consist of the root morphemes with the inflectional morphemes *-ed* for the past participle and the past tense of verbs, *-ing* for the present participle. The first syllable is open and the second is cosed. The boundaries of morphemes and syllables do not coincide. The first syllable has **S-** *f h,* **T-** *b p,* **R-** *n* phonemes in onset and the **Ø** zero coda. The second syllable has **T-** *t k d,* **R-** *l* in monomial onset and **T-** *d,* **R-** *ŋ* phonemes in monomial coda. Thus, for instance:

felling /felɪŋ/ verb, the presen participle of 'to cut down a tree': **furling** /fɜːlɪŋ/ verb, the present participle of 'to roll up and secure (a flag or sail, for example) to something else';
headed /hedɪd/ verb, the past tense 'to go or travel towards a particular place, especially in a deliberate way': **herded** /hɜːdɪd/ verb, the past tense 'to bring people together in a group, especially roughly'.

This can be expressed in the following formula:

S/T/R→ e←Ø//T/R/V/T/R : S/T/R→ ɜː←Ø//T/R/V/T/R

CVCVVC type of word-forms

Fifteen pairs of two-syllabic CVCVVC type structure were discovered. The stems of both members of the opposition pairs consist of the root morphemes with the inflectional morphemes *-s* the plurality of nouns, *'s, s'* denoting the possessive cases; *-s* for the 3rd person singular of verbs. The first syllable is open and the second is cosed. The boundaries of morphemes and syllables do not coincide. The first syllable has **S-** *s f* phonemes in onset and the **Ø** zero coda. The second syllable has **R-** *l,* **S-** *v* in monomial onset, diphthong **VV-** *əʊ, eɪ* in nucleus, and **S-** *z* phoneme in monomial coda. Thus, for instance:

fellow's$_1$ /**feləʊz**/ noun, the possessive case of 'a man': **furloughs** /**fɜːləʊz**/ noun, the possessive case 'a period of time when a soldier or someone working in another country can return to their own country';
fellows$_1$ /**feləʊz**/ noun, the plural: **furloughs** /**fɜːləʊz**/ verb, the 3rd person singular of 'to lay (an employee or worker) off from work, usually temporarily'.

The following formula issues:

S→ e←Ø//R/S/VV/S : S→ ɜː←Ø//R/S/VV/S

CVCVCC type of word-forms

Three pairs of two-syllabic CVCVCC type structure were found. The stems of both members of the opposition pairs consist of the root morphemes with the inflectional morphemes -*s* the plurality of nouns, *'s, s'* denoting the possessive cases, -*s* for the 3rd person singular of verbs. The first syllable is open and the second - cosed. The boundaries of morphemes and syllables do not coincide. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes. The first syllable has **S-** *p* phoneme in onset and the **Ø** zero coda. The second syllable has **S-** *v* in monomial onset and **TS-** *ts* phonemes in binomial coda. Thus, for instance:

perverts$_1$ /pə**vɜːts**/ verb, the 3rd person singular of 'to change something in an unnatural way': **perverts**$_2$ /**pɜː**vɜːts/ noun, the plural of 'someone whose sexual behaviour is considered unnatural';
perverts$_1$ /pə**vɜːts**/ verb, the 3rd person singular : **pervert's**$_2$ /**pɜː**vɜːts/ noun, the possessive case.

This can be expressed in the following formula:

S/V/Ø//S→ e←TS : S/V/Ø//S→ ɜː←TS

VCCC type of word-forms

The database incorporates eight pairs of one-syllabic VCCC type structure. The stems of both members of the opposition pairs consist of the root morphemes and the inflectional morpheme -*ed* for the past participle and the past tense of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has the **Ø** zero onset and trinomial **TST-** *dzd* phoneme cluster in coda. Thus, for instance:

edged /**edʒd**/ verb, the past tense of 'to move gradually with several small movements': **urged** /**ɜːdʒd**/ verb, the past tense of 'to strongly suggest that someone does something'.

The following formula issues:

Ø→ e←TST : Ø→ ɜː←TST

CVCV type of word-forms

Four pairs of two-syllabic CVCV type structure were found. The stem of the first opposition member consists of the root and the stem of the second member consists of the root and and the inflectional morpheme *-er* denoting the comparative degree. The boundaries of morphemes and syllables do not coincide.The first syllable has **T-** *d* phoneme in onset and the **Ø** zero coda. The second syllable has **R-** *m* phoneme in monomial onset and the **Ø** zero coda. Thus, for instance:

demur /dɪmɜː/ noun 'disagreement or disapproval': **dimmer** /**dɪ**mə/ adjective, the comparative degree of 'fairly dark or not giving much light, so that you cannot see well'.

This can be expressed in the following formula:

T/V/Ø//R→e←Ø : T/V/Ø//R→ ɜː←Ø

CVCC type of word-forms

Thirty-seven pairs of one-syllabic CVCC type structure were found. The stems of both members of the opposition pairs consist of the root morphemes and the inflectional morphemes *-ed* for the past tense and the past participle of verbs, *-s* for the 3rd person singular of verbs, *-s* denoting the plurality of nouns, 's, s' possessive cases. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has monomial onset **S-** *ʃ f h s,* **T-** *t b d p,* **W-** *w,* **R-** *l* phonemes and binomial **TS-** *dz ks ts,* **TT-** *kt,* **RT-** *ld,* **RS-** *lz nz* phoneme clusters in coda. Thus, for instance:

decks /**deks**/ verb, the 3rd person singular of 'to decorate something with flowers, flags': **dirks** /**dɜːks**/ noun, the plural of 'a heavy pointed knife used as a weapon in Scotland in the past';
herd's /**hɜːdz**/ noun, the possessive case of 'a group of animals of one kind that live and feed together': **heads** /**hedz**/ noun, the plural of 'the top part of your body that has your face at the front and is supported by your neck';
felled /**feld**/ verb, the past tense of 'to cut down a tree': **furled** /**fɜːld**/ verb, the past tense of 'to gather into a compact roll and bind securely, as a sail against a spar or a flag against its staff'.

This can be expressed in the following formula:

S/T/W/R→ e←TS/TT/RT/RS : S/T/W/R→ ɜː←TS/TT/RT/RS

Twenty-eight pairs of one-syllabic CVCC type structure were discovered. The stem of the first member of the opposition pair consists of the root morpheme and the second consists of the root morpheme and the inflectional morpheme *-ed* for the past

participle and the past tense of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has monomial onset **S-** *f h,* **T-** *t b p,* **R-** *l n* phonemes and binomial **ST-** *st,* **RT-** *ld nd* phoneme clusters in coda. Thus, for instance:

hurled /hɜːld/ verb, the past tense of 'to throw something with a lot of force, especially because you are angry': **held** /held/ verb, the past tense of 'to have something in your hand, hands, or arms'.

This can have the following expression:

S/T/R→ e←ST/RT : S/T/R→ ɜː←ST/RT

CVCCVC type of word-forms

Twenty-three pairs of two-syllabic CVCCVC type structure were found. The stems of both members of the opposition pairs consist of the root morphemes and the inflectional morphemes *-ing* for the present participle of verbs, *-s* for the 3rd person of the present Simple, *-s* denoting the plurality of nouns, 's, s' possessive cases. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the monomial onset **S-** *v,* **T-** *b,* **R-** *l* phonemes and the **Ø** zero coda. The second syllable has **TS-** *tf dʒ,* **ST-** *st* phoneme clusters in binomial onset and **S-** *z*, **R-** *ŋ* phonemes in coda. Thus, for instance:

vege's /vedʒiz/ informal, noun, the possessive case of 'vegetables': **verges** /vɜːdʒiz/ verb, the 3rd person singular of 'to be very close to a harmful or extreme state';
leching$_1$ /letʃɪŋ/ verb, the present participle of 'to show sexual desire for someone in a way that is unpleasant or annoying': **lurching**$_2$ /lɜːtʃɪŋ/ verb, the present participle of 'to walk or move suddenly in an uncontrolled or unsteady way';
leches$_1$ /letʃiz/ verb, the 3rd person singular : **lurches**$_2$ /lɜːtʃiz/ verb, the 3rd person singular.

This can be expressed in the following formula:

S/T/R→ e←Ø//TS/ST/V/S/R : S/T/R→ ɜː←Ø//TS/ST/V/S/R

CCVC type of word-forms

Twelve pairs of one-syllabic CVCC type structure were identified. The stem of the first member of the opposition pair consists of the root morpheme and the second member consists of the root morpheme and inflectional morpheme *-ed* for the past participle and the past tense of verbs. Syllables are closed. The boundaries of

morphemes and syllables do not coincide. The syllable has binomial onset **ST-** *sp st,* **TR-** *bl* phonemes and monomial **T-** *d* phoneme clusters in coda. Thus, for instance:

sped /sped/ verb, the past tense of 'to go quickly': **spurred /spɜːd/** verb, the past tense of 'encourage someone or make them want to do something'.

This can be compressed into the following formula:

ST/TR→ e←T : ST/TR→ ɜː←T

CVCCC type of word-forms

Thirty-nine pairs of one-syllabic CVCCC type structure were discovered. The stems of both members of the opposition pairs consist of the root morphemes and the inflectional morphemes *-ed* denoting the past participle and the past tense of verbs, *-s* denoting the 3rd person of the present Simple, *-s* for the plurality of nouns, 's, s' for the possessive cases. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has monomial onset **T-** *b k,* **S-** *v,* **R-** *l m* and trinomial **TRS-** *tlz,* **TST-** *dʒd tʃt,* **STS-** *sts,* **RRS-** *nlz* phoneme clusters in coda. Thus, for instance:

colonels$_1$ /kɜːnlz/ noun, the plural of 'a high rank in the army, Marines, or the US air force, or someone who has this rank': **kennels$_2$ /kenlz/** noun, the plural of 'a small building made for a dog to sleep in';
colonel's$_1$ /kɜːnlz/ noun, the possessive case : **kennels$_2$ /kenlz/** noun, the plural;
vegged /vedʒd/ verb, the past tense of 'to be very lazy and spend time doing very little': **verged /vɜːdʒd/** verb, the past tense of 'to be very close to a harmful or extreme state'.

This can be expressed in the following formula:

T/S/R→ e← TRS/TST/STS/RRS : T/S/R→ ɜː← TRS/TST/STS/RRS

CCVCC type of word-forms

The database includes twenty-five pairs of one-syllabic CVCCC type structure. The stems of both members of the opposition pairs consist of the root morphemes and the inflectional morphemes *-ed* for the past participle and the past tense of verbs, *-s* for the 3rd person singular, *-s* for the plurality of nouns, 's, s' denoting the possessive cases of nouns. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has the binomial onset **TS-** dʒ, **SW-** *sw* and binomial **RS-** *mz, lz* phoneme clusters in coda. Thus, for instance:

gems$_1$ /dʒemz/ noun, the plural of 'a beautiful stone that has been cut into a special shape': **germs**$_2$ /dʒɜːmz/ noun, the plural of 'a very small living thing that can make you ill';
swelled /sweld/ verb, the past tense of 'to become larger and rounder than normal – used especially about parts of the body': **swirled** /swɜːld/ verb, the past tense of 'to move around quickly in a twisting circular movement, or to make something do this';
gems$_1$ /dʒemz/ noun, the plural of : **germs'**$_2$ /dʒɜːmz/ noun, the plural, the possessive case.

This can be compressed into the following formula:

TS/SW→ e← RS : TS/SW→ ɜː← RS

The database witnesses to eight pairs of one-syllabic CVCCC type structure. The stem of the first member of the opposition pairs consists of the root morpheme and the second member consists of the root morpheme and the inflectional morphemes *-ed* for the past participle and the past tense of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has the binomial onset **SR-** *sl,* **ST-** *sp* and binomial **TT-** *pt,* **RT-** *nd* phoneme clusters in coda. Thus, for instance:

slept /slept/ verb, the past tense of 'to rest your mind and body, usually at night when you are lying in bed with your eyes closed': **slurped** /slɜːpt/ verb, the past participle of 'to drink a liquid while making a noisy sucking sound'.

This can be expressed in the following formula:

SR/ST→ e←TT/RT : SR/ST→ ɜː←TT/RT

VCCVC type of word-forms

Seventeen pairs of two-syllabic VCCVC type structure were found. The stems of both members of the opposition pairs consist of the root morphemes and the inflectional morphemes *-ing* denoting the present participle, *-s* denoting the 3rd person of the present Simple tense of verbs, *-s* for the plurality of nouns, and 's, s' for the possessive case of nouns. The first syllable is open and consists of pure nucleus. The second syllable is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and the **Ø** zero coda. The second syllable has the binomial onset **TS-** *dʒ* phonemes and monomial coda **R-** *ŋ,* **S-** *z* phonemes. Thus, for instance:

edging /edʒɪŋ/ verb, the present participle of 'to move gradually with several small movements, or to make something do this': **urging**$_1$ /ɜːdʒɪŋ/ verb, the present participle of 'to strongly suggest that someone does something';

edges$_2$ **/edʒiz/** noun, the plural of 'the part of an object that is furthest from its centre': **urges /ɜːdʒiz/** verb, the 3rd person singular of 'to strongly suggest that someone does something';
urges$_1$ **/ɜːdʒiz/** verb, the 3rd person singular : **edge's**$_2$ **/edʒiz/** noun, the possessive case.

This can be expressed in the following formula:

Ø→ e←Ø//TS/V/R/S : Ø→ ɜː←Ø//TS/V/R/S

CCVCVC type of word-forms

One pair of two-syllabic CCVCVC type structure was discovered. The stems of both members of the opposition pairs consist of the root morphemes and the inflectional morphemes *-ing* denoting the present participle added to the stem. The first syllable is open and the second one is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **SW-** *sw* phonemes in binomial onset and the **Ø** zero coda. The second syllable has the monomial onset **R-** *l* phonemes and monomial coda **R-** *ŋ* phoneme. Thus, for instance:

swelling /swelɪŋ/ verb, the present participlr of 'to become larger and rounder than normal – used especially about parts of the body': **swirling /swɜːlɪŋ/** verb, the present participlr of 'to move around quickly in a twisting circular movement, or to make something do this'.

This can take on the following formula:

SW→e←Ø//R/V/R : SW→ ɜː←Ø//R/V/R

2.4.4. Opposition *e–ɜː* in the root with the derivational and inflectional* morpheme

CVCC type of word-forms

Two pairs of one-syllabic CVCC type structure were identified. The stem of the first member of the opposition pair consists of the root morpheme and the inflectional morpheme *-ed* for the past participle and the past tense of verbs. The second member consists of the root morpheme and the derivational morpheme *-ed* added to the root. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has monomial onset **S-** *f* phoneme and binomial **RT-** *ld* phoneme clusters in coda. Thus, for instance:

felled /feld/ verb, the past participle of 'to cut down a tree': **furled /fɜːld/** adjective 'a furled newspaper, flag etc has been rolled or folded neatly'.

* one or both members of the opposition pair may take the derivational or the inflectional morphemes

This can be expressed in the following formula:

S→e←RT : S→ ɜː←RT

VCCVC type of word-forms

One pair of two-syllabic VCCVC type structure was discovered. The stem of the first member of the opposition pair consists of the root morpheme with the inflectional morpheme *-ing* denoting the present participle added to the stem and the stem of the second member of the opposition consists of root and derivational morpheme *-ing* added to the root. The first syllable is open, the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and the **Ø** zero coda. The second syllable has the binomial onset **TS-** *dʒ* phoneme cluster and monomial coda **R-** *ŋ* phoneme. Thus, for instance:

edging /edʒɪŋ/ noun 'something that forms an edge or border': urging /ɜːdʒɪŋ/ verb, the present participle of 'to strongly suggest that someone does something'.

This can be expressed in the following formula:

Ø→e←Ø//TS/V/R : Ø→ ɜː←Ø//TS/V/R

CCVCVC type of word-forms

This case includes one pair of two-syllabic CCVCVC type structure. The stem of the first member of the opposition pair consists of the root morpheme with the derivational morpheme *-ing* and the stem of the second member consists of the root morpheme with the inflectional morphemes *-ing* for present participle. The first syllable is open and the second one is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **SW-** *sw* phonemes in binomial onset and the **Ø** zero coda. The second syllable has the monomial onset **R-** *l* phonemes and monomial coda **R-** *ŋ* phoneme. Thus, for instance:

swelling /swelɪŋ/ noun 'an area of your body that has become larger than normal, because of illness or injury': swirling /swɜːlɪŋ/ verb, the present participle of 'to move around quickly in a twisting circular movement, or to make something do this'.

The following formula issues:

SW→e←Ø//R/V/R : SW→ ɜː←Ø//R/V/R

CVCVC type of word-forms

Eleven pairs of two-syllabic CVCVC type structure were discovered. The stem of the first member of the opposition pair consists of the root with the derivational morphemes *-ed, -ing* and the stem of the second member consists of the root and the inflectional morpheme *-ed* denoting the past tense and pariticiple*, -ing* denoting present participle. The boundaries of morphemes and syllables do not coincide. The first syllable has **S-** *h,* **W-** *w,* phonemes in onset and the **Ø** zero coda. The second syllable has **T-** *d* phoneme in monomial onset and **T-** *d* phoneme in monomial coda. Thus, for instance:

wedded /**wedɪd**/ adjective 'married': **worded**$_1$ /**wɜːdɪd**/ verb, the past tense of 'to use words that are carefully chosen in order to express something';
wedding /**wedɪŋ**/ noun 'a marriage ceremony, especially one with a religious service': **wording**$_1$ /**wɜːdɪŋ**/ verb, the present participle.

This can be expressed in the following formula:

S/W→e←Ø//T/V/T : S/W→ ɜː←Ø//T/V/T

The database incorporates fifty-seven pairs of two-syllabic CVCVC type structure were found where the stem of the first member of the opposition pair consists of root with the derivational morphemes *-er, -ie* and the inflectional morphemes *-ed, -s* denoting the 3rd person singular of verbs, *-s* denoting plurality of nouns, *'s, s'* denoting the possessive case added to the sem. The stem of the second member consists of root and inflectional morpheme *-ed* denoting the past tense and participle*, -ing* denoting present participle are added to the stem. The boundaries of morphemes and syllables do not coincide. The first syllable has **S-** *h,* **W-** *w,* phonemes in onset and the **Ø** zero coda. The second syllable has **T-** *d* phoneme in monomial onset and **T-** *d* phoneme in monomial coda. Thus, for instance:

tenor's /**tenəz**/ noun, the possessive case of 'a male singing voice that can reach the range of notes below the lowest woman's voice, or a man with a voice like this': **turners** /**tɜːnəz**/ noun, the plural of 'someone who uses a lathe to make shapes out of wood or metal';
beggars /**begəz**/ verb, the 3rd person singular of 'if something beggars description or belief, it is impossible to describe or believe it': **burgers** /**bɜːgəz**/ noun, the plural of 'a flat round piece of finely cut beef, which is cooked and eaten, or one of these served in a bread bun';
techies /**tekiz**/ noun, the plural 'someone who knows a lot about computers and electronic equipment' : **turkeys** /**tɜːkiz**/ noun, the plural 'a bird that looks like a large chicken and is often eaten at Christmas and at Thanksgiving'.

This can be expressed in the following formula:

S/W→e←Ø//T/V/T : S/W→ ɜː←Ø//T/V/T

Twenty-three pairs of two-syllabic CVCVC type structure were found where the stems of both members of the opposition pairs consist of the roots and the derivational morphemes *-er* with the inflectional morphemes *-s* for the 3rd preson singular of verbs, *-s* for the plurality of nouns and *'s, s'* denoting the possessive cases. The first syllable has **S-** *s f*, **T-** *d t* phoneme in onset and the **Ø** zero coda. The second syllable has **S-** *ð v,* **R-** *n m* phonemes in monomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

tenners /tenəz/ noun, the plural of '£10 or a ten-pound note': **turners** /tɜːnəz/ noun, the plural of 'someone who uses a lathe to make shapes out of wood or metal'.

This can be expressed in the following formula:

S/T→e←Ø//S/R/V/S : S/T→ ɜː←Ø//S/R/V/S

VCCVCC type of word-forms

Eighteen pairs of two-syllabic VCCVCC type structure were found. The stem of the first member of the opposition pair consists of the root, the stem of the second member consists of the root morpheme with the derivational morphemes *in-* and both members take the inflectional morpheme *-ed* for the past tense and the participle of verbs, *-s* for the 3rd preson singular of verbs, *-s* for the plurality of nouns and *'s, s'* for the possessive cases. Both syllables are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and **R-** *n* phoneme in coda. The second syllable has **S-** *s,* **T-** *t* in monomial onset and **TS-** *ts,* **RT-** *nd* phonemes in binomial coda. Thus, for instance:

inserts /ɪnsɜːts/ noun, the plural of 'printed pages that are put inside a newspaper or magazine in order to advertise something': **inset's** /ɪnsets/ noun, the possessive case of 'a small picture, map etc in the corner of a page or larger picture etc, which shows more detail or information';
inserts /ɪnsɜːts/ verb, the 3rd person singular of 'to put something inside or into something else': **insets** /ɪnsets/ verb, the 3rd person singular of 'if something is inset with decorations or jewels, they are fixed into or on its surface'.

This can be expressed in the following formula:

Ø/V/R//S/T→e←TS/RT : Ø/V/R//S/T→ ɜː←TS/RT

VCCVCVC type of word-forms

One pair of three-syllabic VCCVCVC type structure was discovered. The stems of the first member consists of the root morpheme and the inflectional morphemes *-ing* denoting the present participle. The stems of the second member of the opposition pair consists of the root morpheme with the derivational morphemes *in-* and the inflectional morphemes *-ing* denoting the present participle of verbs. The first and the third syllables are closed and the second is open. The boundaries of morphemes and syllables coincide. The first syllable has the **Ø** zero onset and **R-** *n* phoneme in coda. The second syllable has **S-** *s* in monomial onset and the **Ø** zero coda. The third syllable has **T-** *t* phoneme in monomial onset and **R-** *ŋ* phoneme in binomial coda. Thus, for instance:

inserting /ɪnsɜːtɪŋ/ verb, the present participle of 'to put something inside or into something else': **insetting** /ɪnsetɪŋ/ verb, the present participle of 'if something is inset with decorations or jewels, they are fixed into or on its surface'.

This can be expressed in the following formula:

Ø/V/R//S →e←Ø//T/V/R : Ø/V/R//S → ɜː←Ø//T/V/R

CVCVCC type of word-forms

The database includes twenty pairs of two-syllabic CVCVCC type structure. The stems of both members of the opposition pairs consist of the root morphemes with the derivational morphemes *fore-, -wards* and the inflectional morphemes *-s* of plurality, *'s, s'* for the possessive cases, *-s* for the 3rd person singular and *-ed* for the past tense and the participle. The first syllable is open and the second is cosed. The boundaries of morphemes and syllables do not coincide. The first syllable has **S-** *f,* **T-** *d p* phonemes in onset and the **Ø** zero coda. The second syllable has **S-** *s v,* **W-** *w* in monomial onset and **TS-** *dz ts,* **RT-** *nd* phonemes in binomial coda. Thus, for instance:

foreword's$_1$ /fɔːwɜːdz/ noun, the possessive case of 'a short piece of writing at the beginning of a book that introduces the book or its writer': **forwards** /fɔːwədz/ noun, the plural of 'an attacking player on a team in sports such as football and basketball';
forwards /fɔːwədz/ verb, the 3rd person singular of 'to send letters, goods etc to someone when they have moved to a different address': **forewords**$_1$ /fɔːwɜːdz/ noun, the plural.

This can be expressed in the following formula:

S/T/V/Ø//S/W→e←TS/RT : S/T/V/Ø//S/W→ ɜː←TS/RT

CVCCVC type of word-forms

Twelve pairs of two-syllabic CVCCVC type structure were found. The stem of the first member of the opposition pair consists of the root morpheme with the derivational morpheme *-ie* and the stem of the second member consists or the root and inflectional morphemes *-s* denoting plurality of nouns and *s', s'* denoting the possessive cases of nouns. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has monomial onset **S-** *v,* phoneme and the **Ø** zero coda. The second syllable has **TS-** *dʒ* phoneme cluster in binomial onset and **S-** *z* phoneme in coda. Thus, for instance:

veggies /**vedʒiz**/ informal, noun, the plural of 'a vegetarian': **verges**$_1$ /**vɜːdʒiz**/ verb, the 3rd person singular of 'to be very close to a harmful or extreme state';
veggie's /**vedʒiz**/ noun, the plural of 'a vegetarian' : **verges**$_1$ /**vɜːdʒiz**/ verb, the 3rd person singular.

This can be expressed in the following formula:

S→e←Ø//TS/V/S : S→ ɜː←Ø//TS/V/S

The fact that *e–ɜː* opposition includes as many as three syllables should be taken into consideration by the language synthesizer programmers. The more syllables the opposition has the more difficult it is for the computer to recognize its true meaning.

2.5. Structural Morphonological Analysis of *ɪ–iː* Oppositions

Statistically 2030 pairs were traced in the English word stock that make root *ɪ–iː* oppositions. Oppositions occur in the root, the derivational, and the inflectional morphemes. All opposition pairs can be divided into three clusters: 504 basic opposition pairs, 133 are of mixed type: when one member of the opposition pair is basic word-form and the second is a variant of the basic form, and 1393 variant opposition pairs.

The *ɪ–iː* opposition has 1416 pairs of monosyllabic word-forms, 568 pairs of two-syllabic, 35 three-syllabic word-forms, and 11 four-syllabic word-forms.

A variation of syllables, word-forms structure, and number of words participating in opposition see in the appendix 5.

2.5.1. Opposition *ɪ–iː* in the root morpheme

VC type of word-forms

Seven pairs of one-syllabic VC type structure were found. The stems of both members of the opposition pairs consist of root the morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has the **Ø** zero onset and **T-** *d t*, **R-** *l,* **S-** *z* phonemes in coda. Thus, for instance:

ease /iːz/ verb 'something unpleasant eases': **is** /iz/ verb 'the 3rd person singular of the present tense';
eat /iːt/ verb 'to put food in your mouth, chew and swallow it' : **it** /ɪt/ pronoun 'used to refer to a thing'.
eel /iːl/ noun 'a long thin fish that looks like a snake': **ill** /ɪl/ adjective 'suffering from a disease'.

This can be compressed into in the following formula:

Ø→ɪ←S/T/R : Ø→iː←S/T/R

CV type of word-forms

This case is represented by one pair of one-syllabic CV type structure. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has the **S-** *ʃ* phoneme in monomial onset and the **Ø** zero coda. Thus, for instance:

she /ʃiː/ noun 'a female' : **she** /ʃɪ/ pronoun 'used to refer to a woman, girl, or female animal that has already been mentioned or is already known about'.

This can be expressed in the following formula:

S→ɪ← Ø : S→iː←Ø

VCC type of word-forms

Six pairs of one-syllabic VCC type structure were discovered. The stems of both members of the opposition pairs consist of root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has the **Ø** zero onset and binary coda of **TS-** *tʃ* type. Thus, for instance:

each /iːʧ/ determiner 'every one of two or more considered separately' : **itch** /ɪʧ/ verb 'unpleasant feeling on your skin that makes you want to rub it'.

This can take on the following formula:

Ø→ɪ←TS : Ø→iː←TS

CVC type of word-forms

The database incorporates two hundred and seventy-six pairs of one-syllabic CVC type structure. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has phonemes **T-** *b d k p t,* **S-** *h s f ʃ,* **R-** *l m n r,* **W-** *w* in monomial onset and phonemes **T-** *d k p t,* **S-** *s f v z,* **R-** *l m n* in monomial coda. Thus, for instance:

ship /ʃɪp/ verb 'to send goods somewhere by ship, plane, etc': **sheep** /ʃiːp/ noun 'a farm animal'.

This can be generalized into the following formula:

T/S/R/W→ɪ←T/S/R : T/S/R/W→iː←T/S/R

CVCC type of word-forms

Twenty-two pairs of one-syllabic CVCC type structure were identified. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has phonemes **T-** *b p t,* **S-** *f,* **R-** *l r* in monomial onset and **TS-** *tʃ,* **ST-** *st* phoneme clusters in binomial coda. Thus, for instance:

fist /fɪst/ noun 'the hand when it is tightly closed' : **feast** /fiːst/ verb 'to eat a lot of a particular food with great enjoyment'.

This can be expressed in the following formula:

R/S/T→ɪ←TS/ST : R/S/T→iː←TS/ST

CCVC type of word-forms

This case presents ninety-two pairs of one-syllabic VCC type structure. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has the **ST-** st *sk sp,* **TS-** *tʃ dʒ,* **TR-** *bl gr kl kr,* **SR-** *fl fr sl* **TW-** *tw kw*

phonemes in binomial onset and monomial coda of **T-** d *k p t*, **R-** *l m n,* **S-** *z* type. Thus, for instance:

bleep /bliːp/ verb 'to make a high electronic sound' : **blip /blɪp/** noun 'a short high electronic sound'.

This can be expressed in the following formula:

TR/ST/SR/TW/ST→ɪ← T/R/S : TR/A/SR/TW/ST→iː←T/R/S

CVCCVCC type of word-forms

One pair of two-syllabic CVCCVCC type structure was found. The stems of both members of the opposition pair consists of the roots. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes.The first syllable has phonemes **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has **TS-** *ʤ* phoneme cluster in binomial onset and **TT-** *kt* phoneme cluster in binomial coda. Thus, for instance:

reject /rɪ**ʤekt**/ verb 'to refuse to accept, believe in, or agree with something' : **reject /riːʤekt/** noun 'a product that has been rejected because there is something wrong with it'.

This can be expressed in the following formula:

R→ɪ←Ø//TS/V/TT : R→iː←Ø//TS/V/TT

CVCCVC type of word-forms

Two pairs of two-syllabic CVCCVC type structure were identified that make bilateral opposition. The stems of both members of the opposition pairs consist of the root morphemes. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **S-** *s* in monomial onset and the **Ø** zero coda. The second syllable has **TR-** *kr* phoneme in binomial onset and **T-** *t* phoneme in monomial coda. Thus, for instance:

secrete /sɪk**riːt/** verb 'if a part of an animal or plant secretes a liquid substance, it produces it': **secret /siː**krɪt/ adjective 'known about by only a few people and kept hidden from others'.

This can be expressed in the following formula:

S→ɪ←Ø//TR→iː←T : S→iː←Ø//TR→ɪ←T

CCVCVC type of word-forms

This type includes five pairs of two-syllabic CCVCVC structure. The stems of both members of the opposition pairs consist of the roots. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has **TR-** *tr kr,* **ST-** *st* phonemes in binomial onset and the **Ø** zero coda. The second syllable has **T-** t *k p* phonemes in monomial onset and **R-** *l, k* phonemes in monomial coda. Thus, for instance:

steeple /**stiːpəl**/ noun 'a tall pointed tower on the roof of a church' : **stipple** /**stɪpəl**/ verb 'to draw or paint a picture or pattern using short strokes or spots instead of lines'.

This can be expressed in the following formula:

TR/ST→ɪ←Ø//T/V/R : TR/ST→iː←Ø//T/V/R

CVCVC type of word-forms

Four pairs of two-syllabic CVCVC type structure were discovered. The stems of both members of the opposition pairs consist of the root morphemes. The first syllable is open and the second isclosed. The boundaries of morphemes and syllables coincide in word-forms with prefixes. The first syllable has phonemes **S-** *f,* **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *k g,* **R-** *m* in monomial onset and **R-** *l*, **T-** *t* phonemes in monomial coda. Thus, for instance:

fickle /**fɪkəl**/ adjective 'someone who is fickle is always changing their mind about people or things that they like, so that you cannot depend on them – used to show disapproval' : **faecal** /**fiːkəl**/ adjective 'solid waste material from the bowels';

A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes.

remit /rɪ**mɪt**/ verb 'to send a payment' : **remit** /**riː**mɪt/ noun 'the particular piece of work that someone has been officially asked to deal with'.

This can be expressed in the following formula:

S/R→ɪ←Ø//T/R/V/R/T : S/R→iː← Ø//T/R/V/R/T

CVCVVC type of word-forms

This cluster includes three pairs of two-syllabic CVCVVC type structure. The stems of both members consist of the root. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first

syllable has phoneme **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t k* in monomial onset, the diphthong *ɔɪ eɪ* in nucleus, and **R-** *l* phonemes in monomial coda. Thus, for instance:

retail /rɪteɪl/ verb 'to be sold for a particular price in a shop': **retail** /riːteɪl/ adverb 'if you buy or sell something retail, you buy or sell it in a shop'.

This can be expressed in the following formula:

R→ɪ←Ø//T/VV/R : R→iː←Ø//T/VV/R

CVCVV type of word-forms

One pair of two-syllabic CVCVV type structure was found. The stems of both members of the opposition pairs consist of the roots. Syllables are open. The boundaries of morphemes and syllables do not coincide. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes. The first syllable has **T-** *d* phoneme in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *k* in monomial onset, the diphthong *ɔɪ* in nucleus, and the **Ø** zero coda. Thus, for instance:

decoy /dɪkɔɪ/ verb 'to attract wild birds with a model of a bird so that you can watch them or shoot them' : **decoy** /diːkɔɪ/ noun 'a model of a bird used to attract wild birds so that you can watch them or shoot them'

This can take on the following formula:

T→ɪ←Ø//T/VV/Ø : T→iː←Ø//T/VV/Ø

CVCVCVCCVC type of word-forms

Two pairs of four-syllabic CVCVCVCCVC type structure were found. The stems of both members of the opposition pairs consist of the roots. The first and the second syllables are open, the third and the fourth are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *b* phoneme in monomial onset and the **Ø** zero coda. The second syllable has **R-** *n* phoneme in monomial onset and the **Ø** zero coda. The third syllable has **T-** *d* phoneme in monomial onset and **T-** *k* phoneme in monomial coda. The fourth syllable has **T-** *t* phoneme in monomial onset and **R-** *n* phoneme in monomial coda. Thus, for instance:

benedictine /benɪdɪktiːn/ noun 'a strong alcoholic drink that is a type of liqueur' : **Benedictine** /benɪdɪktɪn/ noun 'a member of a Christian religious order of monks'.

This can be expressed in the following formula:

T/V/Ø//R/V/Ø//T/V/T//T→ɪ←R : T/V/Ø//R/V/Ø//T/V/T//T→iː←R

2.5.2. Opposition *ɪ–iː* in the root with the derivational* morpheme

CVCC type of word-forms

One pair of one-syllabic CVCC type structure was found. The stems of both members of the opposition pairs consist of the root morphemes and the derivational morpheme *-ed*. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **T-** *p* in monomial onset and **TT-** *kt* phoneme clusters in binomial coda. Thus, for instance:

peaked /piːkt/ adjective 'looking pale and ill' : **picked** /pɪkt/ adjective 'picked people have been specially chosen because they are very suitable for a particular job'.

This can be expressed in the following formula:

T→ɪ←TT : T→iː←TT

CVCV type of word-forms

The database includes thirty-six pairs of two-syllabic CVCV type structure. The stems of both members of the opposition pairs consist of the root and the derivational morphemes *-er, -y, -ie.* Syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *b d k p t,* **S-** *f s,* **R-** *l n,* **W-** *w* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t, k p,* **R-** *l n,* **S-** *v* in monomial onset and the **Ø** zero coda. Thus, for instance:

filler /fɪlə/ noun 'a substance used to fill cracks in wood, walls etc, especially before you paint them' : **keeper** /kiːpə/ noun 'someone who looks after animals'.

This can be expressed in the following formula:

T/S/R/W→ɪ←Ø//T/R/S/V/Ø : T/S/R/W→iː←Ø//T/R/S/V/Ø

* one or both members of the opposition pairs take the derivational morpheme

CVCCVVC type of word-forms

One pair of two-syllabic CVCCVVC type structure was found. The stems of both members of the opposition pairs consist of roots with derivational morpheme *re-* . The first syllable is open and the second – closed. The boundaries of morphemes and syllables coincide. The first syllable has phonemes **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has **TS-** *ʤ* phoneme cluster in binomial onset and **R-** *n* phoneme in monomial coda. Thus, for instance:

rejoin /rɪːʤɔɪn/ verb 'to go back to a group of people, organization etc that you were with before' : rejoin /rɪʤɔɪn/ verb 'to say something in reply, especially rudely or angrily'.

This can be expressed in the following formula:

R→ɪ←Ø//TS/VV/R : R→iː←Ø//TS/VV/R

CVCVC type of word-forms

The database presents eleven pairs of two-syllabic CVCVC type structure. The stems of both members of the opposition pairs consist of the root morphemes and the derivational morphemes *-ing.* The first syllable is open and the second - is closed. The boundaries of morphemes and syllables coincide in word-forms with affixes. The first syllable has phonemes **T-** *b,* **S-** *f s,* **W-***w* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t d p,* **R-** *l m n* in monomial onset and **T-** d t k, **R-** ŋ phonemes in monomial coda. Thus, for instance:

filling /fɪlɪŋ/ noun 'food that is filling makes your stomach feel full': feeling /fiːlɪŋ/ adjective 'sensitive, showing strong feelings'.

This can be expressed in the following formula:

T/S/W →ɪ←Ø//T/R/V/T/R : T/S/W →iː← Ø//T/R/V/T/R

CCCVCCV type of word-forms

One pair of two-syllabic CCCVCCV type structure was found that make bilateral opposition in the root morpheme and in the derivational morpheme. The stem of both members of the opposition pairs consists of the root morphemes with the derivational morphemes *-ee, -y.* Both syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **STW-** *skw*

in trinomial onset and the **Ø** zero coda. The second syllable has **TS-** *dʒ* phonemes in binomial onset and the **Ø** zero coda. Thus, for instance:

squeegee /skwiːdʒiː/ noun 'a tool with a thin rubber blade and a short handle, used for removing or spreading a liquid on a surface' : **squidgy /skwɪdʒi/** adjective 'soft and easy to press'.

This can be generalized into the following formula:

STW→ɪ←Ø//TS/V/Ø : STW→iː←Ø//TS/V/Ø

CCVCV type of word-forms

The database provides eleven pairs of two-syllabic CCVCV type structure. The stems of both members of the opposition pairs consist of the roots and the derivational morphemes *-ly, -y, -er*. The syllables are open. The boundaries of morphemes and syllables coincide in word-forms with suffix *-ly*. The first syllable has phoneme clusters **TR-** *gr,* **SR-** *fr sn sl,* **TW-***tw,* **TS-** *tʃ* in binomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t k p,* **R-** *l* in monomial onset and the **Ø** zero coda. Thus, for instance:

frilly /frɪli/ adjective 'decorated with lots of frills' : **freely /friːli/** adverb 'without anyone stopping or limiting something';
sleepy /sliːpi/ adjective 'tired and ready to sleep' : **slippy /slɪpi/** adjective 'a slippy surface or object is slippery';
greeter /griːtə/ noun 'someone who greets people politely as they enter a place, especially someone who does this as a job' : **gritter /grɪtə/** noun 'a large vehicle that puts salt or sand on the roads in winter to make them less icy'.

This can be expressed in the following formula:

TR/SR/TW/TS→ɪ←Ø//T/R/V/Ø : TR/SR/TW/TS→iː←Ø//T/R/V/Ø

CCVCCV type of word-forms

This case presents two pairs of two-syllabic CCVCCV type structure were found. The stems of both members of the opposition pairs consist of the roots with the derivational morphemes *-ly, -y.* The first syllable is closed and the second is open. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **TR-** *gr,* **SR-** *sl* in binomial onset and **S-** *s*, **T-** *t* phonemes in monomial coda. The second syllable has **R-** *l* phoneme in monomial onset and the **Ø** zero coda. Thus, for instance:

gristly /grɪsli/ adjective 'gristly meat tough to eat : **greasily /griːsli/** adverb 'in a greasy manner'.

This can be expressed in the following formula:

TR/SR→ɪ←S/T//R/V/Ø : TR/SR→iː←S/T//R/V/Ø

CCVCCVC type of word-forms

One pair of two-syllabic CCVCCVC type structure was found. The stems of both members of the opposition pairs consist of the root morphemes with the derivational morpheme *-ness*. Both syllables are closed. The boundaries of morphemes and syllables coincide. The first syllable has phonemes **SR-** *sl* in binomial onset and **T-** *k* phonemes in monomial coda. The second syllable has **R-** *n* phoneme in monomial onset and **S-** *s* phoneme in monomial coda. Thus, for instance:

slickness /slɪknɪs/ noun 'oil on the surface of water or on a road' : **sleekness** /sliːknɪs/ noun 'straight, shiny, and healthy-looking'.

This can be expressed in the following formula:

SR→ɪ←T//R/V/S : SR→iː←T//R/V/S

2.5.3. Opposition *ɪ–iː* in the root with the inflectional* morpheme

VCC type of word-forms

The database includes nine pairs of one-syllabic VCC type structure. The stems of both members of the opposition pairs consist of the root morphemes with the inflectional morphemes *-s* denoting plurality of nouns, 's, s' for the possessive cases. The syllable has the **Ø** zero onset and **RS-** *lz* phoneme in binomial coda. Thus, for instance:

eels$_1$ /iːlz/ noun, the plural of 'a long thin fish that looks like a snake and can be eaten': **ills** /ɪlz/ noun, the plural of 'problems and difficulties'.
eel's$_1$ /iːlz/ noun, the possessive case : **ills** /ɪlz/ noun, the plural of 'problems and difficulties'.

This can be commpessed into the following formula:

Ø→ɪ←RS : Ø→iː←RS

Three pairs of one-syllabic VCC type structure were found. The stem of the first member of the opposition pair consists of the root morpheme and the second member adds the inflectional morpheme *-s* for the 3rd person singular of verbs and *-s* for the plurality of nouns, 's, s' for the possessive cases. Syllables are closed. The

* one or bothe members of the opposition pair may take the inflectional morpheme

boundaries of morphemes with inflectional affixes and syllables do not coincide. The syllable has the **Ø** zero onset and **TS-** *tz* phoneme in coda. Thus, for instance:

eats /iːts/ verb, the 3rd person singular of 'to put food in your mouth and chew and swallow it' : **its**$_1$ /ɪts/ determiner 'used to refer to something that belongs to or is connected with a thing, animal, baby etc that has already been mentioned'.
eats' /iːts/ noun, the possessive case, the plural of 'food, especially for a party' : **its**$_1$ /ɪts/ determiner.

This can be expressed in the following formula:

Ø→ɪ←TS : Ø→iː←TS

CVC type of word-forms

The case is represented by nineteen pairs of one-syllabic CVC type structure. The stem of the first member of the opposition pair consists of the root morpheme and the second member adds the inflectional morphemes *-ed* for the past tense and the past participle of verbs, *-s* to show the plurality of nouns, 's, s' for the possessive cases and *-s* for the 3rd person singular of verbs added to the stem. Syllables are closed. The boundaries of morphemes and syllables coincide. The syllable has phonemes **T-** *k,* **S-** *f,* **W-** *w* in monomial onset and phonemes **T-** *d,* **S-** *z* in monomial coda. Thus, for instance:

fees /fiːz/ noun, the plural of 'an amount of money that you pay to do something or that you pay to a professional person for their work': **fizz** /fɪz/noun 'the bubbles of gas in some kinds of drinks, or the sound that they make';
keyed /kiːd/ verb, the past tense of 'to prepare a surface so that a covering such as paint will stick to it' : **kid** /kɪd/ informal, noun 'a child';
wees /wiːz/ verb, the 3rd person singular of 'to pass water from your body – used by or to children' : **whiz** /wɪz/ verb 'to move very quickly, often making a sound like something rushing through the air';
bee's /biːz/ noun, the possessive case of 'a black and yellow flying insect that makes honey and can sting you': **biz** /bɪz/ informal noun 'a particular type of business, relating to entertainment'.

This can be generalized into the following formula:

T/S/W→i←T/S : T/S/W→iː←T/S

CVCC type of word-forms

The database incorporates six hundred and forty-six pairs of one-syllabic CVCC type structure. The stems of both members of the opposition pairs consist of the root morphemes and inflectional morphemes *-ed* for the past tense and the past

participle, -*s* to show plurality of nouns, 's, s' for the possessive cases of nouns, and -*s* for the 3rd person singular of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **T-** *b p t d k,* **S-** *ʃ f h s*, **R-** *l m r,* **W-** *w* in monomial onset and **TS-** *ts ks ps dz,* **ST-** *st ft zd,* **RS-** *lz mz nz,* **RT-** *ld md nd,* **TT-** *kt,* **SS-** *vz fz,* **TR-** *tn* phoneme clusters in binomial coda. Thus, for instance:

deans$_1$ **/diːnz/** noun, the plural of 'a priest of high rank in the Christian church who is in charge of several priests or churches': **dins**$_2$ **/dɪnz/** verb, the 3rd person singular of 'to make someone learn and remember something by saying it to them many times';
dean's$_1$ **/diːnz/** noun, the possessive case : **dins**$_2$ **/dɪnz/** verb, the 3rd person singular.

This can be compressed into the following formula:

T/S/R/W→i←TS/ST/RS/RT/TT/SS/TR:T/S/R/W→iː←TS/ST/RS/RT/TT/ SS/TR

Thirty-eight pairs of one-syllabic CVCC type structure were discovered where the stem of the first member of the opposition pair consists of the root morpheme and the stem of the second member consists of the root and the inflectional morphemes -*ed* for the past tense and the past participle, -*s* for the plurality of nouns, 's, s' for the possessive cases of nouns, and -*s* to show the 3rd person singular of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **T-** *p,* **S-** *f s*, **R-** *l r,* **W-** *w* in monomial onset and **TS-** *ks,* **ST-** *st ft,* **RT-** *ld nd* phoneme clusters in binomial coda. Thus, for instance:

filled /fɪld/ verb, the past tense of 'a container or place fills, or if you fill it, enough of something goes into it to make it full' : **field /fiːld/** verb, the past tense of 'if you field a team, an army etc, they represent you or fight for you in a competition, election, or war';
pix /pɪks/ informal, noun 'pictures or photographs' : **piques /piːks/** verb, the the 3rd person singular of 'to make someone feel annoyed or upset, especially by ignoring them or making them look stupid';
sikh's /siːks/ noun, the possessive case of 'a member of an Indian religious group that developed from Hinduism in the 16th century': **six /sɪks/** noun 'the number 6'.

This can be expressed in the following formula:

T/S/R/W→i←TS/ST/RT : T/S/R/W→iː← TS/ST/RT

CCVCV type of word-forms

Three pairs of two-syllabic CCVCV type structure were discovered. The stems of both members of the opposition pairs consist of the roots and the inflectional

morpheme -*s* for the plurality of nouns, 's, s' for the possessive cases of nouns and -*s* to mark the 3rd person singular of verbs are added to the stem. The syllables are open. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **T**- *d* in monomial onset and the **Ø** zero coda. The second syllable has the phoneme **T**- *k* in monomial onset, the diphthong **ɔɪ** in nucleus, and **S**- *z* phoneme in monomial coda. Thus, for instance:

decoys$_1$ /dɪ**kɔɪz**/ verb, the the 3rd person singular of 'trick into the place of danger' : **decoys**$_2$ /**diː**kɔɪz/ noun, the plural of 'someone that is used to trick someone into going somewhere or doing something';
decoys$_1$ /dɪ**kɔɪz**/ verb the 3rd person singular : **decoy's**$_2$ /**diː**kɔɪz/ noun possessive case.

This can assume the following formula:

T→ɪ←Ø//T/VV/S : T→iː←Ø//T/VV/S

CCVC type of word-forms

Six pairs of one-syllabic CCVC type structure were found. The stem of the first member of the opposition pairs consists of the root morpheme. The stem of the second member consists of root and the inflectional morpheme -*ed* for the past tense and the past participle and -*s* for the 3rd person singular of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide in word-forms with inflectional morphemes. The syllable has the **ST**- *sk,* **SR**- *fl fr* phonemes in binomial onset and monomial coda of **T**- *d t*, **S**- *z* type. Thus, for instance:

frizz /**frɪz**/ noun 'the condition of being formed into small tight curls; "her hair was in a frizz' : **frees** /**friːz**/verb, the 3rd person singular of 'to allow someone to leave prison or somewhere they have been kept as a prisoner';
skid /**skɪd**/ verb 'if a vehicle or a wheel on a vehicle skids, it suddenly slides sideways and you cannot control it' : **skied** /**skiːd**/ verb, the past tense of 'to move on skis for sport or in order to travel on snow or water'.

The following formula issues:

ST/SR→i←T/S : ST/SR→iː←T/S

CVCCC type of word-forms

Sixteen pairs of one-syllabic CVCCC type structure were identified. The stems of both members of the opposition pairs consist of the root morphemes and the

inflectional morphemes *-ed* for the past tense and the past participle, *-s* for the plurality of nouns, 's, s' for the possessive cases of nouns and *-s* for the 3rd person singular of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **T-** *b,* **S-** *f* in monomial onset and **TST-** *tʃt,* **STS-** *sts* phoneme clusters in trinomial coda. Thus, for instance:

beached /biːtʃt/ verb, the past tense of 'to pull a boat onto the shore away from the water' : **bitched** /bɪtʃt/ verb, the past tense of 'to make unpleasant remarks about someone';
feasts$_1$ /fiːsts/ verb, the 3rd person singular of 'to eat a lot of a particular food with great enjoyment : **fists**$_2$ /fɪsts/ noun, the plural of 'the hand is tightly closed, the fingers are curled in towards the palm';
feasts$_1$ /fiːsts/ verb, the 3rd person singular : **fist's**$_2$ /fɪsts/ noun, the possessive case.

This can be expressed in the following formula:

T/S→ɪ←TST/STS : T/S→iː←TST/STS

CCVCC type of word-forms

The database witnesses to two hundred and forty-four pairs of one-syllabic CCVCC type structure. The stems of both members of the opposition pairs consist of the root and the inflectional morphemes *-ed* for the past tense and past participle, *-s* for the plurality of nouns, 's, s' for the possessive cases of nouns and *-s* and *-s* for the 3rd person singular of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **TS-** *tʃ dʒ,* **TW-** *tw kw,* **TR-** *kl kr gr bl,* **ST-** *st sp sk,* **SR-** *fl sl* in binomial onset and **TT-** *pt kt,* **TS-** *ps ts ks,* **RS-** *nz nd md mz ld lz* phoneme clusters in binomial coda. Thus, for instance:

fleets /fliːts/ noun, the plural of 'a group of ships, or all the ships in a navy' : **flits** /flɪts/ verb, the the 3rd person singular of 'to move lightly or quickly and not stay in one place for very long';
creaked /kriːkt/ verb, the past tense of 'if something such as a door, or stair creaks, it makes a long high noise when someone opens it, walks on it, sits on it etc' : **cricked** /krɪkt/ verb, the past participle of 'to hurt your back or neck by bending or moving in a way that makes the muscles become stiff';
djinn's /dʒɪnz/ noun, the possessive case of 'a magical person in Islamic stories who has special powers' : **jeans** /dʒiːnz/ noun, the plural of 'trousers made of denim'.

This can be compressed into the following formula:

TS/TW/TR/ST/SR→ɪ←TT/TS/RS : TS/TW/TR/ST/SR→iː←TT/TS/RS

Ten pairs of one-syllabic CCVCC type structure were discovered. The stem of the first member of the opposition pair consists of the root. The second member

consists of the root and the inflectional morphemes *-ed* denoting the past tense and past participle, *-(e)s* for the plurality of nouns, 's, s' to denote the possessive cases of nouns and *-s* denoting the 3rd person singular of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **TR-** *gr bl* in binomial onset and **ST-** *st,* **TT-** *ts* phoneme clusters in binomial coda. Thus, for instance:

greased /griːst/ verb, the past tense of 'to put butter, grease etc on a pan etc to prevent food from sticking to it' : grist /grɪst/ noun 'something that is useful in a particular situation'.
bleats' /bliːts/ noun, the possessive case, the plural of 'to make the sound that a sheep or goat makes' : blitz /blɪts/ verb 'a sudden military attack, especially from the air'.

This can be expressed in the following formula:

TR→ɪ←ST/TS : TR→iː←ST/TS

CVCVC type of word-forms

Sixty-four pairs of two-syllabic CVCVC type structure were found. The stems of both members of the opposition pairs consist of the roots and the inflectional morphemes *-ing* for the present participle, *-(e)s* for the plurality of nouns, 's, s' denoting the possessive case of nouns and *-s* denoting the 3rd person singular of verbs. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *b d k p,* **S-** *f s h,* **W-** *w,* **R-** *l r* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t d k p,* **R-** *l m n,* **S-** *f s v z* in monomial onset and **S-** *z*, **R-** *ŋ* phonemes in monomial coda. Thus, for instance:

sitting /sɪtɪŋ/ verb, the present participle of 'to be on a chair or seat, or on the ground, with the top half of your body upright and your weight resting on your buttocks': seating /siːtɪŋ/ verb, the present participle of 'if a place seats a number of people, it has enough seats for that number';
Parsee's /pɑːsiːz/ noun, the possessive case of 'a member of an ancient Persian religious group in India' : passes /pɑːsiz/ verb, the 3rd person singular of 'to come up to a particular place and go past it'.

This can be summarized into the following formula:

T/S/W/R→ɪ←Ø//T/R/S/V/S/R : T/S/W/R→iː←Ø//T/R/S/V/S/R

Two pairs of two-syllabic CVCVC type structure were indentified. The stem of the first member of the opposition pair consists of the root and the stem of the second member consists of the root with the inflectional morpheme *-en* for the past

participle of verbs. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **S-** *z* in monomial onset and **R-** *n* phonemes in coda. Thus, for instance:

risen /rɪzən/ verb, the past participle of 'to increase in number, amount' : reason /riːzən/ noun 'the cause or explanation for something that happens'.

This can be expressed in the following formula:

R/V/Ø//S→ɪ←R : R/V/Ø//S→iː←R

CVCVCC type of word-forms

Six pairs of two-syllabic CVCVCC type structure were found. The stems of both members of the opposition pairs consist of the roots and the inflectional morpheme -*s* for the plurality or formal plurality of nouns, 's, s' for the possessive case of nouns, and -*s* for the 3rd person singular of verbs are added to the stem. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **S-** *f,* **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has the phoneme **S-** *f z,* **T-** *t* in monomial onset and **RT-** *nd,* **TS-** *ks, dz* phonemes in binomial coda. Thus, for instance:

retards /riːtɑːdz/ noun, the plural of 'an offensive word for a stupid person' : retards /rɪtɑːdz/ verb, the 3rd person singular of 'to delay the development of something, or to make something happen more slowly than expected';

This can be expressed in the following formula:

S/R→ɪ←Ø//S/T/V/RT/TS : S/R→iː← Ø//S/T/V/RT/TS

CVCCVCCC type of word-forms

Three pairs of two-syllabic CVCCVCCC type structure were found. The stem of both members of the opposition pairs consist of the roots and the inflectional morpheme -*s* for the 3rd person singular of verbs and -*s* for the plurality of nouns, 's, s' to indicate the possessive cases of nouns are added to the stem. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes. The first syllable has phonemes **R-** *r* phoneme in monomial onset and

the **Ø** zero coda. The second syllable has **TS-** *ʤ* phoneme cluster in binomial onset and **TTS-** *kts* phonemes in trinomial coda. Thus, for instance:

rejects$_1$ /rɪ**ʤekts**/ verb, the 3rd person singular of 'a product that has been rejected because there is something wrong with it' : **rejects**$_2$ /**riː**ʤekts/ noun, the plural of 'to refuse to accept, believe in, or agree with something';
rejects$_1$ /rɪ**ʤekts**/ verb, the 3rd person singular : **reject's**$_2$ /**riː**ʤekts/ noun, the possessive case.

This can be expressed in the following formula:

R→ɪ←Ø//TS/V/TTS : R→iː←Ø//TS/V/TTS

CVCCVC type of word-forms

This case is represented by twenty-eight pairs of two-syllabic CVCCVC type structure. The stems of both members of the opposition pairs consist of the roots with the inflectional morphemes *-ing* for the present participle, *-(e)s* for the plurality of nouns, 's, s' denoting the possessive cases of nouns, and *-s* for the 3rd person singular of verbs. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **T-** *p* in monomial onset and the **Ø** zero coda. The second syllable has **TS-** *ʧ* phonemes in binomial onset and **S-** *z,* **R-** *ŋ* phonemes in monomial coda. Thus, for instance:

pitches /**pɪʧ**ɪz/ verb, the 3rd person singular of 'to throw something with a lot of force, often aiming carefully' : **peaches** /**piːʧ**ɪz/ noun, the plural of ' a round juicy fruit that has a soft yellow or red skin and a large, hard seed in the centre, or the tree that this fruit grows on';
bitching /**bɪʧ**ɪŋ/ verb, the present participle of 'to make unpleasant remarks about someone' : **beaching** /**biːʧ**ɪŋ/ verb, the present participle of 'to pull a boat onto the shore away from the water';
riches' /**rɪʧ**ɪz/ noun, the plural possessive case of 'expensive possessions and large amounts of money' : **reaches** /**riːʧ**ɪz/ noun, plural 'distance that you can stretch out your arm to touch something'.

This can be expressed in the following formula:

T→ɪ←Ø//TS/V/S/R : T→iː←Ø//TS/V/S/R

CVCCVC type of word-forms

Nine pairs of two-syllabic CVCCVC type structure were discovered. The stem of the first member of the opposition pair consists of the root. The stem of the second member consists of the root with the inflectional morpheme *-es* for the plurality of nouns. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has

phoneme **T-** *b* in monomial onset and the **Ø** zero coda. The second syllable has the phoneme cluster **TS-** *dʒ* in binomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

bhajis$_1$ **/baːdʒiːz/** noun, the plural of 'a hot–tasting Indian vegetable cake cooked in batter' : **barges**$_2$ **/baːdʒiz/** noun, the plural of 'a low boat with a flat bottom, used for carrying goods on a canal or river'.
bhajis'$_1$ **/baːdʒiːz/** noun, the plural, the possessive case : **barges**$_2$ **/baːdʒiz/** noun, the plural.

This can be expressed in the following formula:

T/V/Ø//TS→ɪ←S : T/V/Ø//TS→iː←S

CCVCVC type of word-forms

The database includes twenty-two pairs of two-syllabic CVCCVC type structure. The stems of both members of the opposition pairs consist of the roots and the inflectional morpheme *-ed* for the past tense and the past participle, *-s* for plurality of nouns, 's, s' for the possessive cases, *-ing* for the present participle and *-s* for the 3rd person singular of verbs. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **TR-** *gr kr,* **SR-** *fr sl,* **ST-** *sk st,* **TS-** *tʃ* in binomial onset and the **Ø** zero coda. The second syllable has **T-** *k t p,* **R-** *n m l,* **S-** *z* phoneme in monomial onset and **R-** *ŋ,* **S-** *z,* **T-** *d* phoneme in monomial coda. Thus, for instance:

grinning /grɪnɪŋ/ verb, the present participle of 'to smile widely' : **greening /griːnɪŋ/** verb, the present participle of 'to fill an area with growing plants in order to make it more attractive';
frizzes$_1$ **/frɪziz/** verb, the 3rd person singular of 'to curl very tightly' : **freezes**$_2$ **/friːziz/** noun plural' a time when people are not allowed to increase prices or pay';
gritted /grɪtɪd/ verb past tense 'to scatter grit on a frozen road to make it less slippery' : **greeted /griːtɪd/** verb past participle 'to say hello to someone or welcome them';
frizzes$_1$ **/frɪziz/** verb the 3rd person singular : **freezes'**$_2$ **/friːziz/** noun, the plural, the possessive case.

This can be expressed in the following formula:

TR/SR/ST/TS→ɪ←Ø//T/R/S/V/R/S/T: TR/SR/ST/TS→iː←Ø//T/R/S/V/R/S/T

VCCVCC type of word-forms

Six pairs of two-syllabic VCCVCC type structure were found. The stem of both members of the opposition pairs consist of thr roots and the inflectional morphemes *-s* for the plurality of nouns, 's, s' for the possessive cases are added to the stem. Syllables are closed. The boundaries of morphemes and syllables do not

coincide. The first syllable has the **Ø** zero onset and **R-** *n* phoneme in monomial coda. The second syllable has phonemes **T-** *t* in monomial onset and **TS-** *ks* phoneme in binomial coda. Thus, for instance:

antics'$_1$ /æntɪks/noun, the possessive case : **antiques**$_2$ /æn**tiːks**/ noun, the plural.

This can be expressed in the following formula:

Ø/V/R//T→ɪ←TS : Ø/V/R//T→iː←TS

CVCCVCC type of word-forms

Three pairs of two-syllabic CVCCVCC type structure were found with bilateral opposition. The stems of both members of the opposition pairs consist of the roots with the inflectional morphemes *-s* for the plurality of nouns, 's, s' for the possessive cases of nouns and *-s* to mark the 3rd person singular of verbs. The syllables are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **S-** *s* in monomial onset and **T-** *k* phoneme in monomial coda. The second syllable has **R-** *r* phoneme in monomial onset and **TS-** *ts* phoneme cluster in binomial coda. Thus, for instance:

secretes$_1$ /sɪkriːts/ verb, the 3rd person singular of 'a liquid substance, animal or plant produces it' :
secrets$_2$ /siːkrɪts/ noun, the plural of 'known about by only a few people and kept hidden from others';
secretes$_1$ /sɪkriːts/ verb the 3rd person of singular : **secret's**$_2$ /siːkrɪts/ noun possessive case.

This can be compressed into the following formula:

S→ɪ←T//R/V/TS : S→iː←T//R/V/TS

CCVCVCC type of word-forms

Three pairs of two-syllabic CCVCVCC type structure were discovered. The stems of both members of the opposition pairs consist of the roots with the inflectional morphemes *-s* for the plurality of nouns, 's, s' for the possessive cases, *-er* for the superlative degree of adjectives, and *-s* for the 3rd person singular of verbs. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **ST-** *st,* **SR-** *sl* **TR-** *kr* in binomial onset and the **Ø** zero coda. The second syllable has **T-** *p k t* phoneme in monomial onset and **RS-** *lz*, **ST-** *st,***TS-** *ks* phoneme cluster in binomial coda. Thus, for instance:

stipples$_1$ **/stɪpəlz/** verb, the 3rd person singular of 'to draw a picture or pattern using short strokes instead of lines' : **steeple**$_2$ **/stiːpəlz/** noun, the plural of'a tall pointed tower on the roof of a church';
stipples$_1$ **/stɪpəlz/** verb, the 3rd person singular : **steeple's**$_2$ **/stiːpəlz/** noun, the possessive case;

This can be expressed in the following formula:

ST/SR/TR →ɪ←Ø//T/V/RS/ST/TS : ST/SR/TR →iː← Ø//T/V/RS/ST/TS

CCVCCVC type of word-forms

Thirty-six pairs of two-syllabic CCVCCVC type structure were found. The stem of both members of the opposition pair consists of root with inflectional morpheme *-s* to show plurality of nouns, 's, s' to show the possessive case of nouns and *-s* to show the 3rd person singular of verbs added to the stem. The first syllable is open and the second – closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **TR-** *br* in binomial onset and the **Ø** zero coda. The second syllable has **TS-** *ʧ* phoneme in monomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

britches$_1$ **/brɪʧɪz/** noun, the plural of 'trousers' : **breaches**$_2$ **/briːʧiz/** verb, the 3rd person singular of 'to break a law, rule, or agreement';
britches'$_1$ **/brɪʧɪz/** noun, the plural possessive case : **breaches**$_2$ **/briːʧiz/** verb, the 3rd person singular.

This can be expressed in the following formula:

TR/V/Ø//TS→ɪ←S : TR/V/Ø//TS→iː←S

CCCVCC type of word-forms

Two pairs of one-syllabic CCCVCC type structure were found that have the stem of the first member of the opposition pair consisting of the root. The stem of the second member consists of root and the inflectional *-ed* morpheme to form past tense and past participle is added to the stem. Syllables are closed. The boundaries of morphemes and syllables do not coincide in word-form with inflectional morpheme. The syllable has phonemes **STR-** *str* in trinomial onset and **TT-** *kt* phoneme clusters in binomial coda. Thus, for instance:

strict /strɪkt/ adjective 'expecting people to obey rules or to do what you say' : **streaked /striːkt/** verb, the past tense of 'a coloured line, especially one that is not straight or has been made accidentally'.

This can be compressed into the following formula:

STR→ɪ←TT : STR→iː←TT

CVCVCVCCVCC type of word-forms

Nine pairs of four-syllabic CVCVCVCCVCC type structure were found. The stems of both members of the opposition pairs consist of the root. The inflectional morpheme *-s* for the plurality of nouns, 's, s' for the possessive cases of nouns are added to the stem. The first and the second syllables are open, the third and the fourth are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *b* phoneme in monomial onset and the **Ø** zero coda. The second syllable has **R-** *n* phoneme in monomial onset and the **Ø** zero coda. The third syllable has **T-** *d* phoneme in monomial onset and **T-** *k* phoneme in monomial coda. The fourth syllable has **T-** *t* phoneme in monomial onset and **RS-** *nz* phoneme in monomial coda. Thus, for instance:

benedictines$_1$ /benɪdɪktɪnz/ noun, the plural of 'a member of a Christian religious order of monks' : **benedictines**$_2$ /benɪdɪktiːnz/ noun, the plural of 'a strong alcoholic drink that is a type of liqueur'; **benedictine's**$_1$ /benɪdɪktɪnz/ noun, the possessive case : **benedictines**$_2$ /benɪdɪktiːnz/ noun, the plural.

This can be expressed in the following formula:

T/V/Ø//R/V/Ø//T/V/T//T→ɪ←RS : T/V/Ø//R/V/Ø//T/V/T//T→iː←RS

2.5.4. Opposition *ɪ–iː* in the root with the derivational and inflectional* morpheme

CVCC type of word-forms

This case is represented by fifteen pairs of one-syllabic CVCC type structure. The stem of the first member of the opposition pair consists of the root and the derivational morphemes -en, -ed. The stem of the second member consists of the root and the inflectional *-ed* morpheme to form the past tense and the past participle. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **T-** *p b,* **W-** *w* in monomial onset and **ST-** *st,* **TT-** *kt,* **RT-** *ld,* **TR-** *tn* phoneme clusters in binomial coda. Thus, for instance:

* one or both members of the opposition pairs take the derivational or inflectional morphemes

peaked /**piːkt**/ verb, past tense of 'to reach the highest point or level' : **picked** /**pɪkt**/ adjective 'picked people have been specially chosen because they are very suitable for a particular job'.

The following formula issues:

T/W→ɪ←ST/TT/RT/TR : T/W→iː←ST/TT/RT/TR

CCVCC type of word-forms

Two pairs of one-syllabic CCVCC type structure were found. The stem of the first member of the opposition pair consists of the root and the derivational morpheme *-ed*. The stem of the second member consists of the root and the inflectional morpheme *-ed* for the past tense and the past participle of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The syllable has phonemes **TS-** *tʃ* in binomial onset and **TT-** *pt* phoneme clusters in binomial coda. Thus, for instance:

chipped /**ʧɪpt**/ adjective 'something that is chipped has a small piece broken off the edge of it' : **cheeped** /**ʧiːpt**/ verb, the past tense of 'if a young bird cheeps, it makes a weak, high noise'.

This can be expressed in the following formula:

TS→ɪ←TT : TS→iː←TT

CVCVC type of word-forms

The database provides the analysis with one hundred and ten pairs of two-syllabic CVCVC type structure. The stems of both members of the opposition pairs consist of the roots and the derivational morphemes *-ed, -ie, -y, -er*. The inflectional morphemes *-ed* for the past tense and the past participle, *-s* for the plurality of nouns, *'s, s'* for the possessive cases of nouns and *-s* for the 3rd person singular of verbs are added to the stem. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *k b t,* **S-** *f,* **W-***w,* **R-** *l* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t k p,* **R-** *l n,* **S-** *v* in monomial onset and **T-** d, **S-** z phonemes in coda. Thus, for instance:

fillers /**fɪləz**/ noun, the plural of 'a substance used to fill cracks in wood, walls etc, especially before you paint them' : **feelers** /**fiːləz**/ noun, the plural of 'one of the two long things on an insect's head that it uses to feel or touch things. Some sea animals also have feelers';
kippers /**kɪpəz**/ noun, the plural of 'a herring that has been preserved using smoke and salt' : **keeper's** /**kiːpəz**/ noun, the of possessive case 'someone who looks after animals'.

This can be expressed in the following formula:

T/S/W/R→ɪ←Ø//T/R/S/V/T/S : T/S/W/R→iː←Ø//T/R/S/V/T/S

Nineteen pairs of two-syllabic CVCVC type structure were found. The stem of one member of the opposition pair consists of the root and the derivational morphemes *-ing*. The stem of the second member consists of the root and the inflectional morphemes *-ing* for the present participle. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *k b,* **S-** *f h s,* **W-***w,* **R-** *l* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t d p,* **R-** *l n,* **S-** *v* in monomial onset and **R-** ŋ phonemes in coda. Thus, for instance:

sheeting /ʃiːtɪŋ/ noun ' material such as plastic or metal used to cover something and protect it' : **shitting** /ʃɪtɪŋ/ verb, the present participle of 'to pass solid waste out of your body from your bowels'.

This can be summed up into the following formula:

T/S/W/R→ɪ←Ø//T/R/S/V/R : T/S/W/R→iː←Ø//T/R/S/V/R

Thirty-six pairs of two-syllabic CVCVC type structure were discovered. The stem of one member of the opposition pair consists of the root and the derivational morphemes *-ie, - ee, -y* and the inflectional morpheme *-s* for the plurality of nouns, and *-s* for the 3rd person singular of verbs. The stem of the second member consists of the root and the inflectional morphemes *-s* for the plurality of nouns, *'s, s'* for the possessive cases of nouns, and *-s* for the 3rd person singular of verbs. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *p b,* **S-** *f s,* **R-** *m* in monomial onset and the **Ø** zero coda. The second syllable has phonemes **R-** *l n,* **S-** *s* in monomial onset and **S-** z phonemes in coda. Thus, for instance:

cissie's /sɪsiz/ informal, noun 'a boy that other boys dislike because he prefers doing things that girls enjoy' : **ceases** /siːsiz/ verb 'to stop doing something or stop happening';
meanies /miːniz/ noun, the plural of 'an unkind person used especially by children' : **minis** /mɪniz/ noun, the plural of 'a miniskirt'.

This can be expressed in the following formula:

T/S/R→ɪ←Ø//R/S/V/S : T/S/R→iː←Ø//R/S/V/S

VCCVCC type of word-forms

Two pairs of two-syllabic VCCVCC type structure were found. The stem of the first opposition member consists of the root and the derivation morpheme *in-*. And the stem of the second member consists of the root with the inflectional morpheme *-ed* for the past tense and the past participle. Syllables are closed. The boundaries of morphemes and syllables do not coincide in word-form with inflectional morpheme *-ed*. The first syllable has the **Ø** zero onset and **R-** *n* phoneme in monomial coda. The second syllable has phonemes **T-** *f* in monomial onset and **RT-** *ld* phoneme in binomial coda. Thus, for instance:

infield /ɪnfiːld/ noun 'the part of a cricket field nearest to the player who hits the ball' : **infilled** /ɪnfɪld/ verb, the past tense of 'to fill in'.

This can be expressed in the following formula:

Ø/V/R//T→ɪ←RT : Ø/V/R//T →iː←RT

CVCVVCVC type of word-forms

One pair of three-syllabic CVCVVCVC type structure was found. The stems of both members of the opposition pairs consist of the roots. The inflectional morpheme *-ing* for the present participle of verbs is added to the stem of the first opposition member. The second opposition member adds the derivational morpheme *-ing*. The first and the second syllables are open and the third is closed. The boundaries of morphemes and syllables do not coincide. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes. The first syllable has phonemes **R-** *r* phoneme in monomial onset and the **Ø** zero coda. The second syllable has **T-** *t* phoneme in monomial onset, diphthong *eɪ* in nucleus, and the **Ø** zero coda. The third syllable has **R-** *l* phoneme in monomial onset and **R-** *ŋ* phoneme in monomial coda. Thus, for instance:

retailing /rɪteɪlɪŋ/ verb, the present participle of 'to be sold for a particular price in a shop' : **retailing** /riːteɪlɪŋ/ noun 'the sale of goods in shops to customers, for their own use'.

This can be summed up the following formula:

R→ɪ←Ø//T/VV/Ø//R/V/R : R→iː←Ø//T/VV/Ø//R/V/R

CVCVCC type of word-forms

Eighteen pairs of two-syllabic CVCVCC type structure were identified. The stems of both members of the opposition pairs consist of the roots and the derivational morphemes *-ing*. The inflectional morpheme *-s* for the plurality of nouns, 's, s' for the possessive case of nouns, and *-s* to show the 3rd person singular of verbs are added to the stem. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **S-** *f,* **R-** *l* in monomial onset and the **Ø** zero coda. The second syllable has the phoneme **S-** *v,* **R-** *l* in monomial onset and **RS-** *ŋz* phonemes in binomial coda. Thus, for instance:

livings /lɪvɪŋz/noun, the plural of 'the way that you earn money or the money that you earn': leavings /liːvɪŋz/ noun, the plural of 'things that are left because people do not want them;
fillings /fɪlɪŋz/ noun, the plural of 'a small amount of metal that is put into your tooth to cover a hole' : feeling's /fiːlɪŋz/ noun, the possessive case of 'an emotion that you feel, such as anger, or happiness';

This can be expressed the following formula:

S/R→ɪ←Ø//S/R/V/RS/TS : S/R→iː← Ø//S/R/V/RS/TS

Four pairs of two-syllabic CVCVCC type structure were identified where the stem of the first members of the opposition pairs consist of the roots and the derivational morphemes *fore-* and the inflectional morphemes *-s* for the plurality of nouns, inner flection of nouns, 's, s' for the possessive cases of nouns, and *-s* to show the 3rd person singular of verbs. The second member of the pair consists of the root and the inflectional morphemes 's, s' to denote the possessive cases of nouns, and *-s* for the 3rd person singular of verbs. The first syllable is open and the second –is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **S-** *f* in monomial onset and the **Ø** zero coda. The second syllable has the phoneme **S-** *f* in monomial onset and **TS-** *ts* phonemes in binomial coda. Thus, for instance:

forefeet's /fɔːfiːts/ noun plural possessive case 'one of the two front feet of an animal with four legs' : forfeits /fɔːfɪts/ noun, the plural of 'something that is taken away from you or something that you have to pay, because you have broken a rule or made a mistake'.

This can be expressed in the following formula:

S→ɪ←Ø//S/V/TS : S→iː← Ø//S/V/TS

CCVCVC type of word-forms

This cluster incorporates thirty-three pairs of two-syllabic CCVCVC type structure. The stems of both members of the opposition pairs consist of the roots and the derivational morpheme *-er*. The inflectional morpheme *-s* to indicates the plurality of nouns, 's, s' for the possessive cases, and *-s* for the 3rd person singular of verbs are added to the stem. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **TR-** *gr,* **SR-** *sl sn,* **TW-** *tw* in binomial onset and the **Ø** zero coda. The second syllable has the phonemes **T-** *t p k* in monomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

greeter's /griːtəz/ noun 'someone who greets people politely as they enter a place, especially someone who does this as a job' : gritters /grɪtəz/ noun 'a large vehicle that puts salt or sand on the roads in winter to make them less icy'.

This can be expressed in the following formula:

TR/SR/TW→ɪ←Ø//T/V/S : TR/SR/TW→iː←Ø//T/V/S

Six pairs of two-syllabic CCVCVC type structure were found. The first member of the opposition pair has the stem of the root with the derivational morpheme *-ing*. The second member has the stem consisting of the root with the inflectional morpheme *-ing* to denote the present participle of verbs added to the stem. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **TR-** *gr,* **SR-** *fl fr* in binomial onset and the **Ø** zero coda. The second syllable has the phonemes **T-** *t,* **S-** *z,* **R-** *n* in monomial onset and **R-** *ŋ* phoneme in monomial coda. Thus, for instance:

freezing /friːzɪŋ/ adjective 'extremely cold' : frizzing /frɪzɪŋ/ verb, the present participle of 'if your hair frizzes, or if you frizz it, it curls very tightly'.

This can be expressed in the following formula:

TR/SR→ɪ←Ø// T/S/R/V/R : TR/SR→iː←Ø// T/S/R/V/R

CVCCVVCVC type of word-forms

One pair of three-syllabic CVCCVVCVC type structure was discovered. The stems of both members of the opposition pairs consist of the roots with derivational morpheme *re-*. The inflectional morphemes *-ing* for the present participle of verbs is added to the stem. The first and the second syllables are open and the third is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **R-** *r* phoneme in monomial onset and the **Ø** zero coda. The second syllable has **TS-** *ʤ* phoneme in binomial onset, diphthong *ɔɪ* in nucleus, and the **Ø** zero coda. The third syllable has **R-** *n* phoneme in monomial onset and **R-** *ŋ* phoneme in monomial coda. Thus, for instance:

rejoining /rɪːʤɔɪnɪŋ/ verb, the present participle of 'to go back to a group of people, organization etc that you were with before' : **rejoining** /rɪʤɔɪnɪŋ/ verb, the present participle of 'to say something in reply, especially rudely or angrily'.

This can be expressed in the following formula:

R/V→ɪ←Ø//TS/VV/Ø//R→ɪ←R : R/V→ɪ←Ø//TS/VV/Ø//R→ i:←R

CVCCVVCC type of word-forms

The database gives five pairs of two-syllabic **CVCCVVCC** type structure. The stems of both members of the opposition pairs consist of the roots with the derivational morpheme *re-*. The inflectional morpheme *-ed* for the past tense and the past participle of verbs and *-s* for the 3rd person singular of verbs are added to the stem. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **R-** *r* phoneme in monomial onset and the **Ø** zero coda. The second syllable has **TS-** *ʤ* phoneme cluster in binomial onset and **RT-** *nd* phonemes in binomial coda. Thus, for instance:

rejoined /rɪʤɔɪnd/ verb, the past tense of 'to say something in reply, especially rudely or angrily': **rejoined** /rɪːʤɔɪnd/ verb, the past tense of 'to go back to a group of people, organization etc that you were with before'.

This can be generalized into the following formula:

R→ɪ←Ø//TS/VV/RT : R→i:←Ø//TS/VV/RT

2.5.5. Opposition *ɪ–iː* in the derivational morpheme and the root

- **The root with the derivational* morpheme**

CVCVCC type of word-forms

One pair of two-syllabic CVCVCC type structure was identified. The stems of both members of the opposition pairs consist of the roots and the derivational morpheme *re-*. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables coincide. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes. The first syllable has phoneme **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has the phonemes **S-** *f* in monomial onset and **RT-** *nd* phonemes in binomial coda. Thus, for instance:

> **refund** /rɪfʌ**nd**/ verb 'to give someone their money back, especially because they are not satisfied with the goods or services they have paid for' : **refund** /**riː**fʌnd/ noun 'an amount of money that is given back to you if you are not satisfied with the goods or services that you have paid for'.

This can be generalized into the following formula:

R→ɪ←Ø//S/V/RT : R→iː← Ø//S/V/RT

VCVCC type of word-forms

One pair of two-syllabic VCVCC type structure was discovered. The stems of both members of the opposition pairs consist of the roots and the derivational morphemes *-ist, -iste*. Syllables are open. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and the **Ø** zero coda. The second syllable has phonemes **T-** *t* in monomial onset and **ST-** st phoneme cluster in binomial coda. Thus, for instance:

> **artist** /**ɑː**tɪst/ noun 'someone who produces art, especially paintings or drawings': ar**tiste** /**ɑːtiːst**/ noun 'a professional singer, dancer, actor etc who performs in a show'.

This can be expressed in the following formula:

Ø/V/Ø//T→ɪ←ST : Ø/V/Ø//T→iː←ST

CCVCCV type of word-forms

Four pairs of two-syllabic CCVCCV type structure were identified. The stems of both members of the opposition pairs consist of the roots with the derivational

* one or both members of the opposition pair may take the derivational morpheme

morphemes *-ee, -y*. The first syllable is closed and the second – is open. The boundaries of morphemes and syllables coincide. The first syllable has phonemes **TR-** *tr dr,* **SR-** *sl* in binomial onset and **S-** *f s* phonemes in monomial coda. The second syllable has **T-** *t* phoneme in monomial onset and the **Ø** zero coda. Thus, for instance:

draftee /dr*a*ːf**tiː**/ noun 'someone who has been drafted into the army, navy etc' : **drafty** /dr*a*ːf**t**i/ adjective 'a draughty room or building has cold air blowing through it'.

This can be expressed in the following formula:

TR/SR/V/S//T→ɪ←Ø : TR/SR/V/S//T→iː←Ø

- **The root with the derivational morpheme and the inflectional*** **morpheme**

VCVCCC type of word-forms

Nine pairs of two-syllabic VCVCCC type structure were found. The stems of both members of the opposition pairs consist of the roots and the derivational morphemes *-ist, -iste.* The inflectional morphemes *-s* for the plurality of nouns, 's, s' for the possessive cases of nouns are added to the stem. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and the **Ø** zero coda. The second syllable has phoneme **T-** *t* in monomial onset and **STS-** *sts* phoneme cluster in trinomial coda. Thus, for instance:

artists$_1$ /*a*ːtɪ**sts**/ noun, the plural of 'someone who produces art, especially paintings or drawings': **artistes**$_2$ /*a*ːti**ːsts**/ noun, the plural of 'a professional singer, dancer, actor etc who performs in a show';
artist's$_1$ /*a*ːtɪ**sts**/ noun possessive case : **artistes**$_2$ /*a*ːti**ːsts**/ noun, the plural.

This can be expressed in the following formula:

Ø/V/Ø//T→ɪ←STS : Ø/V/Ø//T→iː←STS

CVCCVC type of word-forms

This case is represented by nine pairs of two-syllabic CVCCVC type structure. The stem of first member of the opposition pair consists of the root and the derivational morpheme *-ee* with the inflectional morpheme *-s* for the plurality of noun

* one or both opposition members may take derivational and inflectional morphemes

is added to the stem. The stem of the second member consists of root with the inflectional morpheme *-s* for the plurality of nouns added to the stem. The first syllable is open and the second - is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **T-** *b* in monomial onset and the **Ø** zero coda. The second syllable has the phoneme cluster **TS-** *dʒ* in binomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

bargees$_1$ /bɑːdʒiːz/ noun, the plural of 'someone who drives or works on a barge' : **barges**$_2$ /bɑːdʒiz/ noun, the plural of ' a large low boat with a flat bottom, used for carrying goods on a canal or river'.
bargee's$_1$ /bɑːdʒiːz/ noun, the possessive case : **barges**$_2$ /bɑːdʒiz/ noun, the plural.

This can be expressed in the following formula:

T/V/Ø//TS→ɪ←S : T/V/Ø//TS→iː←S

CVCVCCC type of word-forms

Three pairs of two-syllabic CVCVCCC type structure were found. The stems of both members of the opposition pairs consist of the roots and the derivational morpheme *re-*. The inflectional morpheme *-s* to denote the plurality of nouns, 's, s' for the possessive cases, and *-s* to show the 3rd person singular of verbs are added to the stem. The first syllable is open and the second - is closed. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes.The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **R-** *r* in monomial onset and the **Ø** zero coda. The second syllable has the phonemes **S-** *f* in monomial onset and **RTS-** *ndz* phoneme cluster in trinomial coda. Thus, for instance:

refunds$_1$ /riːfʌndz/ noun, the plural of 'an amount of money that is given back to you if you are not satisfied with the goods or services that you have paid for': **refunds**$_2$ /rɪfʌndz/ verb, the 3rd person singular of 'to give someone their money back, because they are not satisfied with the goods';
refund's$_1$ /riːfʌndz/ noun, the possessive case : **refunds**$_2$ /rɪfʌndz/ verb, the 3rd person of singular.

This can be compressed into the following formula:

R→ɪ←Ø//S/V/RTS : R→iː←Ø//S/V/RTS

CVCVCVC type of word-forms

Nine pairs of three-syllabic CVCVCVC type structure were found. The stems of both members of the opposition pairs consist of the root with the derivational

morpheme *ee-* added to the root of the second member. The inflectional morphemes *-s* to show the 3rd person singular of verbs and *-s* for the plurality of nouns, 's, s' for the possessive case of nouns are added to the stem. The first and the second syllables are open and the third is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *d* phoneme in monomial onset and the **Ø** zero coda. The second syllable has **S-** *v* phoneme in monomial onset and the **Ø** zero coda. The third syllable has **S-** *s* phoneme in monomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

divorces$_1$ /dɪvɔːsiz/ verb, the 3rd person singular of 'if someone divorces their husband or wife, or if two people divorce, they legally end their marriage' : **divorcees**$_2$ /dɪvɔːsiːz/ noun, the plural of 'a man or woman who is divorced;
divorces$_1$ /dɪvɔːsiz/ verb, the the 3rd person singular : **divorcee's**$_2$ /dɪvɔːsiːz/ noun, the possssive case.

This can be expressed in the following formula:

T/V/Ø//S/V/Ø//S→ɪ←S : T/V/Ø//S/V/Ø//S→iː←S

CCVCCVC type of word-forms

Nine pairs of two-syllabic CCVCVCC type structure were found. The stems of both members of the opposition pairs consist of the roots with the derivational morphemes *-ee, -y*. The inflectional morpheme *-s* for the plurality of nouns, 's, s' for the possessive cases of nouns are added to the stem. Both syllables are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **TR-** *tr* in binomial onset and **S-** *s* phoneme in monomial coda. The second syllable has **T-** *t* phoneme in monomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

trustees$_1$ /trʌstiːz/ noun, the plural of 'someone who has control of money or property that is in a trust for someone else' : **trusties**$_2$ /trʌstiz/ noun, the plural of 'a prisoner who is given special jobs or rights, because they behave in a way that can be trusted';
trustee's$_1$ /trʌstiːz/ noun, the possessive case : **trusties**$_2$ /trʌstlz/ noun, the plural.

This can take on the following formula:

TR/V/S//T→ɪ←S : TR/V/S//T→iː←S

CVCCVCVC type of word-forms

Two pairs of three-syllabic CVCCVCVC type structure were found. The stems of both members of the opposition pairs consist of the roots with the

derivational morpheme *de-*. The inflectional morphemes *-s* for the 3rd person singular of verbs and *-s* for the plurality of nouns, s',’s for the possessive cases of nouns are added to the stem. The first and the second syllables are open and the third is closed. A suprafix, a suprasegmental change such as stress, modifies the meanings of morphemes in one pair of this CVCCVCVC type structure. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **T-** *d* phoneme in monomial onset and the **Ø** zero coda. The second syllable has **TR-** *kr* phonemes in binomial onset and the **Ø** zero coda. The third syllable has **S-** *z s* phoneme in monomial onset and **S-** *s* phoneme in monomial coda. Thus, for instance:

decreases$_1$ /dɪ**kri:**siz/ verb, the 3rd person singular of 'to become less or go down to a lower level, or to make something do this' : **decreases**$_2$ /**di:**kri:siz/ noun, the plural of 'the process of becoming less, or the amount by which something becomes less';
decreases$_1$ /dɪ**kri:**siz/ verb, the 3rd person singular : **decreases'**$_2$ /**di:**kri:siz/ noun, the possessive case.

This can be expressed in the following formula:

T→ɪ←Ø//TR/V/Ø//S/V/S : T→i:← Ø//TR/V/Ø//S/V/S

CVVCVCCVC type of word-forms

Nine pairs of three-syllabic CVVCVCCVC type structure were identified. The stem of the first member of the opposition pair consists of the root with the derivational morpheme *-ee* and the inflectional morphemes *-s* for the 3rd person singular of verbs and *-s* for the plurality of nouns, 's, s' for the posssessive cases of nouns are added to the stem. The stem of the second member consists of root and the inflectional morphemes *-s* for the 3rd person singular of verbs and *-s* for the plurality of nouns, 's, s' for the posssessive cases of nouns added to the stem. The first syllables is open, the second and the third are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **R-** *l* phoneme in monomial onset, diphthong *aɪ* in nucleus and the **Ø** zero coda. The second syllable has **S-** *s* phoneme in monomial onset and **R-** *n* phoneme in monomial coda. The third syllable has **S-** *s* phoneme in monomial onset and **S-** *z* phoneme in monomial coda.

licences$_1$ /**laɪ**sənsiz/ noun, plural of 'an official document giving you permission to own or do something for a period of time' : **licensees**$_2$ /laɪsən**si:z**/ noun, the plural of 'someone who has official permission to do something';
licences$_1$ /**laɪ**sənsiz/ noun, the plural : **licensee's**$_2$ /laɪsən**si:z**/ noun, the possessive case.

This can be summed up in the following formula:

R/VV/Ø//S/V/R//S→ɪ←S : R/VV/Ø//S/V/R//S→iː←S

CCVCCCVVCVC type of word-forms

The database incorporates twelve pairs of three-syllabic CCVCCCVVCVC type structure. The stem of the first member of the opposition pair consists of the root with the derivational morphemes *-ee*. The inflectional morpheme *-s* for the plurality of nouns, 's, s' for the possessive case of nouns are added to the stem. The stem of the second member consists of the root and the inflectional morpheme *-s* for the plurality of nouns, 's, s' for the possessive cases of nouns. The first syllable is closed, the second is open, and the third syllable is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phonemes **SR** - *fr* in binomial onset and phoneme **R** - *n* in monomial coda. The second syllable has **TS-** *ʧ* phoneme in binomial onset, diphthong *aɪ* in nucleus, and the **Ø** zero coda. The third syllable has **S-** *z* phoneme in monomial onset and **S-** *z* phoneme in monomial coda. Thus, for instance:

franchisees$_1$ /frænʧaɪ**ziːz**/ noun, the plural of 'someone who is given or sold a franchise to sell a company's goods or services': **franchises**$_2$ /**frænʧ**aɪziz/ noun, the plural of 'permission given by a company to someone who wants to sell its goods or services';
franchisee's$_1$ /frænʧaɪ**ziːz**/ noun, the possessive case : **franchises**$_2$ /**frænʧ**aɪziz/ noun, the plural.

This can be expressed in the following formula:

SR/V/R//TS/VV/Ø//S→ɪ←S : SR/V/R//TS/V/Ø//S→iː←S

2.5.6. Opposition *ɪ–iː* in the inflectional morpheme and the root morpheme

VCCVC type of word-forms

This case represented by six pairs of two-syllabic VCCVC type structure. The stem of the first member of the opposition pair consists of the root. The stem of the second member consists of the root and the inflectional morphemes *-(e)s* for the plurality of nouns, 's, s' for the possessive cases of nouns and *-s* for the 3rd person singular of verbs. Syllables are closed. The boundaries of morphemes and syllables do not coincide. The first syllable has the **Ø** zero onset and **T-** *k* phoneme in coda. The second syllable has **S-** *s* in monomial onset and **S-** *z* phonemes in coda. Thus, for instance:

axes$_1$ **/æksiz/** noun, the plural of 'a tool with a heavy metal blade on the end of a long handle, used to cut down trees or split pieces of wood' : **axes**$_2$ **/æksiːz/** noun, the plural of 'a line drawn across the middle of a regular shape that divides it into two equal parts';
axe's$_1$ **/æksiz/** noun, the possessive case : **axes**$_2$ **/æksiːz/** noun, the plural.

This can be summarized by the following formula:

Ø/V/T//S→ɪ←S : Ø/V/T//S→iː←S

CVVCVC type of word-forms

Fifteen pairs of two-syllabic CVCVC type structure were found. The stems of both members of the opposition pairs consist of the root and the inflectional morphemes *-(e)s* for the plurality of nouns, 's, s' for the possessive cases of nouns, and *-s* denoting the 3rd person singular of verbs are added to the stem. The first syllable is open and the second – is closed. The boundaries of morphemes and syllables do not coincide. The first syllable has phoneme **T-** *b* in monomial onset, the diphthong *eɪ* in nucleus and the **Ø** zero coda. The second syllable has phonemes **S-** *s* in monomial onset and **S-** *z* phonemes in monomial coda. Thus, for instance:

bases /beɪsiz/ verb, the the 3rd person singular of 'to have your main place of work etc in a particular place': **bases**$_1$ **/beɪsiːz/** noun, the plural of 'the facts from which something can be developed';
basses' /beɪsiz/ noun, the possessive case, the plural of 'a very low male singing voice, or a man with a voice like this' : **bases**$_1$ **/beɪsiːz/** noun, the plural.

This can be expressed in the following formula:

T/VV/Ø//S→ɪ←S : T/VV/Ø//S→iː←S

The above eplicated opposition is epecially rich in three-syllabic pairs of words. This and the fact that the opposition includes basic, mixed and variant types, make the task of meaning recognition particularly difficult. This should deserve a significant attention by the creators of the speech synthesizer programmes.

The systematic structural analysis of morphonological long and short vowel oppositins has determined the syllabic structure of word-forms, i.e. onset, nucleus, and coda, and the initial and final series of consonants. The appendix 6 demonstrates the consolidated results of analysis of all five long and short vowel oppositions; for the final formulae of syllabic structure of word-forms having long and short vowel oppositions see appendix 20, and for summative percentage of congruent and incongruent morpheme and syllable boundaries refer to appendix 9.

3. SYSTEMATIC FUNCTIONAL MORPHONOLOGICAL ANALYSIS OF LONG AND SHORT OPPOSITIONS IN THE ENGLISH LANGUAGE

Functional analysis of phoneme oppositions deals with meaning differentiation. The analysed oppositions can reveal the lexical, grammatical or the lexical the grammatical meaning. The meaning can be discriminated by means of accent, and qualitative oppositions of vowels. Morphonological oppositions in this work are analyzed according to three aspects: grammatical, lexical-grammatical and lexical. All oppositions serve to exemplify different morphonological elements.

Long and short vowel oppositions analyzed according to the lexical aspect express the difference between the lexical meanings of words. Long and short vowel oppositions analyzed according to the lexical-grammatical aspect discriminate not only the lexical meanings of words but also different forms of the same word. There are no oppositions in the English language that discriminate the grammatical meaning alone.

Since functional morphonological analysis centers on the distinction of types of word meaning, those types or components should be briefly discussed. Word meaning is made up of various components. These components are described as types of meaning. There are two main types of meaning: the lexical and grammatical. The lexical meaning refers to the phenomena of objective reality. The grammatical meaning is the meaning which is common to all words of a certain paradigm or of a certain part of speech. Thus, for instance, a noun has the grammatical meaning of singularity, plurality and case. The grammatical meaning refers to the correlation between the words in a sentence. It is expressed in different ways: by arrangement of words, by affixes e.g. -s denoting plurality or *-ed* denoting the past tense of verbs, by grammatical words like *did, not, a, the*.

The lexical meaning is presented by two components: the denotational meaning and the connotational meaning. The denotational meaning is the lexical meaning of a word. The lexical meaning is the dictionary meaning of a word or a base in its paradigm, thus, for instance: the meaning of the base word *throw* 'to make an object such as a ball move quickly through the air by pushing a hand forward quickly and

letting the object go' remains the same in the set of inflected forms of paradigm (*throw, throws, throwing, threw, thrown*) and they all have shared the lexical meaning.

As it has been stated above the LDOCE was chosen as inventory for the data to compose the database of the thesis. LDOCE recognizes eight parts of speech or word classes (LDOCE 2004): the verb, the noun, the pronoun (determiner, predeterminer), the adjective, the adverb, the preposition, the conjunction, and the interjection.

As it has been referred above, the lexical meaning of the word is the meaning recorded in the dictionary and the grammatical meaning in the analysed oppositions is conveyed through oppositions between eight inflectional morphemes: *-s* (plural) and *-s* (possessive) as noun inflections; *-s* (3rd-person singular), *-ed* (past tense, participle), *-en* (past participle), and *-ing* (present participle) as verb inflections; *-er* (comparative) and *-est* (superlative) as adjective and adverb inflections.

For derivational morphemes constituting the word-forms that make vowel opposition pairs see the appendix 10.

3.1. Functional Morphonological Analysis of ʊ-uː Oppositions

The *ʊ–uː* opposition makes 112 pairs. 33 pairs discriminate the lexical and 79 – lexical and grammatical meaning of words. Various word classes formed the following types of oppositions that discriminate lexical and grammatical meanings of words. (See appendix 11)

3.1.1. Opposition *ʊ-uː* discriminating the lexical meaning

All the oppositions of this type discriminate the lexical meaning and do not differentiate the grammatical meaning if it is represented by the inflectional morphemes and coincides in both opposed words.

- **Oppositions in the root morpheme**

Word-forms of CVC type consist of the roots and a zero inflectional morpheme. They make eight pairs of opposition that discriminate the lexical meaning of words in the same word classes. Three word classes: 12 nouns, 2 verbs and 2 adjectives make 6 **noun : noun** pairs, 2 **adjective : adjective**, 2 **verb : verb** opposition pairs.

fool /fuːl/ noun 'a stupid person or someone who has done something stupid' : **full** /fʊl/ noun 'in full –containing as much or as many things or people as possible, so there is no space left';
fool /fuːl/ adjective 'silly or stupid': **full** /fʊl/ adjective 'containing as much or as many things or people as possible, so there is no space left';
pool /puːl/ verb 'to combine money, ideas, skills etc with those of other people so that you can all use them' : **pull** /pʊl/ verb 'to use hands to make something or someone move towards you or in the direction that your hands are moving'.

Word-forms consisting of the root with the inflectional morphemes do not differ grammatically because the inflections in them do not differentiate the grammatical meaning.

Word-forms of CVCC type made of the root and the inflectional morphemes *-s, 's,s', -ed* make seventeen pairs of opposition that discriminate the lexical meaning of words in the same word classes. Two word classes include 28 nouns, 6 verbs and make 14 **noun : noun,** 3 **verb : verb** opposition pairs.

pooch /puːtʃ/ noun 'a dog – often used humorously' : **putsch** /pʊtʃ/ noun 'a secretly planned attempt to remove a government by force';
pulls /pʊlz/ verb, the 3rd person singular of 'to use your hands to make something or someone move towards you or in the direction that your hands are moving : **pools** /puːlz/ verb, the 3rd person singular 'to combine your money, ideas or skills with those of other people so that you can all use them'.

Word-forms of CVCCVC type comprising the root and the inflectional morphemes *-s, 's, s',* make three pairs of opposition that discriminate the lexical meaning of words in the same word class, that of the noun. One word class consisting of 6 nouns make 3 **noun : noun** opposition pairs.

putsches /pʊtʃiz/ noun, the plural of 'a secretly planned attempt to remove a government by forces' : **pooches** /puːtʃiz/ noun, the plural of 'a dog – often used humorously'.

Word-forms of CVCCVCCVC type, composed of the bare root or with the derivational morpheme *-ee* and the inflectional morphemes *-s, 's, s',* make three pairs of opposition that discriminate the lexical meaning of words in the same word class, that of the noun. One word class consisting of 6 nouns make 3 **noun : noun** opposition pairs.

refugees /refjʊdʒiːz/ noun, the plural of 'someone who has been forced to leave their country, especially during a war, or for political or religious reasons' : **refuges** /refjuːdʒiz/ noun, the plural of 'a place that provides shelter, or protection from danger'.

Word-forms of CVCVC type consisting of the root with the inflectional morpheme *-ing* and make one pair of opposition that discriminate the lexical meaning of words in the same word class, that of the verb. One word class consisting of two verbs make 1 **verb : verb** opposition pair.

pooling /**puːlɪŋ**/ verb, the present participle of 'to combine your money, ideas or skills with those of other people so that you can all use them' : **pulling** /**pʊlɪŋ**/ verb, the present participle of 'to use your hands to make something or someone move towards you or in the direction that your hands are moving'.

3.1.2. Opposition *ʊ-uː* discriminating the lexical and grammatical meaning

This cluster of oppositions discriminate the lexical meaning of words and the inflectional morphemes which enter this opposition differentiate the grammatical meaning as the grammatical meaning does not coincide in opposition pairs.

Word-forms of CVC type have a structure of the root with a zero inflecional morpheme or the root with inflecional morpheme *-ed*. They make twenty pairs of opposition that discriminate the lexical and grammatical meaning of words in different and the same word classes. Five word classes consisting of 4 adjectives, 3 adverbs, 2 interjections, 15 nouns and 16 verbs make 1 **adjective : adverb** opposition pair**,** 2 **adjective : noun,** 2 **interjection : noun,** 1 **adverb : noun,** 10 **verb : noun,** 1 **verb : adjective,** 1 **adverb : verb,** 2 **verb : verb** opposition pairs.

fool$_1$ /**fuːl**/ adjective 'silly or stupid' : **full**$_2$ /**fʊl**/ adverb 'directly, extrimely';
fool$_1$ /**fuːl**/ adjective : **full** /**fʊl**/ noun 'containing as much or as many things or people as possible, so there is no space left';
poof /**pʊf**/ interjection 'a very offensive word for a homosexual man' : **pouffe** /**puːf**/ noun 'a soft piece of furniture like a large cushion, which you can sit on or rest your feet on';
fool /**fuːl**/ noun 'a stupid person who has done something stupid' : **full**$_2$ /**fʊl**/ adverb;
pooed /**puːd**/ verb 'the act of passing waste from the bowels' : **pud** /**pʊd**/ noun 'a pudding';
fool$_3$ /**fuːl**/ verb, the past tense of 'to trick someone into believing something that is not true' : **full** /**fʊl**/ adjective 'containing as much or as many things or people as possible, so there is no space left';
fool$_3$ /**fuːl**/ verb : **full**$_2$ /**fʊl**/ adverb;
would /**wʊd**/ verb 'used to say what someone intended to do or expected to happen': **wooed** /**wuːd**/ verb, the past tense 'try to persuade someone to do something such as buy something or work for you'.

In the above presented cluster of oppositions the inflectional morpheme is represented by a zero morpheme which fulfils grammatical function.

Word-forms of CVCC type consisting of the root and the inflectional morphemes *-s, 's, s'* make forty-five pairs of opposition that discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes consisting 68 nouns, 18 verbs and 4 interjections make 13 **noun : verb** opposition pair, 1 **verb : interjection,** 3 **noun : interjection,** 26 **noun : noun,** and 2 **verb : verb** opposition pairs.

cooks /**kʊks**/ verb, the 3rd person singular of 'to prepare food for eating by using heat' : **kooks**$_2$ /**kuːks**/ noun, the plural of 'someone who is silly or crazy';
whoops$_3$ /**wʊps**/ interjection 'said when someone has fallen, dropped something, or made a small mistake' : **whoops** /**wuːps**/ verb, the 3rd person singular of 'to shout loudly and happily';
whoops$_3$ /**wʊps**/ interjection : **whoops** /**wuːps**/ noun, the plural of 'loud and happy shouting';
cook's /**kʊks**/ noun, the possessive case of 'someone who prepares and cooks food as their job' : **kooks**$_2$ /**kuːks**/ noun, the plural;
pooled /**puːl**/ verb, the past tense of 'to combine your money, ideas, skills etc with those of other people so that you can all use them' : **pulled** /**pʊl**/ verb, the past participle of 'to use your hands to make something or someone move towards you or in the direction that your hands are moving'.

Word-forms of CVCCVC type composed of the root and morphemes *-s, 's, s',* make six pairs of opposition that discriminate the lexical and grammatical meaning of words in the same word class, that of the noun. 12 nouns make 6 **noun : noun** opposition pairs.

putsches /**pʊtʃiz**/ noun, the plural of 'a secretly planned attempt to remove a government by forces' : **pooches'** /**puːtʃiz**/ noun, the plural, the possessive case of 'a dog – often used humorously'.

Word-forms of CVCCVCCVC type made of the bare root or with the derivational morpheme *-ee* and the inflectional morphemes *-s, 's, s'* make six pairs of opposition that discriminate the lexical and grammatical meaning of words in the same word class, that of the noun. 12 nouns make 6 **noun : noun** opposition pairs.

refugees' /**refjʊdʒiːz**/ noun, the plural, the possessive case of 'someone who has been forced to leave their country, especially during a war, or for political or religious reasons' : **refuges** /**refjuːdʒiz**/ noun, the plural of 'a place that provides shelter, or protection from danger'.

3.2. Functional Morphonological Analysis of ʍ–ɔː Oppositions

903 pairs were traced that make root ʍ – ɔː oppositions. 226 pairs discriminate lexical and 677 – lexical and grammatical meaning of words. Various word classes

formed the following types of oppositions that discriminate lexical and grammatical meanings of words. (see appendix 12)

3.2.1. Opposition ɒ–ɔː discriminating the lexical meaning

The inflectional morphemes do not discriminate the grammatical meaning of words as the grammatical meaning coincides in oppositions.

Word-forms of CVCV type consisting of the root and a zero inflectional morpheme make seven pairs of opposition that discriminate the lexical meaning of words. Pairs are made with one word class 6 **noun : noun** pairs which discriminate the lexical meaning within the same word class.

comma /kɒmə/ noun 'the mark (,) used in writing and printing to show a short pause or to separate things in a list' : korma /kɔːmə/ noun 'an Indian dish made with meat and cream'

Word-forms of CVCC type, consisting of the root and zero inflectional morpheme and the inflectional morpheme -*s* make ninety-two opposition pairs and discriminate the lexical meaning of words in different and the same word classes. Pairs are made with two word classes (noun, verb): 70 **noun : noun,** and 22 **verb : verb** oppositions discriminate the lexical meaning. 140 nouns and 44 verbs are employed in these opposition pairs. Opposition pairs, having the inflectional morphemes do not discriminate the grammatical meaning.

cocks /kɒks/ verb, the 3rd person, singular 'to lift a part of your body, or hold a part of your body at an angle' : corks /kɔːks/ verb, the 3rd person, singular 'to close a bottle by blocking the hole at the top tightly with a long round piece of cork';
halls /hɔːlz/ noun, the plural of 'the area just inside the door of a house or other building, that leads to other rooms' : hols /hɒlz/ informal noun, the plural of 'holidays'.

Word-forms of CVCCVVC type of a compound roots consisting of the roots and a zero inflectional morpheme make 1 **noun : noun** opposition pair and discriminate the lexical meaning of words within the same word classes.

porthole /pɔːthəʊl/ noun 'a small round window on the side of a ship or plane': pothole /pɒthəʊl/ noun 'a large hole in the surface of a road, caused by traffic and bad weather, which makes driving difficult or dangerous'.

Word-forms of CCVC type consisting of the root and a zero inflectional morphemes make nine pairs of opposition that discriminate the lexical meaning of

words in the same word classes. Two word classes make 7 **noun : noun**, 2 **verb : verb** pairs where 14 nouns, 4 verbs take place.

scone /skɒn/ noun 'a small round cake, sometimes containing dried fruit, which is usually eaten with butter' : **scorn** /skɔːn/ noun 'the feeling that someone or something is stupid or does not deserve respect';
sport /spɔːt/ verb 'to wear something or have something on your body and show it to people in a proud way' : **spot** /spɒt/ verb 'to notice someone or something, especially when they are difficult to see or recognize'.

CVC type word-forms consisting of the root and a zero or *-ed* inflectional morphemes make forty pairs of opposition that discriminate the lexical meaning of words in the same word classes. As a result of the analysis three word classes: 52 nouns, 22 verbs, 6 adverbs make 26 **noun : noun**, 11 **verb : verb,** 3 **adjective : adjective** opposition pairs.

board /bɔːd/ noun 'a flat wide piece of wood, plastic etc that you can use to show information' : **bod** /bɒd/ noun '*spoken British English* a person';
short /ʃɔːt/ adjective 'happening or continuing for only a little time or for less time than usual' : **shot** /ʃɒt/ adjective 'in bad condition because of being used too much or treated badly';
shod /ʃɒd/ verb, the past tense of 'to put a horseshoe on a horse': **shored** /ʃɔːd/ verb, the past tense of 'to support a wall or roof with large pieces of wood, metal etc to stop it from falling down'.

CCVCCC type word-forms consisting of the root and the inflectional morpheme *-ed* make two pairs of opposition that discriminate the lexical meaning of words in the same word class. One word class consisting of a verb makes 2 **verb : verb** opposition pairs.

scotched$_1$ /skɒtʃt/ verb, the past tense of 'to stop something happening by firmly doing something to prevent it' : **scorched**$_2$ /skɔːtʃt/ verb, the past tense of 'if you scorch something, or if it scorches, its surface burns slightly and changes colour'.

CCVCCVC type word-forms include the root and the inflectional morphemes *-ing*, *-es*, *'s, s'*, *-s* and make five pairs of opposition that discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 4 verbs and 6 nouns make 2 **verb : verb**, 3 **noun : noun** opposition pairs.

scotching$_{1(above)}$/skɒtʃɪŋ/ verb, the present participle : **scorching**$_2$ /skɔːtʃɪŋ/ verb, the present participle.
Scotches /skɒtʃɪz/ noun, the plural of 'a strong alcoholic drink made in Scotland, or a glass of this' : **scorche's** /skɔːtʃɪz/ noun, the possessive case of 'a mark made on something where its surface has been burnt'.

CCVCVC type word-forms consist of the root and the derivational morpheme -*ing* and make one opposition **noun : noun** pair which discriminates the lexical meaning of words in the same word class.

stocking /**stɒkɪŋ**/ noun 'a close-fitting covering for the foot and part of the leg, usually knitted, of wool, cotton, nylon, silk, or similar material': **stalking** /**stɔːkɪŋ**/ noun 'the crime of following and watching someone over a period of time in a way that is very annoying or threatening'.

CVCCVC type word-forms embrace of the root and the inflectional morphemes -*s, s'*. They make two pairs of opposition that discriminate the lexical meaning of words in the same word classes. One word class consisting of nouns makes 2 **noun : noun** opposition pairs.

copses /**kɒps**/ noun, the plural of 'a group of trees or bushes growing close together' : **corpses** /**kɔːps**/ noun, the plural of 'the dead body of a person'.

CVCCVVC type word-forms presupose two roots with a zero inflectional morphemes and make one pair of opposition that discriminate the lexical meaning of words in the same word classes. One word class consisting of nouns makes 2 **noun : noun** opposition pairs.

porthole$_1$ /**pɔːthəʊl**/ noun 'a small round window on the side of a ship or plane': **pothole**$_2$ /**pɒthəʊl**/ noun 'a large hole in the surface of a road, caused by traffic and bad weather, which makes driving difficult or dangerous'.

CVCCVVCC type word-forms consist of two roots with the inflectional morphemes -*s* and *'s, s'* make 3 **noun : noun** pairs of opposition that discriminate the lexical meaning of words in the same word classes.

portholes$_{1(above)}$ /**pɔːthəʊlz**/ noun, the plural of : **potholes**$_2$ /**pɒthəʊlz**/ noun, the plural .

CVCVC type word-forms, consisting of the root and the inflectional *zero, -ing*, *-ed*, *-es*, *'s, s*', *-s* morpheme or the derivational morpheme *-al* and make thirty pairs of opposition and discriminate the lexical meaning of words in the same word classes. Three word classes of 26 verbs, 2 adjectives, and 32 nouns make 13 **verb : verb**, 16 **noun : noun**, 1 **adjective : adjective** opposition pairs.

wadded /**wɒdɪd**/ verb, the past participle of 'to press something such as a piece of paper or cloth into a small tight ball' : **warded** /**wɔːdɪd**/ verb, the past participle of 'to do something to try to protect yourself from something bad, such as illness, danger, or attack';

paupers /pɔːpəz/ noun, the plural of 'someone who is very poor': **poppers** /pɒpəz/ noun, the plural of 'a small metal thing that is used to fasten clothes, which works when you press its two parts together';
choral /kɔːrəl/ adjective 'related to music that is sung by a large group of people together' : **coral** /kɒrəl/ adjective 'pink or reddish-orange in colour'.

CVCVCC type word-forms including of the root and the inflectional morphemes *-ed*, *-es*, *'s, s'* and *-s* make six pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes of 6 verbs and 6 nouns make 3 **verb : verb,** 3 **noun : noun** opposition pairs.

wobbled$_1$ /wɒbəld/ verb, the past participle of 'to move unsteadily from side to side, or make something do this' : **warbled**$_2$ /wɔːbəld/ verb, the past participle of 'to sing with a high continuous but quickly changing sound, the way a bird does';
wobbles /wɒbəlz/ noun, the plural of 'the state of being unsteady and moving from side to side' : **warbles** /wɔːbəlz/ noun, the plural of of 'singing with a high continuous but quickly changing sound, the way a bird does'.

CVCVCVC type word-forms of the structure: the root and the inflectional morpheme *-ing* make one **verb : verb** opposition pair and discriminate the lexical meaning of words in the same word class, that of the verb.

wobbling$_{1\ (above)}$/wɒbəlɪŋ/ verb, the present participle : **warbling**$_2$ /wɔːbəlɪŋ/ verb, the present participle.

3.2.2. Opposition ɒ-ɔː discriminating the lexical and grammatical meaning

The inflectional morphemes discriminate the grammatical meaning of words as the grammatical meaning does not coincide in oppositions.

CCVC type word-forms consisting of the root and the inflectional morpheme *-ed* make twenty-two pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes - three word classes consisting of 20 verbs, 7 adjectives and 17 nouns make 2 **verb : verb, 13 verb : noun,** 4 **adjective : noun,** and 3 **adjective : verb** opposition pairs.

stock /stɒk/ adjective 'an excuse etc that people often say or use, especially when they cannot think of anything more interesting or original – used to show disapproval' : **stork**$_1$ /stɔːk/ noun 'a tall white bird with long legs and a long beak';
swan /swɒn/ noun 'a large white bird with a long neck that lives on rivers and lakes' : **sworn** /swɔːn/ verb, the past participle of 'to promise that you will do something';
swan /swɒn/ verb 'to enjoy yourself and behave in a relaxed way that is annoying to other people' : **sworn** /swɔːn/ adjective 'sworn enemies – are two people of people who will always hate each other';

swan /swɒn/ verb 'to enjoy yourself and behave in a relaxed way that is annoying to other people' : **sworn** /swɔ:n/ verb, the past participle of 'to use rude and offensive language'.

CCVCC type word-forms comprising the root and the inflectional morphemes *-ed, -s, 's, s'* make sixty pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes, consisting of 31 verbs, 2 adjectives and 87 nouns, make 2 **verb : verb,** 13 **verb : noun,** 1 **adjective : noun,** 1 **adjective : verb,** and 30 **noun : noun** opposition pairs.

scorch /skɔ:ʧ/ noun 'if you scorch something, or if it scorches, its surface burns slightly and changes colour': **Scotch** /skɒʧ/ adjective 'old-fashioned Scottish';
storks'$_{1(above)}$ /stɔ:ks/ noun, the plural, the possessive case : **stock's** /stɒks/ noun, the singular, the possessive case of 'a supply of a particular type of thing that a shop has available to sell';
storks$_1$ /stɔ:ks/ noun, the plural : **stocks** /stɒks/ verb, the 3rd person singular 'if a shop stocks a particular product, it keeps a supply of it to sell';
Scotch /skɒʧ/ adjective 'old-fashioned Scottish' : **scorch**$_3$ /skɔ:ʧ/ verb 'if you scorch something, or if it scorches, its surface burns slightly and changes colour';
stocked /stɒkt/ verb, the past participle of 'if a shop stocks a particular product, it keeps a supply of it to sell' : **stalked** /stɔ:kt/ verb, the past tense of 'to follow a person or animal quietly in order to catch and attack or kill them'.

CCVCCC type word-forms having the structure of the root with the derivational morpheme *-ed* or the inflectional morpheme *-ed* make four pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes with the following disposition: two word classes consisting of 6 verbs and 2 adjectives make 3 **verb : verb** and 1 **adjective : verb** opposition pairs.

scotched$_4$ /skɒʧt/ verb, the past tense of 'to stop something happening by firmly doing something to prevent it' : **scorched** /skɔ:ʧt/ adjective 'dried out by heat or excessive exposure to sunlight';
scotched$_4$ /skɒʧt/ verb, the past participle : **scorched**$_{3(above)}$/skɔ:ʧt/ verb, the past tense.

CCVCCVC type word-forms consisting of the root and the inflectional morphemes *-ing, -s, 's, s'* and the derivational morpheme *-ing* make thirteen pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Three word classes consisting of 7 verbs, 18 nouns and one adjective make 6 **noun : verb,** 1 **adjective : verb,** and 1 **noun : noun** opposition pairs.

scorches$_{3(above)}$ /skɔ:ʧiz/ verb, the 3rd person singular : **Scotches**$_5$ /skɒʧiz/ noun, the plural of 'a strong alcoholic drink made in Scotland, or a glass of this';
scorching /skɔ:ʧɪŋ/ adjective 'extremely hot' : **scotching**$_{4(above)}$ /skɒʧɪŋ/ verb, the present participle;

scorches /skɔːtʃiz/ noun, the plural of 'a mark made on something where its surface has been burnt' : **Scotche's**$_5$ /skɒtʃiz/ noun, singular, the possessive case.

CCVCV type word-forms with the root and the derivational morpheme *-y* make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes, consisting of one noun, and one adjective, make one **noun : adjective** opposition pair.

chalky /tʃɔːki/ adjective 'similar to chalk or containing chalk' : **choccy** /tʃɒki/ informal noun 'a chocolate'.

CCVCVC type word-forms including the root and the derivational morphemes *-ing* or the inflectional morphemes *-ing, -ed* make nine pairs of opposition and discriminate the lexical and the grammatical meaning of words in different word classes. Three word classes consisting of 10 verbs, 4 nouns, 4 adjectives make 3 **noun : verb,** 1 **noun : adjective,** 3 **adjective : verb,** 2 **verb : verb** opposition pairs.

sporting$_1$ /spɔːtɪŋ/ adjective 'relating to sports : **spotting** /spɒtɪŋ/ verb, the present participle of 'to notice someone or something, especially when they are difficult to see or recognize';
sporting$_1$/spɔːtɪŋ/ adjective : **spotting** /spɒtɪŋ/ noun 'watching birds, trains etc for pleasure';
stalking /stɔːkɪŋ/ noun 'the crime of following and watching someone over a period of time in a way that is very annoying or threatening' : **stocking** /stɒkɪŋ/ verb, the present participle of 'if a shop stocks a particular product, it keeps a supply of it to sell';
sported /spɔːtɪd/ verb, the past tense of 'a physical activity in which people compete against each other' : **spotted** /spɒtɪd/ verb, the past participle of 'to notice someone or something, especially when they are difficult to see or recognize'.

CVC type word-forms of the structure of the root and the inflectional morphemes *-ed, 's, s', -s* presuppose a variety of oppositions. One hundred and fifty-one pairs of opposition discriminate the lexical and grammatical meaning of words in different and the same word classes. Ten word classes consisting of 144 verbs, 105 nouns, 24 adjectives, 7 adverbs, 11 conjunctions, one determiner, one interjection, 3 numbers, one predeterminer, and 5 pronouns make 80 **noun : verb** opposition pairs**,** 5 **adjective : verb,** 1 **adverb : adjective,** 1 **adverb : noun,** 1 **adverb : pronoun,** 9 **adverb : verb,** 1 **interjection : noun,** 9 **noun : adjective,** 8 **noun : conjunction,** 3 **adverb : verb,** 1 **noun : determiner,** 1 **noun : number,** 1 **noun : predeterminer,** 3 **noun : pronoun,** 21 **verb : verb,** 1 **verb : pronoun,** 1 **verb : number,** 3 **verb : conjunction,** 1 **adverb : number** opposition pairs.

shod /ʃɒd/ adjective 'wearing shoes well, elegantly, badly etc' : **shored** /ʃɔːd/ verb, the past tense of 'to support a wall or roof with large pieces of wood, metal etc to stop it from falling down';
shot /ʃɒt/ adjective 'in bad condition because of being used too much or badly' : **short**$_1$ /ʃɔːt/ adverb 'to be less than what you need, expected, or hoped for, or to fail to reach a satisfactory standard';
shot$_2$ /ʃɒt/ noun 'an act of firing a gun' : **short**$_1$ /ʃɔːt/ adverb;
not /nɒt/ adverb 'used to make a statement, question negative' : **naught**$_8$ /nɔːt/ pronoun 'nothing';
shot$_3$ /ʃɒt/ verb, the past participle of 'to deliberately kill or injure using a gun' : **short**$_1$ /ʃɔːt/ adverb;
god /gɒd/ noun 'God the spirit or being who Christians, Jews, Muslims etc pray to, and who they believe created the universe' : **gawd** /gɔːd/ interjection 'used in writing to represent the word 'God' when it is said in this way as an expression of surprise, fear etc';
shot$_2$ /ʃɒt/ noun : **short** /ʃɔːt/ adjective 'continuing for only a little time or for less time than usual';
cos$_4$ /kɒz/ conjunction 'because' : **cause** /kɔːz/ noun 'a person or event that makes something happen'
shot$_3$ /ʃɒt/ verb : **short**$_1$ /ʃɔːt/ adverb;
what$_5$ /wɒt/ determiner 'used to ask for information or for someone's opinion' : **wart**$_6$ /wɔːt/ noun 'a small hard raised part on someone's skin'
knot /nɒt/ noun 'a part where one or more pieces of string, rope, cloth etc have been tied or twisted together' : **nought**$_7$ /nɔːt/ number 'the number 0';
what$_5$ /wɒt/ predeterminer : **wart**$_6$ /wɔːt/ noun;
wot /wɒt/ pronoun 'informal spelling of what' : **wart**$_6$ /wɔːt/ noun;
tot /tɒt/ verb 'to add together numbers or amounts of money in order to find the total': **taught** /tɔːt/ verb, the past tense of 'to give lessons in a school, college, or university, or to help someone learn about something by giving them information';
knot /nɒt/ verb 'to tie together two ends of string, rope, cloth etc' : **naught**$_8$ /nɔːt/ pronoun;
knot /nɒt/ verb 'to tie together two ends or pieces of string, rope, cloth etc' : **nought**$_7$ /nɔːt/ number;
cos$_3$ /kɒz/ conjunction : **cores** /kɔːz/ verb, the 3rd person, singular 'the central part of a fruit'
not /nɒt/ adverb 'used to make a statement, or question negative' : **nought**$_7$ /nɔːt/ number;

CV type word-forms consisting of the root make four opposition pairs and discriminate the lexical and grammatical meaning of words in different word classes. Four word classes consisting of 2 nouns, 2 adjectives, 2 adverbs, 2 verbs make 1 **noun : adjective,** 1 **noun : adverb,** 1 **verb : adjective,** 1 **verb: adverb** opposition pairs.

shore$_1$ /ʃɔː/ noun 'the land along the edge of a large area of water such as an ocean or lake : **sure**$_2$ /ʃɔ/ adjective 'confident that you know something or that something is true or correct';
shore$_1$ /ʃɔː/ noun : **sure**$_3$ /ʃɔ/ adverb 'used to say that something did actually happen in the way that you said it would';
shore$_4$ /ʃɔː/ verb 'to support a wall or roof with large pieces of wood, metal etc to stop it from falling down' : **sure**$_2$ /ʃɔ/ adjective;
shore$_4$ /ʃɔː/ verb: **sure**$_3$ /ʃɔ/ adverb.

CVCC type word-forms, consisting of the root and the inflectional *zero, -ed, 's, s', -s* morphemes, make two hunfred and ninety-nine pairs of opposition and

discriminate the lexical and grammatical meaning of words in different and the same word classes. Four word classes consisting of 160 verbs, 429 nouns, 5 adjectives and 4 numbers make 106 **noun : verb,** 160 **noun : noun,** 3 **noun : number,** 5 **adjective : verb,** 1 **verb : number,** and 24 **verb : verb** opposition pairs.

fox /fɒks/ noun, the plural of 'a wild animal like a dog with' : **forks** /fɔ:ks/ verb, the 3rd person singular of 'if a road, river etc forks, it divides into two parts';
cock's /kɒks/ noun, the possessive case of 'an adult male chicken' : **corks** /kɔ:ks/ noun 'the bark of a tree from southern Europe and North Africa, used to make things';
knots /nɒts/ noun, the plural of 'a part where one or more pieces of string, rope, cloth etc have been tied or twisted together' : **noughts**$_1$ /nɔ:ts/ number, the plural of 'the number 0';
cocked /kɒkt/ verb, the past tense of 'to lift or hold a part of your body at an angle' : **corked** /kɔ:kt/ adjective 'corked wine tastes bad because a fault in the cork has allowed air into the bottle'.
knots /nɒts/ verb, the 3rd person singular of 'to tie together ends of string' : **noughts**$_1$ /nɔ:ts/ number;
cox /kɒks/ verb ' to control the direction of a rowing boat' : **calks** /kɔ:ks/ verb, the 3rd person, singular of 'to fill the holes or cracks in a ship with an oily or sticky substance in order to keep water out';

CVCCVC type word-forms, including the root and the inflectional morphemes *-s, s',* make two pairs of opposition and discriminate the lexical and grammatical meaning of words in the same word class, that of the noun. They make one **noun : noun** opposition pair.

copses /kɒpsiz/ noun, the plural of 'a group of trees or bushes growing close together': **corpses'** /kɔ:psiz/ noun, the plural of 'the dead body of a person'.

CVCCVVCC type word-forms consisting of two roots and the inflectional morphemes *'s, s', -s* make six pairs of opposition and discriminate the lexical and grammatical meaning of words in the same word class, that of the noun. Nouns make 6 **noun : noun** opposition pairs.

porthole's /pɔ:thəʊlz/ noun, the possessive case of 'a small round window on the side of a ship or plane : **potholes** /pɒthəʊlz/ noun, the plural of 'a large hole in the surface of a road, caused by traffic and bad weather, which makes driving difficult or dangerous'.

CVCV type word-forms exibit a multilaterous structure: it consists of the root with either the inflectional *-er, zero* morpheme, or the derivational morphemes *-ie, -er, -ly, -y*. Word-forms make seven pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Four word classes consisting of 3 verbs, 6 nouns, 4 adjective, and one adverb, make 2 **noun : verb,** 1 **noun : adverb,** 1 **noun : adjective,** and 2 **adjective : noun** opposition pairs.

bawdy /bɔːdi/ adjective 'bawdy songs, jokes, stories etc are about sex and are funny, enjoyable, and often noisy' : **body** /bɒdi/ noun 'the physical structure of a person or animal';
poly /pɒli/ informal noun 'a polytechnic': **poorly** /pɔːli/ adjective 'ill';
poly /pɒli/ informal noun 'a polytechnic': **poorly** /pɔːli/ adverb 'badly';
caller /kɔːlə/ noun 'someone making a telephone call' : **collar** /kɒlə/ verb 'to catch someone and hold them so that they cannot escape'.

CVCVC type word-forms consist of the bare root or they add the inflectional *-er, 's, s', -s, -ing* morphemes or the derivational morphemes: *-ie*, *-er, -ing*, *-al, -ed*. Word-forms make sixty pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes consisting of 28 verbs, 86 nouns and 6 adjectives make 14 **noun : verb,** 70 **noun : noun,** 1 **noun : adjective,** 6 **adjective : verb** and 8 **verb : verb** opposition pairs.

wadding /wɒdɪŋ/ noun 'soft material used for packing or to protect a wound' : **warding**$_1$ /wɔːdɪŋ/ verb, the present participle of 'to do something to try to protect yourself from something bad such as illness';
collars /kɒləz/ noun, the plural of 'the part of a shirt, coat etc that fits around your neck, and folded over' : **callers'** /kɔːləz/ noun, the possessive case, the plural of 'someone making a telephone call';
coral /kɒrəl/ noun 'a hard red, white, or pink substance formed from the bones of very small sea creatures, which is often used to make jewellery' : **choral** /kɔːrəl/ adjective 'related to music that is sung by a large group of people together';
cocking /kɒkɪŋ/ verb, the present participle of 'to lift or hold a part of your body at an angle' : **corking** /kɔːklŋ/ adjective 'of a tree from southern Europe and North Africa, used to make things';
wadded /wɒdɪd/ verb, the past tense of 'to press something such as a piece of paper or cloth into a small tight ball' : **warded**$_1$ /wɔːdɪd/ verb, the past tense.

VC type word-forms are composed of the root with the inflectional *zero, -ed, 's, s', -s* morphemes which make nine pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes, consisting of 3 verbs, 13 nouns, and 2 adjectives, make 2 **noun : verb,** 6 **noun : noun,** 2 **adjective : verb,** and 8 **verb : verb** opposition pairs.

oars /ɔːz/ noun, the plural of 'a long pole with a wide flat blade at one end, used for rowing a boat' : **Oz**$_1$ /ɒz/ informal noun 'a short way of saying Australia';
awes /ɔːz/ verb, the 3rd person singular 'if you are awed by someone or something, you feel great respect and liking for them, and are often slightly afraid of them' : **Oz**$_1$ /ɒz/ noun.

VCC type word-forms, consisting of the root and with the inflectional *zero, 's, s', -s,* morphemes make three pairs of opposition and discriminate the lexical and

grammatical meaning of words in the same word classes - one word class consisting of 6 nouns make 3 **noun : noun** opposition pairs.

auks /ɔːks/ noun, the plural of 'a black and white seabird with short wings' : **ox** /ɒks/ noun 'a bull whose sex organs have been removed'.

VCV type word-forms, consisting of the root with the inflectional *zero, -er* morphemes, make three pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Three word classes consisting of 2 verbs, 2 nouns, and 2 adjectives make one **noun : verb**, one **noun : adjective**, and one **adjective : verb** opposition pairs.

odder$_1$ /ɒdə/ adjective, comparative degree 'different from what is normal or expected' : **order** /ɔːdə/ noun 'the way that things or events are arranged in relation to each other, for example showing whether something is first, second, third etc';
odder$_1$ /ɒdə/ adjective : **order** /ɔːdə/ verb 'to ask for food or a drink in a restaurant';
otter /ɒtə/ noun 'an animal with smooth brown fur that swims in rivers and eats fish' : **oughta** /ɔːtə/ verb 'a way of saying 'ought to' – used in writing to show how it is pronounced by some people'.

VCVCV type word-forms, consisting of the bare root or the derivational morphemes *-ee,* make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes, consisting of one noun and one adjective, make 1 **noun : adjective** opposition pair.

honoree /ɒnəriː/ noun 'someone who receives an award' : **ornery** /ɔːnəri/ adjective 'behaving in an unreasonable and often angry way, especially by doing the opposite of what people want you to do'.

3.3. Functional Morphonological Analysis of ʌ–ɑː Oppositions

959 pairs were traced that make root ʌ–ɑː oppositions. 295 pairs discriminate the lexical and 664 – lexical and grammatical meaning of words. Various word classes formed the following types of oppositions that discriminate lexical and grammatical meanings of words. (see appendix 13)

3.3.1. Opposition ʌ–ɑː discriminating the lexical meaning

CCVC type word-forms having the root, make nine pairs of opposition and discriminate the lexical meaning of words in the same word classes: three word

classes consisting of 8 verbs, 8 nouns and 2 adjectives make 4 **noun : noun,** 1 **adjective : adjective**, 4 **verb : verb** opposition pairs.

stark /stɑːk/ adjective 'very plain in appearance, with little or no colour or decoration': **stuck** /stʌk/ adjective 'impossible or unable to move from a particular position;
plaque /plɑːk/ noun 'a piece of flat metal, wood, or stone with writing on it, used as a prize in a competition or attached to a building to remind people of an event or person' : **pluck** /plʌk/ noun 'courage and determination';
snarf /snɑːf/ verb 'to eat something quickly, especially in an untidy or noisy way' : **snuff** /snʌf/ verb 'to stop a candle burning by pressing the burning part with your fingers or by covering it'.

CCVCC type word-forms consisting of the root with the inflectional *zero, -ed, -s, 's, s'* morphemes make twenty-one pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 26 verbs and 16 nouns make 8 **noun : noun,** 13 **verb : verb** opposition pairs.

staffs /stɑːfz/ verb, the 3rd person singular of 'to be or provide the workers for an organization' : **stuffs** /stʌfz/ verb, the 3rd person singular of 'to push or put something into a small space, especially in a quick careless way';
grant /grɑːnt/ noun 'an amount of money given to someone for a particular purpose' : **grunt** /grʌnt/ noun 'a short low sound that a person or animal makes in their throat'.

CCVCCC type word-forms include the root with the inflectional morphemes *-ed, -s, 's, s'* making five pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 2 verbs and 8 nouns make 4 **noun : noun,** 1 **verb : verb** opposition pairs.

grants /grɑːnts/ verb, the 3rd person singular of 'to give someone something or allow them to have something that they have asked for' : **grunts** /grʌnts/ verb, the 3rd person singular of 'to make short sounds or say a few words in a rough voice, when you do not want to talk';
grants /grɑːnts/ noun, the plural of 'an amount of money given to someone, especially by the government, for a particular purpose' : **grunts** /grʌnts/ noun, the plural of 'a short low sound made in throat'.

CCVCCCVC type word-forms embrace the root with the inflectional morpheme *-ed, -s, 's, s'* and make three pairs of opposition and discriminate the lexical meaning of words in the same word classes. One word class of 6 nouns make 3 **noun : noun** opposition pairs.

branches /brɑːntʃiz/ noun, the plural of 'a part of a tree that grows out from the trunk and that has leaves, fruit, or smaller branches growing from it' : **brunches** /brʌntʃiz/ noun, the plural of 'a meal eaten in the late morning, as a combination of breakfast and lunch'.

CCVCCVC type word-forms consist of the root and the inflectional *-ed, -ing* and make three pairs of opposition discriminating the lexical meaning of words in the same word classes. One word class consisting of 6 verbs make 3 **verb : verb** opposition pairs.

granted /grɑːntɪd/ verb, the past tense of 'to give someone something or allow them to have something that they have asked for' : grunted /grʌntɪd/ verb, the past tense of 'to make short sounds or say a few words in a rough voice, when you do not want to talk'.

CCVCV type word-forms consist of the bare root or with the derivational morpheme *-er* and make three pairs of opposition discriminating the lexical meaning of words in the same word classes. Two word classes consisting of 2 verbs and 4 nouns make 1 **verb : verb** and **2 noun : noun** opposition pairs.

scarper$_1$ /skɑːpə/ verb 'to run away' : scupper$_2$ /skʌpə/ verb 'to ruin someone's plans or chance of being successful – used especially in news reports';
starter /stɑːtə/ noun 'a small amount of food eaten at the start of a meal before the main part' : stutter /stʌtə/ noun 'an inability to speak normally because you stutter'.

CCVCVC type word-forms consist of the root with either the derivational morphemes *-er*, *-ing* or the inflectional morphemes *-s, 's, s' -ing, -ed*. Word-forms make eleven pairs of opposition and discriminate the lexical meaning of words in different word classes. Two word classes consisting of 14 verbs and 8 nouns make 7 **verb : verb**, and 4 **noun : noun** opposition pairs.

staffing /stɑːfɪŋ/ noun 'provided the workers for an organization' : stuffing /stʌfɪŋ/ noun 'a mixture of bread or rice, onion etc that you put inside a chicken, pepper etc before cooking it';
scarpers$_{1(above)}$ /skɑːpəz/ verb, the 3rd person, singular : scuppers$_2$ /skʌpəz/ verb, the 3rd person, singular 'to ruin someone's plans or chance of being successful'.

CVC type word-forms are composed of the root with a zero inflectional morpheme which make fourty-nine pairs of opposition and discriminate the lexical meaning of words in the same word classes - four word classes of 18 verbs, 74 nouns, 4 adjectives, 2 interjections and make 9 **verb : verb,** 37 **noun : noun**, **1 interjection : interjection,** 2 **adjective : adjective** opposition pairs.

darn /dɑːn/ informal adjective 'used to emphasize how bad, stupid, unfair etc someone or something is' : dun /dʌn/ adjective 'dull, grayish brown';
darn /dɑːn/ interjection 'used to show that you are annoyed or disappointed' : done /dʌn/ interjection 'used to agree to and accept the conditions of a deal';
calf /kɑːf/ noun 'leg between your knee and ankle' : cuff /kʌf/ noun 'the end of a sleeve';
harm /hɑːm/ verb 'to damage something' : hum /hʌm/ verb 'to sing a tune by making a continuous sound with your lips closed'.

CVCC type word-forms, consisting of the bare root or with the inflectional morphemes *-s, 's, s', -ed* or derivational morpheme *-ed* make fifty pairs of opposition and discriminate the lexical meaning of words in the same word classes - three word classes consisting of 50 verbs, 76 nouns, 4 adjectives and make 25 **verb : verb,** 59 **noun : noun** and 1 **adjective : adjective** opposition pairs.

last$_1$ **/lɑːst/** noun 'the person or thing that comes after all the others' : **lust**$_2$ **/lʌst/** noun 'very strong sexual desire, especially when it does not include love';
fast /fɑːst/ adjective 'moving quickly' : **fussed /fʌst/** adjective 'to worry a lot about things that may not be very important';
harmed /hɑːmd/ verb the past tense of 'to damage something' : **hummed /hʌmd/** verb, the past tense of 'to sing a tune by making a continuous sound with your lips closed'.

CVCCC type word-forms embracing the root and the inflectional morphemes *-s, 's, s', -ed* make thirteen pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 8 verbs, 18 nouns make 4 **verb : verb** and 9 **noun : noun** opposition pairs.

basks /bɑːsks/ verb, the 3rd person, singular 'to enjoy sitting or lying in the heat of the sun or a fire' : **busks /bʌsks/** verb, the 3rd person, singular 'to play music in a public place in order to earn money';
lasts$_{1(above)}$ **/lɑːsts/** noun, the plural : **lusts**$_1$ **/lʌsts/** noun, the plural.

CVCCV type word-forms comprise the bare root or with the derivational morpheme *-er* making two pairs of opposition discriminate the lexical meaning of words in the same word classes - two word classes consisting of 2 verbs, 2 nouns and make 1 **verb : verb,** 1 **noun : noun** opposition pairs.

master$_1$ **/mɑːstə/** noun 'someone who is very skilled at something master of' : **muster /mʌstə/** noun 'pass muster to be accepted as good enough for something';
master /mɑːstə/ verb 'to learn a skill or a language so well that you have no difficulty with it' : **muster /mʌstə/**$_2$ verb 'to get enough courage, confidence, etc to do something, especially with difficulty'.

CVCV type word-forms include the bare roots or they add the derivational morphemes *-er, -y, -ee, -ie.* They make twenty-one pairs of opposition and discriminate the lexical meaning of words in the same word classes. As a result, three word classes consisting of 4 verbs, 36 nouns, and 2 adjectives, make 2 **verb : verb,** 18 **noun : noun**, 1 **adjective : adjective** opposition pairs.

barter$_1$ /**bɑːtə**/ verb 'to exchange goods, work, or services for other goods or services rather than for money' : **butter**$_2$ /**bʌtə**/ verb 'to spread butter on something';
marshy /**mɑːʃi**/ adjective : **mushy** /**mʌʃi**/ adjective 'low flat (ground) that is always wet and soft';
sari /**sɑːri**/ noun 'a long piece of cloth that you wrap around your body like a dress, worn especially by women from India' : **surrey** /**sʌri**/ noun 'a light carriage with two seats, which was pulled by a horse and was used in the past'.

CVCVC type word-forms consist of the roots with either the inflectional *zero, -s, 's, s' -ing, -ed, -ae* morphemes, or the derivational morphemes *-er*, *-y, -ee, -ie*, *-ing*. They constitute fifty-three pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes composed of 38 verbs and 68 nouns make 19 **verb : verb,** 33 **noun : noun** opposition pairs.

harming /**hɑːmɪŋ**/ verb, the present participle of 'to damage something' : **humming** /**hʌmɪŋ**/ verb, the present participle of 'to sing a tune by making a continuous sound with your lips closed';
carmine /**kɑːmɪn**/ noun 'a dark red colour' : **cumin** /**kʌmɪn**/ noun 'the seeds of a plant that have a sweet smell and are used especially in Mexican and Indian cooking, or the plant that they grow on'.

CVCVVC type word-forms of the structure: the root, the derivational *-er* and the inflectional morpheme *-ing* make two pairs of opposition and discriminate the lexical meaning of words in the same word class. One word class comprising 4 verbs make 2 **verb : verb** opposition pairs.

bartering$_{1(above)}$ /**bɑːtəɪŋ**/ verb, the present participle: **buttering**$_2$ /**bʌtəɪŋ**/ verb, the present participle.

VCV type word-forms, consisting of the root make one pair of opposition and discriminate the lexical meaning of words in the same word class. One word class composed of 2 nouns form 2 **noun : noun** opposition pairs.

ardour /**ɑːdə**/ noun 'very strong admiration or excitement' : **udder** /**ʌdə**/ noun 'the part of a cow, female goat etc that hangs down between its back legs and that produces milk'.

3.3.2. Opposition ʌ–ɑː discriminating the lexical and grammatical meaning

CCVC type word-forms consisting of the root make twenty-two pairs of opposition and discriminate the the lexical and the grammatical meaning of words in the same or different word classes. Totally, four word classes that consist of 13 nouns, 21 verbs, 6 adjectives, 4 adverbs make 1 **adjective : adjective,** 1 **adverb : adverb,** 2 **adjective : noun,** 3 **adjective : verb,** 3 **adverb : verb**, 11 **noun : verb,** and 2 **verb: verb** opposition pairs.

stark /stɑːk/ adjective 'very plain in appearance, with little colour or decoration' : **stuck** /stʌk/ verb, the past tense of 'to attach something to something else using a substance;
smart /smɑːt/ adjective 'intelligent or sensible' : **smut** /smʌt/ noun 'books, stories, talk etc that offend some people because they are about sex';
stark /stɑːk/ adverb 'not wearing any clothes at all' : **stuck** /stʌk/ adjective 'impossible or unable to move from a particular position';
stark /stɑːk/ adverb 'not wearing any clothes at all' : **stuck** /stʌk/ verb, the past tense of 'to attach something to something else using a substance, or to become attached to a surface';
scarf /skɑːf/ noun 'a piece of cloth that you wear around your neck, especially to keep warm' : **scuff** /skʌf/ verb 'to make a mark on a smooth surface by rubbing it against something rough';
scarred /skɑːd/ verb, the past tense of 'if a wound or cut scars you, it leaves a permanent mark on your body' : **scud** /skʌd/ verb 'if clouds scud across the sky, they move quickly'.

CCVCC type word-forms of the structure the root or with the inflectional *zero*, *-s, 's, s', -ed* morphemes make forty-one pairs of opposition and discriminate the lexical and grammatical meaning of words in the same or different word classes. As a result three word classes of 35 verbs, 2 adjectives, and 45 nouns make 14 **noun : noun,** 17 **noun : verb,** 2 **adjective : verb,** 8 **verb: verb** opposition pairs.

clerk's /klɑːks/ noun, the possessive case singular of 'someone who keeps records or accounts in an office' : **clucks** /klʌks/ noun, the plural of 'if chicken clucks, it makes a short low sound';
grant$_1$ /grɑːnt/ noun 'an amount of money given to someone, especially by the government, for a particular purpose' : **grunt**$_2$ /grʌnt/ verb 'to make short sounds or say a few words in a rough voice, when you do not want to talk';
staffed$_3$ /stɑːft/ verb, the past tense of 'to be or provide the workers for an organization' : **stuffed** /stʌft/ adjective 'completely full, so that you cannot eat any more';
staffed$_3$ /stɑːft/ verb, the past tense : **stuffed** /stʌft/ verb, the past participle of 'to push or put something into a small space, especially in a quick careless way'.

CCVCCC type word-forms include the root and the inflectional morphemes *-s, 's, s'* and make thirteen pairs of opposition that discriminate the lexical and grammatical meaning of words in the same or different word classes. Two word classes consisting of 7 verbs and 19 nouns make 6 **noun : noun,** and 7 **noun : verb** opposition pairs.

grant's$_1$ /grɑːnts/ noun, the possessive case : **grunts** /grʌnts/ noun, the plural of 'a short low sound that a person or animal makes in their throat';
grants$_1$ /grɑːnts/ noun, the plural : **grunts**$_2$ /grʌnts/ verb, the 3rd person, singular.

CCVCCCVC type word-forms composed of the root with the inflectional morphemes *-es, 's, s'* make nine pairs of opposition and discriminate the lexical and grammatical meaning of words in the same or different word classes - two word classes of 3 verbs and 15 nouns make 6 **noun : noun,** 7 **noun : verb** opposition pairs.

branches /brɑːntʃiz/ noun, the plural of 'a part of a tree that grows out from the trunk and that has leaves, fruit, or smaller branches growing from it' : **brunche's**$_1$ /brʌntʃiz/ noun, the possessive case of 'a meal eaten in the late morning, as a combination of breakfast and lunch';
branches /brɑːntʃiz/ verb, the 3rd person, singular 'to divide into two or more smaller, narrower, or less important parts' : **brunches**$_1$ /brʌntʃiz/ noun, the plural.

CCVCCVC type word-forms consist of the root and the inflectional *-ed* morpheme or the derivational morphemes *-ed* compose four opposition pairs and discriminate the lexical and grammatical meaning of words in the same and different word classes. As a result two word classes consisting of 6 verbs and 2 adverbs make 2 **adverb : verb,** 2 **verb : verb** opposition pairs.

granted /grɑːntɪd/ adverb 'used when you admit that something is true' : **grunted**$_1$ /grʌntɪd/ verb the past participle of 'to make short sounds in a rough voice, when you do not want to talk'.
granted /grɑːntɪd/ verb, the past tense of 'to give someone something or allow them to have something that they have asked for' : **grunted**$_1$ /grʌntɪd/ verb, the past participle.

CCVCV type word-forms, consisting of the bare root or with the derivational *-er*, make four pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes - two word classes i.e. 2 verbs and 2 nouns make 2 **noun : verb** opposition pairs.

starter /stɑːtə/ noun 'a small amount of food eaten at the start of a meal before the main part' : **stutter** /stʌtə/ verb 'to speak with difficulty because you cannot stop yourself from repeating the first consonant of some words'.

CCVCVC type word-forms consist of the roots with either the inflectional morphemes *-s, 's, s',-ed, -ing* or/and the derivational *-er*, *-ing*, make seventeen pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Totally, three word classes consisting of 13 verbs, 20 nouns, one adjective make 8 **noun : verb,** 3 **noun: noun,** 1 **adjective : verb,** 2 **verb : verb** opposition pairs.

dramas /drɑːməz/ noun, the plural of 'someone who keeps records or accounts in an office' : **drummer's** /drʌməz/ noun, the possessive case of 'someone who plays drums';
staffing /stɑːfɪŋ/ noun 'the people who work for an organization' : **stuffing** /stʌfɪŋ/ verb, the present participle of 'to push or put something into a small space, especially in a quick careless way';
clerking /klɑːkɪŋ/ verb, the present participle of 'to work as a clerk': **clucking** /klʌkiŋ/ adjective 'making sound by a hen';
scarpered /skɑːpəd/ verb, the past tense of 'to run away' : **scuppered** /skʌpəd/ verb, the past participle of 'to ruin someone's plans or chance of being successful – used especially in news reports'.

CVC type word-forms consist of the roots which add the derivational morpheme -*ed* or/and the inflectional *zero, -s, 's, s',-ed* morphemes and make one hundred and twenty-seven pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Thus, nine word classes consisting of 96 verbs, 96 nouns, 27 adjectives, 14 adverbs, 3 conjunctions, one determiner, 10 interjections, 2 predeterminers, and 5 pronouns make 21 **noun : verb** opposition pairs**,** 6 **noun: noun,** 11 **adjective : verb,** 10 **verb : verb,** 3 **adjective : interjection,** 11 **adjective : noun,** 2 **adjective : adverb,** 1 **adverb : interjection,** 6 **adverb : noun,** 5 **adverb : verb,** 3 **noun : interjection,** 3 **verb : interjection,** 3 **conjunction : noun,** 1 **noun : determiner,** 4 **noun : pronoun,** 1 **noun : predeterminer,** 1 **verb : predeterminer,** 1 **verb : pronoun** opposition pairs.

darn$_1$ /**dɑːn**/ adjective 'used to emphasize how bad, stupid, unfair etc someone or something is' : **done**$_2$ /**dʌn**/ interjection 'used to agree to and accept the conditions of a deal';
darn$_1$ /**dɑːn**/ adjective : **dun**$_3$ /**dʌn**/ noun 'a brownish–grey colour';
part /**pɑːt**/ adjective 'part payment is the payment of only a part of something, not all of it' : **putt** /**pʌt**/ verb 'to hit a golf ball lightly a short distance along the ground towards the hole';
darn$_4$ /**dɑːn**/ adverb 'extremely, remarkably' : **done** /**dʌn**/ adjective 'finished or completed';
darn$_4$ /**dɑːn**/ adverb : **done**$_2$ /**dʌn**/ interjection;
half$_5$ /**hɑːf**/ adverb 'partly, but not completely' : **huff**$_7$ /**hʌf**/ noun 'feeling angry or bad–tempered, especially because someone has offended you';
half$_5$ /**hɑːf**/ adverb : **huff**$_6$ /**hʌf**/ verb 'to breathe out in a noisy way, especially when you do something that involves a lot of physical effort';
darn$_8$ /**dɑːn**/ interjection 'used to show that you are annoyed or disappointed' : **dun**$_3$ /**dʌn**/ noun;
darn$_8$ /**dɑːn**/ interjection : **done** /**dʌn**/ verb 'used with another verb to form questions or negatives';
cars /**kɑːz**/ noun, the plural of 'a vehicle with four wheels and an engine, that can carry a small number of passengers' : **coz** /**kʌz**/ conjunction 'because';
psalm /**sɑːm**/ noun 'a song or poem praising God, especially in the Bible' : **some** /**sʌm**/ determiner 'an amount of something, when the exact number or amount is not stated';
bar's /**bɑːz**/ noun, the possessive case of 'a place where alcoholic drinks are served': **buzz** /**bʌz**/ noun 'continuous noise like the sound of a bee';
psalm /**sɑːm**/ noun 'a song or poem praising God, especially in the Bible': **some** /**sʌm**/ pronoun 'an amount of something, when the exact number or amount is not stated';
dahl /**dɑːl**/ noun 'an Indian dish' : **dull** /**dʌl**/ verb 'to make something less sharp or clear';
half$_9$ /**hɑːf**/ predeterminer '50% (½) of an amount, time, distance, number etc': **huff**$_7$ /**hʌf**/ noun;
half$_9$ /**hɑːf**/ predeterminer : **huff**$_6$ /**hʌf**/ verb;
half /**hɑːf**/ pronoun 'exactly or about 50% (½) of an amount, time, distance etc' : **huff**$_6$ /**hʌf**/ verb;
lark /**lɑːk**/ verb 'to have fun by behaving in a silly way' : **luck** /**lʌk**/ noun 'good things that happen to you by chance' ;
barred /**bɑːd**/ verb, the past tense of 'to officially prevent someone from entering a place or from doing something': **bud** /**bʌd**/ verb 'to produce buds'.

CVCC type word-forms, consisting of the root with either the inflectional *zero, -s, 's, s',-ed,* morphemes, or the derivational *-ed* morpheme. They make two hundred and thrity-nine pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes - seven word classes consisting of 137 verbs, 309 nouns, 11 adjectives, 10 adverbs, 4 determiners, 3 interjections, 4 pronouns make 81 **noun : verb,** 107 **noun: noun,** 8 **adjective : verb,** 20 **verb : verb,** 2 **adjective : noun,** 1 **adjective : adverb,** 5 **adverb : noun,** 4 **adverb : verb,** 3 **noun : interjection,** 2 **noun : determiner,** 2 **verb : determiner,** 2 **noun : pronoun,** 2 **verb : pronoun** opposition pairs.

last /**la:st**/ adjective 'most recent or nearest to the present time' : **lust** /**lʌst**/ noun 'very strong sexual desire, especially when it does not include love';
fast /**fa:st**/ adverb 'moving quickly' : **fussed** /**fʌst**/ adjective 'not minding what happens or is done';
daft /**da:ft**/ adjective 'silly' : **duffed** /**dʌft**/ verb, the passed of 'to fight someone and injure them';
last$_1$ /**la:st**/ adverb 'most recently before now' : **lust**$_2$ /**lʌst**/ noun 'very strong sexual desire, especially when it does not include love';
last$_1$ /**la:st**/ adverb : **lust**$_4$ /**lʌst**/ verb 'to be sexually attracted and think about having sex with them';
last$_3$ /**la:st**/ determiner 'most recent or nearest to the present time' : **lust**$_2$ /**lʌst**/ noun;
last$_3$ /**la:st**/ determiner : **lust**$_4$ /**lʌst**/ verb;
sharks /**ʃa:ks**/ noun, the plural of 'large sea fish with several rows of very sharp teeth, dangerous to humans' : **shucks** /**ʃʌks**/ interjection 'used to show you are a little disappointed about something';
farts /**fa:ts**/ noun, the the plural of of 'an act of making air come out of your bowels' : **phut's** /**fʌts**/ noun, the possessive case of 'if a machine goes phut, it stops working completely';
March /**ma:tʃ**/ noun 'the third month of the year, between February and April' : **much** /**mʌtʃ**/ pronoun 'a large amount of something';
dahls /**da:lz**/ noun, the plural of 'an Indian dish made with beans, peas, or lentils': **dulls** /**dʌlz**/ verb, the 3rd person, singular 'to make something become less sharp or clear';
last /**la:st**/ pronoun 'most recent or nearest to the present time' : **lust**$_4$ /**lʌst**/ verb;
parts /**pa:ts**/ verb, the 3rd person, singular 'to move the two sides of something apart, or to move apart, making a space in the middle' : **putz** /**pʌts**/ verb 'to spend time not doing anything important'.

CVCCC type word-forms consist of the root with the inflectional morphemes *-s, 's, s',-ed* make 29 pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes - 2 word classes of 13 verbs, 45 nouns, make 9 **noun : verb,** 18 **noun: noun,** 2 **verb : verb** opposition pairs.

lasts$_1$ /**la:sts**/ noun, the plural of 'the person or thing that comes after all the others' : **lust's** /**lʌsts**/ noun, the possessive case of 'very strong sexual desire, especially when it does not include love';
lasts$_1$ /**la:sts**/ noun, the plural: **lusts** /**lʌsts**/ verb, the 3rd person, singular 'to be strongly sexually attracted to someone, and think about having sex with them';

basked /**baːskt**/ verb, the past tense of 'to enjoy sitting or lying in the heat of the sun or a fire': **busked** /**bʌskt**/ verb, the past participle of 'to play music in a public place in order to earn money'.

CVCCVC type word-forms having structure of the root which adds either the derivational morphemes *-ie*, *-ing -er* or the inflectional *zero, -s, 's, s',-ed, -ing* morphemes make twenty-nine pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes consisting of one adjective, 37 nouns, 20 verbs make 4 **verb : verb,** 13 **noun: noun,** 1 **adjective : verb,** 11 **noun : verb** opposition pairs.

lasting /**laːstɪŋ**/ adjective 'strong enough, well enough planned etc to continue for a very long time' : **lusting** /**lʌstɪŋ**/ verb, the present participle of 'to be strongly sexually attracted to someone, and think about having sex with them';
masters$_1$ /**maːstəz**/ noun, the plural of 'someone who is very skilled at something' : **muster's** /**mʌstəz**/ noun, the possessive case of 'to get enough courage, support etc to do something, especially with difficulty';
masters$_1$ /**maːstəz**/ noun, the plural : **musters**$_2$ /**mʌstəz**/ verb, the 3rd person, singular of 'to get enough courage, support etc to do something, especially with difficulty';
mastered /**maːstəd**/ verb the past tense of 'to learn a skill or a language so well that you have no difficulty with it' : **mustered**$_2$ /**mʌstəd**/ verb, the 3rd person, singular.

CVCV type word-forms having structure of the root with either the derivational morphemes *-ie, -er*, *-y*, *-ee* or the inflectional morpheme *-ae* and make seventeen opposition pairs. Oppositions discriminate the lexical and grammatical meaning of words in different and the same word classes - three word classes consisting of 5 adjectives, 19 nouns, 10 verbs make 2 **noun: noun,** 5 **adjective : noun,** 10 **noun : verb** opposition pairs.

calmer /**kaːmə**/ adjective, comparative degree of 'relaxed and quiet, not angry, nervous, or upset' : **comer** /**kʌmə**/ noun 'anyone who wants to take part in an activity, especially a sporting competition';
lovey /**lʌvi**/ noun 'a word used to address a woman, that many women think is offensive': **larvae** /**laːviː**/ noun, the plural of 'a young insect with a soft tube–shaped body, which will later become an insect';
garter /**gaːtə**/ noun 'a band of elastic worn around your leg to keep a sock or stocking up' : **gutter** /**gʌtə**/ verb 'if a candle gutters, it burns with an unsteady flame'.

CVCVC type word-forms, consisting of the root with either the derivational morpheme *-er*, *-y*, *-ee*, *-ie*, *-ing*, *-ed* or the inflectional *zero,-s, 's, s',-ed, -ing, -ae* morphemes, make a hundred and six pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Totally, three word classes, consisting of 10 adjectives, 157 nouns, 45 verbs, make 66 **noun :**

noun, 3 **adjective : noun,** 7 **adjective : verb,** 22 **noun: verb,** 8 **verb : verb** opposition pairs.

carmine /kɑːmɪn/ adjective 'a dark red colour' : **cumin** /kʌmɪn/ noun 'the seeds of a plant that have a sweet smell and are used especially in Mexican and Indian cooking, or the plant that they grow on';
barking /bɑːkɪŋ/ adjective 'completely crazy or acting very strangely – used humorously' : **bucking** /bʌkɪŋ/ verb, the present participle of 'if a horse bucks, it kicks its back feet into the air, or jumps with all four feet off the ground';
garters /gɑːtəz/ noun, the plural of 'a band of worn around your leg to keep a sock or stocking up' : **gutter's** /gʌtəz/ noun, the possessive case of 'the part at the edge of a road where water flows away';
parting /pɑːtɪŋ/ noun 'an occasion when two people leave each other' : **putting** /pʌtɪŋ/ verb, the present participle of 'to move something to a particular place or position, especially using your hands';
bartered /bɑːtəd/ verb, the past tense of 'to exchange goods, or services for other goods or services rather than for money' : **buttered** /bʌtəd/ verb, the past participle of 'to spread butter on something'.

VC type word-forms of structure the root with a zero inflectional morpheme make two pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes - three word classes of one noun, one verb and 2 interjections make 1 **noun : interjection,** 1 **verb : interjection** opposition pairs.

arm /ɑːm/ noun 'one of the two long parts of your body between your shoulders and your hands' : **um**ɪ /ʌm/ interjection 'used when you cannot immediately decide what to say next';
arm /ɑːm/ verb 'to provide weapons for an army, a country etc in order to prepare for a fight or a war' : **um** /ʌm/ɪ interjection.

3.4. Functional Morphonological Analysis of e–ɜː Oppositions

The e-ɜː opposition makes 855 pairs. 220 pairs discriminate the lexical and 635 – lexical and grammatical meaning of words. Various word classes formed the following types of oppositions that discriminate lexical and grammatical meanings of words. (see appendix 14)

3.4.1. Opposition e–ɜː discriminating the lexical meaning

All the oppositions of this type discriminate the lexical meaning and do not differentiate the grammatical meaning because this meaning represented by the inflectional morphemes coincides in both opposed words.

CCVC type word-forms has structure of the root with the inflectional *zero, -ed* morphemes and make six pairs of opposition and discriminate the lexical meaning of words in the same word class. two word classes consisting of 12 nouns and 8 verbs make 6 **noun : noun** and 4 **verb : verb** opposition pairs.

gem /**dʒem**/ noun 'a beautiful stone that has been cut into a special shape': **germ** /**dʒɜːm**/ noun 'a very small living thing that can make you ill';
bled /**bled**/ verb, the past tense of 'to lose blood, especially because of an injury': **blurred** /**blɜːd**/ verb, the past tense of 'to become difficult to see or to make something difficult to see, because the edges are not clear'.

CCVCC type word-forms, consisting of the root with the inflectional *zero, 's, s', -s, -ed* morphemes, make eight pairs of opposition and discriminate the lexical meaning of words in the same word class. As a result two word classes consisting of 12 nouns and 4 verbs make 6 **noun : noun** and 2 **verb : verb** opposition pairs.

slept /**slept**/ verb, the past tense of 'to rest your mind and body at night when you are lying in bed with your eyes closed': **slurped** /**slɜːpt**/ verb, the past tense of 'to drink a liquid making a sucking sound';
gem's /**dʒemz**/ noun, the possessive case of 'a beautiful stone that has been cut into a special shape': **germ's** /**dʒɜːmz**/ noun, the possessive case of 'a very small living thing that can make you ill'.

CVC type word-forms are composed of the root or with the inflectional *zero, 's, s', -s, -ed* morphemes and make thirty pairs of opposition and discriminate the lexical meaning of words in the same word classes - three word classes consisting of 34 nouns, 2 adjectives, and 24 verbs make 1 **adjective : adjective,** 17 **noun : noun** and 12 **verb : verb** opposition pairs.

pert /**pɜːt**/ adjective 'a girl or woman who is pert is amusing, but slightly disrespectful': **pet** /**pet**/ adjective 'pet project is a plan, idea, or subject that you particularly like or are interested in';
deck$_1$ /**dek**/ noun 'the outside top level of a ship that you can walk or sit on': **dirk**$_2$ /**dɜːk**/ noun 'a heavy pointed knife used as a weapon in Scotland in the past';
fed /**fed**/ verb, the past tense of 'to give food to a person or animal': **furred** /**fɜːd**/ verb, the past tense of 'to become covered with an unwanted substance'.

CVCC type word-forms, consisting of the root or with the inflectional *zero, 's, s', -s, -ed* morphemes, make seventy-eight pairs of opposition and discriminate the lexical meaning of words in the same word classes. Three word classes consisting of 98 nouns, 8 adjectives, and 50 verbs make 4 **adjective : adjective,** 49 **noun : noun** and 25 **verb : verb** opposition pairs.

west /west/ adjective 'facing the west': **worst** /wɜːst/ adjective, the supperlative degree of 'worse than anything or anyone else';
decks$_1$ /deks/ noun, the plural: **dirks**$_2$ /dɜːks/ noun, the plural;
fells /felz/ verb, the 3rd person, singular 'to cut down a tree': **furls** /fɜːlz/ verb, the 3rd person, singular 'to gather into a compact roll and bind securely, as a sail against a spar or a flag against its staff'.

CVCCC type word-forms embrace the root with the inflectional morphemes *'s, s', -s, -ed.* They make fourteen pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes, consisting of 19 nouns and 10 verbs, make 9 **noun : noun** and 5 **verb : verb** opposition pairs.

colonels /kɜːnlz/ noun, the plural of 'a high rank in the army, Marines, or the US air force, or someone who has this rank': **kennels** /kenlz/ noun, the plural of 'a small building made for a dog to sleep in';
leched /letʃt/ verb, the past tense of 'to show sexual desire for someone in a way that is unpleasant or annoying': **lurched** /lɜːtʃt/ verb, the past tense of 'to walk or move suddenly in an uncontrolled way'.

CVCCVC type word-forms, consisting of the root with the inflectional morphemes *'s, s', -s, -ing,* make eleven pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 12 nouns and 10 verbs make 6 **noun : noun** and 5 **verb : verb** opposition pairs.

veges /vedʒiz/ informal noun, the plural of 'vegetables': **verges** /vɜːdʒiz/ noun, the plural of 'be on the verge of something is to be at the point where something is about to happen';
besting /bestɪŋ/ verb, the present participle of 'to defeat someone': **bursting** /bɜːstɪŋ/ verb, the present participle of 'if something bursts, it breaks open or apart suddenly and violently so that its contents come out'.

CVCVC type word-forms made up of the root with either the derivational morphemes *-ar, -er*, *-ed*, *-ing*, *fore-*, *for-* or the inflectional morphemes *'s, s', -s, -ing*, *-ed*, or both and make thirty-eight pairs of opposition and discriminate the lexical meaning of words in the same word classes. Three word classes, consisting of 36 nouns, 2 adjectives and 38 verbs, make 16 **noun : noun,** 1 **adjective : adjective** and 19 **verb : verb** opposition pairs.

wedded /wedɪd/ adjective 'married': **worded** /wɜːdɪd/ adjective 'using words that express an idea carefully or clearly';
tenners$_1$ /tenəz/ noun, the plural : **turners**$_2$ /tɜːnəz/ noun, the plural;
felling /felɪŋ/ verb, the present participle of 'to cut down a tree': **furling** /fɜːlɪŋ/ verb, the present participle of 'to roll up and secure (a flag or sail, for example) to something else'.

CVCVCC type word-forms consist of the root with the derivational morpheme *fore-*, *-wards* and the inflectional morphemes *'s, s', -s* make eight pairs of opposition and discriminate the lexical meaning of words in the same word class. One word class i.e 8 nouns make 4 **noun : noun** opposition pairs.

forewords /fɔːwɜːdz/ noun, the plural of 'a short piece of writing at the beginning of a book that introduces the book or its writer': **forwards** /fɔːwədz/ noun, the plural of 'an attacking player on a team in sports such as football and basketball'.

CVCVV type word-forms including the bare root with and make one pair of opposition and discriminate the lexical meaning of words in the same word class. One word class that is 2 nouns make 1 **noun : noun** opposition pair.

fellow$_1$ /feləʊ/ noun 'a man': **furlough**$_2$ /fɜːləʊ/ noun 'a period of time when a soldier or someone working in another country can return to their own country'.

CVCVVC type word-forms, consisting of the root with either the derivational morphemes *-er*, *de-* or the inflectional morphemes *'s, s', -s, -ing,* make five pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 6 nouns and 4 verbs make 3 **noun : noun** and 2 **verb : verb** opposition pairs.

fellows$_1$ /feləʊz/ noun, the plural: **furloughs**$_2$ /fɜːləʊz/ noun, the plural;
deferring /dɪfɜːɪrŋ/ verb, the present participle of 'to delay something until a later date': **differing** /dɪfərɪrŋ/ verb, the present participle of 'to be different from something in some way'.

VCC type word-forms made up of the root and a zero inflectional morpheme make two pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 2 nouns and 2 verbs make 1 **noun : noun** and 1 **verb : verb** opposition pairs.

edge /edʒ/ noun 'the part of an object that is furthest from its centre': **urge** /ɜːdʒ/ noun 'a strong wish or need';
edge$_1$ /edʒ/ verb 'to move gradually with several small movements, or to make something do this': **urge**$_2$ /ɜːdʒ/ verb 'to strongly suggest that someone does something'.

VCC type word-forms consist of the root with the inflectional morpheme *-ed*. They make two pairs of opposition and discriminate the lexical meaning of words in the same word class. One word class consisting of 4 verbs make 2 **verb : verb** opposition pairs.

edged$_{1(above)}$ /edʒd/ verb, the past tense: **urged**$_2$ /ɜːdʒd/ verb, the past tense.

VCCVC type word-forms consist of the root with the derivational morpheme *in-* or the inflectional morphemes *'s, s', -s, -ing* and make twelve pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 8 nouns and 4 verbs make 4 **noun : noun** and 2 **verb : verb** opposition pairs.

edges /edʒiz/ noun, the plural of 'the part of an object that is furthest from its centre': **urges** /ɜːdʒiz/ noun, the plural of 'a strong wish or need';
edging$_{1(above)}$ /edʒɪŋ/ verb, the present participle : **urging**$_2$ /ɜːdʒɪŋ/ verb, the present participle.

VCCVCC type word-forms, including the root with either the inflectional morphemes *'s, s', -s* or the derivational morpheme *in-,* make four pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consisting of 6 nouns and 2 verbs make 2 **noun : noun** and 1 **verb : verb** opposition pairs.

inserts$_1$ /ɪnsɜːts/ verb, the 3rd person singular 'to put something inside or into something else';
insets$_2$ /ɪnsets/ verb, the 3rd person singular 'if something is inset with decorations or jewels, they are fixed into or on its surface';
inserts /ɪnsɜːts/ noun, the plural of 'printed pages that are put inside a newspaper or magazine in order to advertise something': **insets** /ɪnsets/ noun, the plural of 'a small picture, map etc in the corner of a page or larger picture etc, which shows more detail or information'.

VCCVCVC type word-forms comprise the root with derivational morpheme *in-* and the inflectional morphemes *-ing* and make one pair of opposition and discriminate the lexical meaning of words in the same word class. One word class i.e. 2 verbs make 1 **verb : verb** opposition pair.

inserting$_1$ /ɪnsɜːtɪŋ/ verb, the present participle : **insetting**$_2$ /ɪnsetɪŋ/ verb, the present participle .

3.4.2. Opposition e–ɜː discriminating the lexical and grammatical meaning

This cluster of oppositions discriminate the lexical meaning of words and the inflectional morphemes which enter this opposition differentiate the grammatical meaning as the grammatical meaning does not coincide in opposition pairs.

CCVC type word-forms are composed of the root with either the derivational morpheme *-ed* or the inflectional zero, *-ed* morpheme and make fifteen pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes consisting of 21 verbs, 4

adjectives and 5 nouns make 1 **adjective : noun** opposition pair**,** 7 **verb : verb,** 3 **adjective : verb,** 4 **noun : verb** opposition pairs.

swell$_1$ /swel/ adjective 'very good': **swirl** /swɜːl/ noun 'a swirling movement or amount of something';
swell$_1$ /swell/ adjective : **swirl**$_2$ /swɜːl/ verb 'to move around quickly in a twisting circular movement, or to make something do this';
stead /sted/ noun 'to do something that someone else usually does or was going to do': **stirred** /stɜːd/ verb, the past tense of 'to move a liquid around with a spoon or stick in order to mix it together';
sped /sped/ verb, the past tense of 'to go quickly': **spurred** /spɜːd/ verb, the past participle of 'to encourage or make want to do something'.

CCVCC type word-forms is made of the root with the inner flection and the inflectional morphemes *'s, s', -s, -ed* make twenty-five pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes, that of 22 verbs and 28 nouns make 12 **noun : noun** opposition pairs**,** 9 **verb : verb,** 4 **noun : verb** opposition pairs.

gems /dʒemz/ noun, the plural of 'a beautiful stone that has been cut into a special shape': **germ's** /dʒɜːmz/ noun, the possessive case of 'a very small living thing that can make you ill';
swells /swelz/ old-fashioned noun, the plural of 'a fashionable or important person': **swirls**$_2$ /swɜːlz/ verb, the 3rd person, singular.
slept /slept/ verb, the past tense of 'to rest your mind and body, usually at night when you are lying in bed with your eyes closed': **slurped** /slɜːpt/ verb, the past participle of 'to drink a liquid while making a noisy sucking sound'.

CCVCVC type word-forms consisting, of the root with the derivational morpheme *-ing* and the inflectional morpheme *-ing,* make two pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes that of 3 verbs and 1 noun make 1 **noun : verb** and 2 **verb : verb** opposition pairs.

swelling /swelɪŋ/ noun 'an area of your body that has become larger than normal, because of illness or injury': **swirling** /swɜːlɪŋ/ verb, the present participle of 'to move around quickly in a twisting circular movement, or to make something do this';

CV type word-forms consisting of the bare root make fourteen pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Four word classes consisting of 3 conjunctions, 7 noun, 5 prepositions and 13 verbs, make **2 noun : conjunction** opposition pair**,** 2 **noun : preposition,** 2 **verb :**

preposition, 1 **verb : conjunction,** 2 **verb : noun** and 4 **verb : verb** opposition pairs.

fir /fɜː/ noun 'a tree with leaves shaped like needles that do not fall off in winter': **for** /fə/ conjunction 'used to introduce the reason for something';
fur /fɜː/ noun 'the thick soft hair that covers the bodies of some animals, such as cats, dogs, and rabbits': **for** /fə/ preposition 'used to say who is intended to get or use something, or where something is intended to be used';
per /pə/ preposition 'during each hour etc': **purr** /pɜː/ verb 'if a cat purrs, it makes a soft low sound in its throat to show that it is pleased';
fur /fɜː/ verb 'to become covered with an unwanted substance': **for** /fə/ conjunction 'used to introduce the reason for something';
were1 /wə/ verb (weak form) 'the past tense of of be': **whirr** /wɜː/ noun 'the whirr, a fairly quiet regular sound, of an electric motor';
were1 /wə/ verb (weak form)': **whir** /wɜː/ verb 'to make a fairly quiet regular sound, like the sound of a bird or insect moving its wings very fast'.

CVC type word-forms are made of the bare root or with inflectional morphemes *'s, s', -s, -ed* make ninety-one pairs of opposition and discriminate the lexical and the grammatical meaning of words in different and the same word classes. Seven word classes consisting of 121 verbs, 9 adjectives, 3 conjunctions, one interjection, 3 numbers, 2 pronouns and 52 nouns make 3 **adjective : noun** opposition pair**,** 36 **noun : verb,** 10 **noun : noun,** 2 **verb : prunoun,** 4 **noun : number,** 1 **verb : number,** 3 **noun : conjunction,** 33 **verb : verb** opposition pairs.

pert /pɜːt/ adjective 'a girl or woman who is pert is amusing, but slightly disrespectful': **pet** /pet/ noun 'an animal such as a cat or a dog which you keep and care for at hom';
hell /hel/ interjection 'used to express anger or annoyance': **hurl** /hɜːl/ verb 'to throw something with a lot of force, especially because you are angry';
curs /kɜːz/ noun, the plural of 'an unfriendly dog, especially one that is a mix of several breeds': **cuz** /kəz/ conjunction 'a short form of 'because'';
fez /fez/ noun 'a round red hat with a flat top and no brim': **fir's** /fɜːz/ noun, the possessive case of 'a tree with leaves shaped like needles that do not fall off in winter';
cert /sɜːt/ noun 'to be certain to happen or to succeed': **set** /set/ verb 't carefully put something down';
ten /ten/ number 'the number 10': **turn** /tɜːn/ noun 'the time when it is your chance, duty, or right to do something that each person in a group is doing one after the other';
ten /ten/ number 'the number 10': **turn** /tɜːn/ verb 'to move your body so that you are looking in a different direction';
has /həz/ verb(weak form) 'the third person singular of the present tense of have': **hers** /hɜːz/ pronoun 'used to refer to something that belongs to or is connected with a woman, girl, or female animal that has already been mentioned';
get /get/ verb 'to receive something that someone gives you or sends you': **girt** /gɜːt/ verb 'to get ready to do something difficult – used humorously'.

CVCC type word-forms comprise the root with either the derivational morpheme *-ed* or the inflectional *'s, s', -s, -ed, zero* morphemes and make two hundred and thirty-two pairs of opposition. They discriminate the lexical and grammatical meaning of words in different and the same word classes. Six word classes consisting of 161 verbs, 33 adjectives, 16 adverbs, 7 numbers, 3 pronouns and 244 nouns make 12 **adjective : noun** opposition pair 17 **adjective : verb,** 4 **adjective : adverb,** 1 **adverb : adverb,** 5 **adverb : noun,** 5 **adverb : verb,** 68 **noun : verb,** 76 **noun : noun,** 1 **noun : prunoun,** 6 **noun : number,** 1 **verb : number,** 2 **verb : pronoun,** and 34 **verb : verb** opposition pairs.

west /west/ adjective 'in the west or facing the west': **worst**$_1$ /wɜːst/ adverb 'most badly';
vest /vest/ noun 'a piece of underwear without sleeves that you wear on the top half of your body' : **versed**$_2$ /vɜːst/ adjective 'knowing a lot about a subject, method';
vest /vest/ verb 'to give someone the official right to do or own something' : **versed**$_2$ /vɜːst/ adjective;
west /west/ adverb 'towards the west': **worst**$_1$ /wɜːst/ adverb;
best$_3$ /best/ adverb 'in a way that is better than any other': **burst** /bɜːst/ noun 'the act of something bursting or the place where it has burst';
best$_3$ /best/ adverb : **burst** /bɜːst/ verb 'if something bursts or if you burst it, it breaks open or apart suddenly and violently so that its contents come out';
heads /hedz/ noun, the plural of 'the top part of your body that has your face at the front and is supported by your neck': **herd's** /hɜːdz/ noun, the possessive case of 'a group of animals of one kind that live together';
fest /fest/ noun 'an informal occasion when a lot of people do a fun activity together, such as drinking beer, singing songs, or eating food': **first** /fɜːst/ pronoun 'the first thing to happen';
nest /nest/ noun 'a place made or chosen by a bird to lay its eggs in and to live in': **nursed** /nɜːst/ verb, the past tense of 'to look after someone who is ill or injured';
fessed /fest/ verb, the past tense of 'to admit that you have done something wrong, although it is not very serious': **first** /fɜːst/ pronoun 'the first person to do something, or the first thing to happen';
held /held/ verb, the past tense of 'to have something in your hand, hands, or arms': **hurled** /hɜːld/ verb, the past participle of 'to throw something with a lot of force, especially because you are angry'.

CVCCC type word-forms including the root with the inflectional morphemes *'s, s', -s, -ed* make twenty-five pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes consisting of 11 verbs and 39 nouns make 18 **noun : noun,** 3 **noun : verb,** and 4 **verb : verb** opposition pairs.

colonel's /kɜːnlz/ noun, the possessive case of 'a high rank in the army, Marines, or the US air force, or someone who has this rank': **kennels** /kenlz/ noun, the plural of 'a small building made for a dog to sleep in';

bests /**bests**/ verb, the 3rd person of 'to defeat someone': **bursts** /**bɜːsts**/ noun, the plural of 'the act of something bursting or the place where it has burst';
vegged /**vedʒd**/ verb, the past tense of 'to be very lazy and spend time doing very little': **verged** /**vɜːdʒd**/ verb, the past participle of 'to be very close to a harmful or extreme state'.

CVCCVC type word-forms presupose the root with either the derivational morpheme *-ie* or the inflectional *zero, 's, s', -s* morphemes and make twenty-four pairs of opposition. They discriminate the lexical and the grammatical meaning of words in different and the same word classes. Two word classes consisting of 12 verbs and 36 nouns, make 12 **noun : noun** and 12 **noun : verb** opposition pairs.

veges /**vedʒiz**/ informal noun, the plural of 'vegetables': **verge's** /**vɜːdʒiz**/ noun, the possessive case of 'the edge of a road, path etc';
leches /**letʃiz**/ verb, the 3rd person of 'to show sexual desire for someone in a way that is unpleasant or annoying': **lurches** /**lɜːtʃiz**/ noun, the plural of 'a sudden movement'.

CVCV type word-forms of the structure: the bare root with either the derivational morpheme *-er, -y, -ar, -ly* or the inflectional morphemes *-er,* make twenty-four pairs of opposition. They discriminate the lexical and grammatical meaning of words in different and the same word classes. Four word classes, consisting of 15 verbs, 4 adverbs, 14 adjectives and 15 nouns, make 5 **noun : verb,** 8 **noun : adjective,** 2 **noun : adverb,** 6 **verb : adjective,** 2 **verb : adverb** and 1 **verb : verb** opposition pairs.

server /**sɜːvə**/ noun 'the main computer on a network, which controls all the others': **sever** /**sevə**/ verb 'to cut through something completely, separating it into two parts, or to become cut in this way';
tenor /**tenə**/ adjective 'having a range of notes that is lower than an alto voice or instrument': **turner** /**tɜːnə**/ noun 'someone who uses a lathe to make shapes out of wood or metal';
feather /**feðə**/ noun 'one of the light soft things that cover a bird's body': **further**$_1$ /**fɜːðə**/ adverb 'more, or to a greater degree';
demur /**dɪmɜː**/ verb 'to express doubt about or opposition to a plan or suggestion': **dimmer** /**dɪmə**/ adjective, the comparative degree 'fairly dark or not giving much light, so that you cannot see well';
feather /**feðə**/ verb 'to get money by dishonest methods': **further**$_1$ /**fɜːðə**/ adverb;
defer /**dɪfɜː**/ verb 'to delay something until a later date': **differ** /**dɪfe**/ verb 'to be dissimilar from something in some way'.

CVCVC type word-forms of the root with either the derivational morphemes *-ed, -ie, de-, fore-, -ar* or the inflectional morphemes *-ed, 's, s', -s, -ing* make seventy-seven pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Four word classes consisting of 62

verbs, 1 adverb, 9 adjectives and 82 nouns make 20 **noun : verb,** 30 **noun : noun,** 1 **noun : adjective,** 1 **noun : adverb,** 8 **verb : adjective** and 17 **verb : verb** opposition pairs.

wedded /wedɪd/ adjective 'married': **worded** /wɜːdɪd/ verb, the past tense of 'to use words that are carefully chosen in order to express something';
forward /fɔːwəd/ adjective 'closer to a person, place, or position that is in front of you' : **foreword**$_1$ /fɔːwɜːd/ noun 'a short piece of writing at the beginning of a book that introduces the book or writer';
forward /fɔːwəd/ adverb 'towards a place or position that is in front of you' : **foreword**$_1$ /fɔːwɜːd/ noun;
beggars' /begəz/ noun, the possessive case of 'someone who lives by asking people for food and money': **burgers** /bɜːgəz/ noun, the plural of 'a flat round piece of finely cut beef, which is cooked and eaten, or one of these served in a bread bun';
wedding /wedɪŋ/ noun 'a marriage ceremony, especially one with a religious service': **wording** /wɜːdɪŋ/ verb 'to use words that are carefully chosen in order to express something'.

CVCVCC type word-forms comprise the root with the derivational morpheme *fore-,* and the inflectional *zero, -ed, 's, s', -s* morphemes make thirty-two pairs of opposition and discriminate the lexical and the grammatical meaning of words in different and the same word classes. Three word classes consisting of 10 verbs, 3 adverbs and 19 nouns make 6 **noun : verb** opposition pairs, 5 **noun : noun,** 1 **noun : adjective,** 3 **noun : adverb,** 8 **verb : adjective** and 2 **verb : verb** opposition pairs.

forewords$_1$ /fɔːwɜːdz/ noun, the plural of 'a short piece of writing at the beginning of a book that introduces the book or its writer': **forwards** /fɔːwədz/ adverb 'towards a place or position that is in front of you';
forewords$_1$ /fɔːwɜːdz/ noun, the plural : **forward's** /fɔːwədz/ noun, the possessive case of 'an attacking player on a team in sports such as football and basketball';
forewords$_1$ /fɔːwɜːdz/ noun, the plural : **forwards** /fɔːwədz/ verb 'to send letters, goods etc to someone when they have moved to a different address';
descend /dɪsend/ verb 'to move from a higher level to a lower one': **discerned** /dɪsɜːnd/ verb, the past tense of 'to notice or understand something by thinking about it carefully'.

CVCVV type word-forms consisting of the root make four pairs of opposition discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes consisting of 3 verbs, 3 adjective and 3 nouns make 2 **noun : verb,** 1 **noun : adjective,** and 1 **verb : adjective** opposition pairs.

fellow$_1$ /feləʊ/ adjective 'fellow workers, students etc are people that you work with, study with, or who are in the same situation as you': **furlough**$_2$ /fɜːləʊ/ noun 'a period of time when a soldier or someone working in another country can return to their own country';
fellow$_1$ /feləʊ/ adjective : **furlough** /fɜːləʊ/ verb 'to lay (a worker) off from work, usually temporarily';

survey$_3$ /səveɪ/ verb 'to ask a large number of people questions in order to find out their attitudes or opinions' : **survey**$_4$ /sɜːveɪ/ noun 'a set of questions that you ask a large number of people in order to find out about their opinions or behaviour';

CVCVV type word-forms embrace the root and the inflectional morphemes *-ed, 's, s', -s* make fourteen pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes - two word classes consisting of 10 verbs, and 18 nouns make 6 **noun : verb,** 2 **verb : verb** and 6 **noun : noun** opposition pairs.

fellow's /feləʊz/ noun, the possessive case of 'a man': **furloughs**$_{2\ (above)}$ /fɜːləʊz/ noun, the plural;
surveys$_3$ /səveɪz/ verb, the 3rd person : **surveys**$_{4\ (above)}$ /sɜːveɪz/ noun, the plural;
pervade /pəveɪd/ verb 'to become spread throughout all parts of': **purveyed** /pɜːveɪd/ verb, the past tense of 'to supply goods, services, information etc to people'.

VC type word-forms, including of the root or the root with the inflectional *zero, -s* morpheme, make eleven pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Nine word classes consisting of 7 verbs, 2 article, one conjunction, 2 determiner, 2 interjection, one preposition, 2 pronoun, one adverb, and 4 nouns make 1 **verb : adverb** opposition pair**,** 2 **noun : article,** 1 **verb : article,** 1 **verb : conjunction,** 1 **noun : determiner,** 1 **verb : determiner,** 1 **noun : interjection,** 1 **verb : preposition,** 1 **noun : pronoun,** 1 **verb : pronoun,** and 1 **verb : interjection** opposition pairs.

as /əz/ adverb 'used when you are comparing two people, things, situations': **errs**$_1$ /ɜːz/ verb, the 3rd person 'to be more careful or safe than is necessary, in order to make sure that nothing bad happens';
an$_2$ /ən/ article 'used when the following word begins with a vowel sound': **urn**$_3$ /ɜːn/ noun 'a decorated container, especially one that is used for holding the ashes of a dead body';
an$_2$ /ən/ article: **earn**$_4$ /ɜːn/ verb 'to receive a particular amount of money for the work that you do';
as /əz/ conjunction 'used in comparisons': **errs**$_1$ /ɜːz/ verb, the 3rd person;
an$_5$ /ən/ determiner 'used when the following word begins with a vowel sound': **urn**$_3$ /ɜːn/ noun;
an$_5$ /ən/ determiner : **earn**$_4$ /ɜːn/ verb;
egg /eg/ noun 'a round object with a hard surface, that contains a baby bird, snake, insect etc and which is produced by a female bird, snake, insect': **urgh**$_6$ /ɜːg/ interjection 'said when you have seen or tasted something that you think is extremely unpleasant';
as /əz/ preposition 'used when you are comparing two things': **errs**$_1$ /ɜːz/ verb, the 3rd person ;
un$_7$ /ən/ pronoun 'a short form of 'one', used to say that someone or something is good, bad etc. Teachers and careful speakers of English do not use this expression': **urn**$_3$ /ɜːn/ noun;
un$_7$ /ən/ pronoun : **earn**$_4$ /ɜːn/ verb;
egg /eg/ verb 'to encourage someone to do something, especially something that they do not want to do or should not do': **urgh**$_6$ /ɜːg/ interjection.

VCC type word-forms having the of the structure: the root with the inflectional *zero, -s, -ed* morphemes make nine pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes consisting of 11 verbs, 2 conjunctions, and 5 nouns make 5 **noun : verb** opposition pairs**,** 2 **verb : verb,** and 2 **verb : conjunction** opposition pairs.

and /ənd/ conjunction (weak form) 'used to join two words, phrases etc referring to things that are related in some way': **earned**$_{4(above)}$ /ɜːnd/ verb, the past tense;
ex /eks/ informal noun, the plural 'someone's former wife, husband': **irks** /ɜːks/ verb, the 3rd person 'if something irks you, it makes you feel annoyed';
earned$_{4(above)}$ /ɜːnd/ verb, the past tense : **end** /end/ verb 'if a situation or activity ends, or if someone or something ends it, it finishes or stops'.

VCCC type word-forms are made of the root and the inflectional morphemes *-ed* make two pairs of opposition and discriminate the lexical and grammatical meaning of words in the same word class. One word class consisting of 4 verbs make 2 **verb : verb** opposition pairs.

edged /edʒd/ verb, the past tense of 'to move gradually with several small movements, or to make something do this': **urged** /ɜːdʒd/ verb, the past participle of 'to strongly suggest that someone does something'.

VCCV type word-forms including the root with a zero inflectional morpheme make two pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes consisting of 1 verb and 1 preposition make 1 **verb : preposition** opposition pairs.

inter /ɪntɜː/ verb 'to bury a dead person': **into** /ɪntə/ preposition 'to the inside or inner part of a container, place, area'.

CVCVCC type word-forms consisting of the root make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. One word class consisting of 1 verb, 1 and noun make 1 **noun : verb** opposition pair.

ferment /fɜːment/ noun 'a situation of great excitement or trouble in a country, especially caused by political change': **ferment** /fəment/ verb 'if fruit, beer, wine etc ferments, or if it is fermented, the sugar in it changes to alcohol'.

3.5. Functional Morphonological Analysis of ɪ–iː Oppositions

2.063 pairs were traced that make root ɪ–iː oppositions. 624 pairs discriminate lexical and 1439 – lexical and grammatical meaning of words. Various word classes formed the following types of oppositions that discriminate lexical and grammatical meanings of words (see appendix 15).

3.5.1. Opposition ɪ–iː discriminating the lexical meaning

- **Oppositions in the root morpheme**

CCVC type word-forms embrace the root and make thirty-seven pairs of opposition and discriminate the lexical meaning of words in different word classes. Three word classes consisting of 2 adjectives, 26 verbs, and 46 nouns make 1 **adjective : adjective,** 13 **verb : verb,** 23 **noun : noun,** opposition pairs.

sleek /**sliːk**/ adjective 'a vehicle or other object that is sleek has a smooth attractive shape': **slick** /**slɪk**/ adjective 'if something is slick, it is done in a skilful and attractive way and seems expensive, but it often contains no important or interesting ideas';
djinn /**dʒɪn**/ noun 'a magical person in Islamic stories who has special powers': **gene** /**dʒiːn**/ noun 'part of a cell in a living thing that controls what it looks like, how it grows, and how it develops';
green /**griːn**/ verb 'to fill an area with growing plants in order to make it more attractive': **grin** /**grɪn**/ verb 'to smile widely'.

CCVCC type word-forms include the root with the inflectional morphemes *'s, s', -s, -ed* and make seventy-one pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes consist of 44 verbs and 98 nouns make 49 **noun : noun** and **22 verb: verb** opposition pairs.

queens /**kwiːnz**/ noun, the plural of 'the female ruler of a country': **quins** /**kwɪnz**/ noun, the plural of 'British English informal a quintuplet';
sleeks /**sliːks**/ verb, the 3rd person, singular 'to make hair or fur smooth and shiny by putting water or oil on it': **slinks** /**slɪks**/ verb, the 3rd person singular of 'to move somewhere quietly and secretly, especially because you are afraid or ashamed'.

CCVCCV type word-forms made of the root with the derivational morpheme *-ly* make one pair of opposition and discriminate the lexical meaning of words in the same word class, that of the adverb. Adverbs make 1 **adverb: adverb** opposition pairs.

sleekly /**sliːkli**/ adverb 'in a sleek glossy manner': **slickly** /**slɪkli**/ adverb 'smoothly or slippery'.

CCVCCVC type word-forms consisting of the root with the inflectional morphemes *'s, s'* *-s* or the derivational morpheme *-ness* and make eleven pairs of opposition and discriminate the lexical meaning of words in the same word class. Twenty-two nouns make 11 **noun: noun** opposition pairs.

sleekness /**sliːknəs**/ noun 'the quality or state of being sleek; smoothness and glossiness of surface': **slickness** /**slɪknəs**/ noun 'the state or quality of being slick; smoothness; sleekness'.

CCVCCVC type word-forms consist of the root with the derivational morphemes *-er, -y* added with the inflectional morphemes *-er* and make eight pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes of 8 nouns and 8 adjectives make 4 **noun: noun** and 4 **adjective : adjective** opposition pairs.

greeter /**griːtə**/ noun 'someone who greets people politely as they enter a place, especially someone who does this as a job': **gritter** /**grɪtə**/ noun 'a large vehicle that puts salt or sand on the roads in winter to make them less icy';
sleeker /**sliːkə**/ adjective, the comparative degree of 'a vehicle or other object that is sleek has a smooth attractive shape': **slicker** /**slɪkə**/ adjective, the comparative degree of 'if something is slick, it is done in a skilful and attractive way, but it often contains no important or interesting ideas'.

CCVCVC type word-forms consist of the root with the derivational morpheme *-er* or the inflectional morphemes *-ing, -s,'s, s', -ed* and make twenty-four pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes that of 28 verbs and 20 nouns make 10 **noun : noun** and 14 **verb: verb** opposition pairs.

greeters /**griːtəz**/ noun, the plural of 'someone who greets people politely as they enter a place, especially someone who does this as a job': **gritters** /**grɪtəz**/ noun, the plural of 'a large vehicle that puts salt or sand on the roads in winter to make them less icy';
greening /**griːnɪŋ**/ verb, the present participle of 'to fill an area with growing plants in order to make it more attractive': **grinning** /**grɪnɪŋ**/ verb, the present participle of 'to smile widely'.

CCVCVCC type word-forms including the root with the inflectional morphemes *-est* make one pair of opposition and discriminate the lexical meaning of words in the same word class. Two adjectives make 1 **adjective: adjective** opposition pair.

sleekest /**sliːkəst**/ adjective, the superlative degree of 'a vehicle or other object that is sleek has a smooth attractive shape': **slickest** /**slɪkəst**/ adjective, the superlative degree of 'if something is slick, it is done in a skilful and attractive way and seems expensive, but it often contains no important or interesting ideas'.

CVC type word-forms consist of the root and make a hundred and thirty-four pairs of opposition and discriminate the lexical meaning of words in the same word classes. Three word classes consisting of 4 adjectives, 60 verbs and 118 nouns make 59 **noun : noun,** 30 **verb : verb** and 2 **adjective: adjective** opposition pairs.

teen /tiːn/ informal adjective 'relating to teenagers or used by teenagers': **tin** /tɪn/ adjective 'made of a soft silver–white metal that is often used to cover and protect iron and steel';
deem /diːm/ verb 'to think of something in a particular way or as having a particular quality': **dim** /dɪm/ verb 'if a light dims, or if you dim it, it becomes less bright';
deal /diːl/ noun 'an agreement or arrangement, especially in business or politics, that helps both sides involved': **dill** /dɪl/ noun 'a type of herb'.

CVCC type word-forms consist of the root with either the inflectional *zero, -ed -s, 's, s'* morphemes or the derivational morphemes *-ed* and make a hundred and ninety-four pairs of opposition and discriminate the lexical meaning of words in the same word classes. Three word classes of adjectives 2, verbs 142 and nouns 236 make 118 **noun : noun,** 1 **adjective: adjective,** and 71 **verb : verb** opposition pairs.

peach /piːtʃ/ noun 'a round juicy fruit that has a soft yellow or red skin and a large, hard seed in the centre, or the tree that this fruit grows on': **pitch** /pɪtʃ/ noun 'a marked out area of ground on which a sport is played';
peaked /piːkt/ adjective 'looking pale and ill': **picked** /pɪkt/ adjective 'picked people have been specially chosen because they are very suitable for a particular job';
deems /diːmz/ verb, the 3rd person, singular 'to think of something in a particular way or as having a particular quality': **dims** /dɪmz/ verb, the 3rd person, singular 'fairly dark or not giving much light, so that you cannot see well'.

CVCCC type word-forms are made of the root with the inflectional morphemes *-ed, -s, 's, s'* make five pairs of opposition and discriminate the lexical meaning of words in the same word classes, that of verbs and nouns - 4 verbs, 6 nouns make 2 **verb : verb,** 3 **noun : noun** opposition pairs.

beached /biːtʃt/ verb, the past tense of 'an area of sand or small stones at the edge of the sea or a lake': **bitched** /bɪtʃt/ verb, the past tense of 'to make unpleasant remarks about someone';
feasts /fiːsts/ noun, the plural of 'a large meal where a lot of people celebrate a special occasion': **fists** /fɪsts/ noun, the plural of 'the hand when it is tightly closed, so that the fingers are curled in towards the palm'.

CVCCVC type word-forms consist of the root with the inflectional morphemes *-ing, -s, 's, s'* make fourteen pairs of opposition and discriminate the lexical meaning of words in the same word classes. Two word classes of 6 verbs, 22 nouns make 3 **verb : verb,** 11 **noun : noun** opposition pairs.

peaches /piːʧiz/ noun, the plural of 'a round juicy fruit that has a soft yellow or red skin and a large, hard seed in the centre, or the tree that this fruit grows on': **pitches** /pɪʧiz/ noun, the plural of 'a marked out area of ground on which a sport is played';

CVCCVVC type word-forms comprising of the root with the derivational morpheme *re-* and make one pair of opposition and discriminate the lexical meaning of words in the same word class. Thus, two verbs make 1 **verb : verb** opposition pair.

rejoin$_1$ /rɪːdʒɔɪn/ verb 'to go back to a group of people, organization etc that you were with before': **rejoin**$_2$ /rɪdʒɔɪn/ verb 'to say something in reply, especially rudely or angrily'.

CVCCVVCC type word-forms consist of the root with the derivational morpheme *re-* and the inflectional morpheme *-ed,* make three pairs of opposition and discriminate the lexical meaning of words in the same word class. Six verbs make 3 **verb : verb** opposition pairs.

rejoined$_{1(above)}$ /rɪːdʒɔɪnd/ verb the past tense: **rejoined**$_2$ /rɪdʒɔɪnd/ verb, the past tense.

CVCCVVCVC type word-forms embrace the root with the derivational morpheme *re-* and the inflectional morpheme *-ing,* make one pair of opposition and discriminate the lexical meaning of words in the same word class. 2 verbs make 1 **verb : verb** opposition pair.

rejoining$_{1(above)}$/rɪːdʒɔɪnɪŋ/ verb, the present participle : **rejoining**$_2$ /rɪdʒɔɪnɪŋ/ verb, the present participle.

CVCV type word-forms consist of the bare roots or with the derivational morphemes *-er -y*, *-ie* and make 19 pairs of opposition and discriminate the lexical meaning of words in the same word class. 3 word classes of 30 nouns, 2 verbs and 6 adjectives make 1 **verb : verb,** 3 **adjective : adjective,** 15 **noun : noun** opposition pairs.

peeler /piːlə/ noun 'a special type of knife for removing the skin from fruit or vegetables': **pillar** /pɪlə/ noun 'a tall upright round post used as a support for a roof or bridge';
teeter /tiːtə/ verb 'to stand or walk moving from side to side, as if you are going to fall': **titter** /tɪtə/ verb 'to laugh quietly in a high voice, especially because you are nervous';
weepy /wiːpi/ adjective 'tending to cry a lot': **whippy** /wɪpi/ adjective 'long, thin, and easy to bend'.

CVCVC type word-forms made of the roots with either the derivational morphemes *-er*, *-ie*, *-al*, *-ing*, *fore-* or/and the inflectional *zero, -ing, -s, 's, s'* morphemes make eightty-seven pairs of opposition and discriminate the lexical meaning of words in the same word classes. Three word classes that is 96 nouns, 72

verbs and 6 adjectives make 1 **verb : verb,** 3 **adjective : adjective,** 48 **noun : noun** opposition pairs.

faecal /fiːkəl/ adjective 'of or relating to feces': **fickle** /fɪkəl/adjective 'someone who is fickle is always changing their mind about people or things that they like, so that you cannot depend on them – used to show disapproval';
feeling$_1$ /fiːlɪŋ/ noun 'an emotion that you feel, such as anger, sadness, or happiness': **filling**$_2$ /fɪlɪŋ/ noun 'a small amount of metal that is put into your tooth to cover a hole';
peeling /piːlɪŋ/ verb, the present participle of 'to remove the skin from fruit or vegetables': **pilling** /pɪlɪŋ/ verb, the present participle of 'if a piece of clothing pills, especially a sweater, it forms little balls on the surface of the cloth after it has been worn or washed'.

CVCVCC type word-forms consist of the root with the derivational morphemes -*ing*, *fore-* and the inflectional morphemes -*ing, 's, s', -s* make seven pairs of opposition and discriminate the lexical meaning of words in the same word class. Fourteen nouns make 7 **noun : noun** opposition pairs.

feelings$_{1\ (above)}$ /fiːlɪŋz/ noun, the plural: **fillings**$_2$ /fɪlɪŋz/ noun, the plural.

CVCVVC type word-forms consist of the root and the inflectional morpheme -*ing* make three pairs of opposition and discriminate the lexical meaning of words in the same word class. One word class of 2 verbs make 1 **verb : verb** opposition pair.

teetering /tiːtəɪŋ/ verb, the present participle of 'to stand or walk moving from side to side, as if you are going to fall': **tittering** /tɪtəɪŋ/ verb, the present participle of 'to laugh quietly in a high voice, especially because you are nervous'.

VC type word-forms having structure of the root and a zero the inflectional morpheme make two pairs of opposition and discriminate the lexical meaning of words in the same word class. Four nouns make **2 noun : noun** opposition pair.

eel$_1$ /iːl/ noun 'a long thin fish that looks like a snake and can be eaten': **ill**$_2$ /ɪl/ noun 'problems and difficulties'.

VCC type word-forms made of the root with the inflectional morphemes -*s, 's, s'* make three pairs of opposition and discriminate the lexical meaning of words in the same word class. Six nouns make 3 **noun : noun** opposition pair.

eels$_{1(above)}$ /iːlz/ noun, the pural: **ills**$_2$ /ɪlz/ noun, the plural.

VCCVCC type word-forms consisting of the root and the inflectional morphemes *'s, s', -s* make three pairs of opposition and discriminate the lexical meaning of words in the same word class. Six nouns make 3 **noun : noun** opposition pairs.

antics /æntɪks/ noun, the plural of 'behaviour that seems strange, funny, silly, or annoying': **antiques** /ænti:ks/ noun, the plural of 'a piece of furniture, jewellery etc that was made a very long time ago and is therefore valuable'.

CVCVCVCCVCC type word-forms made of the root and the inflectional morphemes *-s, 's, s'*, make three pairs of opposition and discriminate the lexical meaning of words in the same word class. Six nouns make 1 **noun : noun** opposition pair.

benedictines$_{1\ (above)}$ /benɪdɪkti:nz/ noun, the plural : **Benedictines**$_2$ /benɪdɪktɪnz/ noun, the plural.

- **Opposition in the derivational and root morpheme**

CCVCCV type word-forms consist of the root and the derivational morphemes *-y*, *-ee* and make one pair of opposition and discriminate the lexical meaning of words in the same word class. two nouns make 1 **noun : noun** opposition pair.

trustee$_1$ /trʌsti:/ noun 'someone who has control of money or property that is in a trust for someone else': **trusty**$_2$ /trʌsti/ noun 'a prisoner who is given special jobs or rights, because they behave in a way that can be trusted'.

CCVCCVC type word-forms made of the root with the derivational morphemes *-y*, *-ee* and the inflectional morphemes *'s, s' -s* make three pairs of opposition and discriminate the lexical meaning of words in the same word class. Six nouns make 3 **noun : noun** opposition pairs.

trustees$_{1\ (above)}$ /trʌsti:z/ noun, the plural: **trusties**$_2$ /trʌstɪz/ noun, the plural.

CCVCCCVVCVC type word-forms embrace the root with the derivational morpheme *-ee* and the inflectional morphemes *'s, s' -s* make three pairs of opposition and discriminate the lexical meaning of words in the same word class. Six nouns make 3 **noun: noun** opposition pairs.

franchisees /frænʧaɪzi:z/ noun, the plural of 'someone who is given or sold a franchise to sell a company's goods or services': **franchises** /frænʧaɪziz/ noun, the plural of 'permission given by a company to someone who wants to sell its goods or services'.

CVCCVC type word-forms comprise the root with the derivational morpheme *-ee* 'denote a person who has benefited from the act that is specified by the use of the verb' the inflectional morphemes, *-s, 's, s'* make three pairs of opposition and

discriminate the lexical meaning of words in the same word classes. 6 nouns make 3 **noun : noun** opposition pairs.

bargees /ba**ː**d**ʒ**i**ː**z/ noun, the plural of 'someone who drives or works on a barge': **barges** /**baː**dʒiz/ noun, the plural of 'a large low boat with a flat bottom, used for carrying goods on a canal or river'.

CVCV type word-forms are composed of the bare root and of the root with the derivational morpheme *-ee*. They make one pair of opposition and discriminate the lexical meaning of words in the same word class. 2 nouns make 1 **noun : noun** opposition pair.

bootee /bu**ː**t**iː**/ noun 'a short thick sock that a baby wears instead of a shoe': **booty** /**buː**ti/ noun 'valuable things that a group of people, especially an army that has just won a victory, take away from somewhere'.

CVCVCVC type word-forms composed of the root with the derivational morpheme *-ee* (one member) and the inflectional morphemes -s, 's. They make two pairs of opposition and discriminate the lexical meaning of words in the same word class. Four nouns make 2 **noun : noun** opposition pairs.

divorcees /dɪvɔ**ː**s**iː**z/ noun, the plural of 'a man or woman who is divorced': **divorces** /dɪ**vɔː**siz/ noun, the plural of 'the legal ending of a marriage'.

CVVCVCCVC type word-forms embrace the root with the derivational morpheme *-ee* (one member) and the inflectional morphemes *-s, 's, s'* and make three pairs of opposition and discriminate the lexical meaning of words in the same word class. Six nouns make 3 **noun : noun** opposition pairs.

licences /**laɪ**sənsiz/ noun, the plural of 'an official document giving you permission to own or do something for a period of time' an official document giving you permission to own or do something for a period of time: **licensees** /laɪsən**siːz**/ noun, the plural of 'someone who has official permission to do something'.

VCVCC type word-forms include the root with the derivational morpheme *-ist*, *-iste* make one pair of opposition and discriminate the lexical meaning of words in the same word class. Two nouns make 1 **noun : noun** opposition pair.

artist /***a***ːtɪst/ noun 'someone who produces art, especially paintings or drawings': **artiste** /*a*ː**tiːst**/ noun 'a professional singer, dancer, actor etc who performs in a show'.

VCVCCC type word-forms consist of the root with the derivational morpheme *-ist*, *-iste* and the inflectional morphemes -s, 's, s' make three pairs of opposition and

discriminate the lexical meaning of words in the same word class. One word class of 6 nouns make 3 **noun : noun** opposition pair.

artistes /**ɑ:**ti:sts/ noun, the plural of 'someone who produces art, especially paintings or drawings': **artists** /*ɑ*:**tɪsts**/ noun, the plural of 'a professional singer, dancer, actor etc who performs in a show'.

- **Opposition in the inflectional and the root morpheme**

CVVCVC type word-forms made of the root with the inflectional morphemes *-s, 's, s'* and make four pairs of opposition and discriminate the lexical meaning of words in the same word class. Eight nouns make 4 **noun : noun** opposition pairs.

bases /**beɪ**siz/ noun, the plural of 'the lowest part or surface of something': **bases** /be**ɪsi:z**/ noun 'the facts, ideas, or things from which something can be developed'.

VCCVC type word-forms have structure the root with the inflectional morphemes *-s, s'* and make two pairs of opposition and discriminate the lexical meaning of words in the same word class. Four nouns make 2 **noun : noun** opposition pairs.

axes /**æk**siz/ noun 'a tool with a heavy metal blade on the end of a long handle, used to cut down trees or split pieces of wood': **axes** /æk**si:z**/ noun 'the imaginary line around which a large round object, such as the Earth, turns'.

3.5.2. Opposition ɪ–iː discriminating the lexical and grammatical meaning

- **Oppositions in the root morpheme**

CCCVCC type word-forms composed of the root and the inflectional morpheme *-ed*, make two pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes consisting of 2 adjectives, 2 verbs make 2 **adjective : verb** opposition pairs.

streaked /**stri:kt**/ verb, the past tense of 'to run or fly somewhere so fast you can hardly be seen': **strict** /**strɪkt**/ adjective 'expecting people to obey rules or to do what you say'.

CCCVCCV type word-forms consisting of the root and the derivational morphemes *-ee, -y* make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. One adjective and one noun make 1 **adjective : noun** opposition pair.

squeegee /skwiːdʒiː/ noun 'a tool with a thin rubber blade and a short handle, used for removing or spreading a liquid on a surface': **squidgy** /skwɪdʒi/ adjective 'soft and easy to press'.

CCVC type word-forms have a structure of the root with the flectional *zero*, *-s, -ed* morphemes and make sixty-one pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Five word classes of 13 adjectives, 6 adverb, 54 verbs, and 46 nouns, 3 prepositions make 4 **adjective : verb,** 5 **noun : adjective,** 2 **noun : adverb,** 3 **verb : adverb,** 1 **preposition : adjective,** 1 **preposition : noun,** 1 **preposition : verb,** 37 **noun : verb,** 3 **verb : verb** opposition pairs.

cheap$_1$ /ʧiːp/ adverb 'at a low price': **chip**$_2$ /ʧɪp/ noun 'a long thin piece of potato cooked in oil';
cheap /ʧiːp/ adjective 'not at all expensive, or lower in price than you expected': **chip**$_2$ /ʧɪp/ noun; **sleek** /sliːk/ adjective 'a vehicle or other object that is sleek has a smooth attractive shape': **slick** /slɪk/ verb 'to make hair smooth and shiny by putting oil, water etc on it';
cheap$_1$ /ʧiːp/ adverb : **chip** /ʧɪp/ verb 'if you chip something, a small piece breaks off accidentally';
fleet /fliːt/ noun 'a group of ships, or all the ships in a navy': **flit** /flɪt/ verb 'to move lightly or quickly and not stay in one place for very long';
tween$_3$ /twiːn/ preposition 'between': **twin** /twɪn/ adjective 'describe one of two children who are twins';
tween$_3$ /twiːn/ preposition: **twin** /twɪn/ noun 'one of two children born at the same time';
tween$_3$ /twiːn/ preposition: **twin** /twɪn/ verb 'to form a relationship between two similar towns in different countries in order to encourage visits between them';
frees /friːz/ verb, the 3rd person singular 'to allow someone to leave prison or somewhere they have been kept as a prisoner': **frizz** /frɪz/ verb 'if your hair frizzes, or if you frizz it, it curls very tightly'.

CCVCC type word-forms made of the root or with either the derivational morphemes *-er* or the inflectional morphemes *zero, -s, 's, s', -ed* and make a hundred and eighty-five pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes: 2 adjectives, 100 verbs, and 268 nouns make 2 **adjective : verb,** 98 **noun : noun,** 72 **noun : verb,** 13 **verb : verb** opposition pairs.

steels /stiːlz/ noun, the plural of 'a thin bar of steel used for making knives sharp': **stills** /stɪlz/ verb, the 3rd person, singular 'to stop moving or make something stop moving';
queen's /kwiːnz/noun, the possessive case of 'the female ruler of a country': **quins** /kwɪnz/ informal noun, the plural of 'a quintuplet, one of five babies born to the same mother at the same time';
cheeped /ʧiːpt/ verb, the past tense of 'if a young bird cheeps, it makes a weak, high noise': **chipped** /ʧɪpt/ adjective 'something that is chipped has a small piece broken off the edge of it';

bleats /bliːts/ verb, the 3rd person singular of 'to make the sound that a sheep or goat makes': **blitz** /blɪts/ verb 'to attack suddenly and without warning'.

CCVCCVC type word-forms embracing the root with the inflectional morphemes *-s, 's, s'* make twenty-five pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes taking 5 verbs and 45 nouns make 5 **verb : noun,** 20 **noun : noun** opposition pairs.

breaches /briːtʃiz/ verb, the 3rd person singular of 'to break a law, rule, or agreement': **breeches**$_1$ /brɪtʃɪz/ noun, the plural of 'short trousers that fasten just below the knees';
breaches /briːtʃiz/ noun, the plural of 'an action that breaks a law, rule, or agreement': **britches'**$_1$ /brɪtʃɪz/ noun, the possessive case.

CCVCV type word-forms consist of the root with the derivational morphemes *-ly, -y* and the inflectional morphemes *-er* make five pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Four word classes of 2 verbs, 3 adjectives, 2 adverbs and 3 nouns make 1 **adjective : noun,** 2 **adjective : adverb,** 2 **noun : verb** opposition pairs.

sleeker /sliːkə/ adjective 'a vehicle or other object that is sleek has a smooth attractive shape': **slicker** /slɪkə/ noun 'a coat made of smooth shiny material that keeps out the rain';
freely /friːli/ adverb 'without anyone stopping or limiting something': **frilly** /frɪli/ adjective 'decorated with lots of frills';
sneaker /sniːkə/ noun 'a type of light soft shoe with a rubber sole, used for sports': **snicker** /snɪkə/ verb 'to laugh quietly and in a way that is not nice at something which is not supposed to be funny'.

CCVCVC type word-forms composed of the root with either the derivational morphemes *-er, -ing* or the inflectional morphemes *-ing, -s, 's, s', -ed* make forty pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Four word classes: 24 verbs, 2 adjectives, 1 adverb and 53 nouns make 1 **adjective : noun,** 2 **adjective : verb,** 1 **adverb : verb,** 18 **noun : noun,** 18 **noun : verb,** 2 **verb: verb** opposition pairs.

fleeting /fliːtɪŋ/ adjective 'lasting for only a short time': **flitting** /flɪtɪŋ/ verb, the present participle of 'to move lightly or quickly and not stay in one place for very long';
freezing /friːzɪŋ/ adverb 'extremely cold': **frizzing** /frɪzɪŋ/ verb, the present participle of 'if your hair frizzes, or if you frizz it, it curls very tightly';
sleeper's /sliːpəz/ noun, the possessive case of 'someone who sleeps in a particular way': **slippers** /slɪpəz/ noun, the plural of 'a light soft shoe that you wear at home';
greening /griːnɪŋ/ noun 'when a person or organization starts to think and know more about environmental problems': **grinning** /grɪnɪŋ/ verb, the present participle of 'to smile widely';

greeted /griːtɪd/ verb, the past tense of 'to say hello to someone or welcome them': **gritted** /grɪtɪd/ verb, the past participle of 'to scatter grit on a frozen road to make it less slippery'.

CCVCVCC type word-forms made of the root with inflectional morphemes *-s, 's, s'* make twelve pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes: 6 verbs and 18 nouns make 6 **noun : noun,** 6 **verb: verb** opposition pairs.

steeples /stiːpəlz/ noun, the plural of 'a tall pointed tower on the roof of a church': **stipples** /stɪpəlz/ verb, the 3rd person, singular 'to draw or paint a picture or pattern using short strokes or spots instead of lines'.

CV type word-forms consist of the root make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes i.e one pronoun and 1 noun make 1 **noun : pronoun** opposition pair.

she /ʃiː/ noun 'a female': **she** /ʃɪ/ pronoun (weak form) 'used to refer to a woman, girl, or female animal that has already been mentioned or is already known about'.

CVC type word-forms are composed of the root with the inflectional *zero, -s, 's, s', -ed* morphemes make two hundred and four pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Eight word classes that is 5 pronouns, 36 adjectives, 10 adverbs, 1 conjunction, 3 interjections, 2 prepositions, 186 verbs and 165 nouns make 2 **noun : pronoun,** 2 **adjective : adverb,** 19 **adjective : noun,** 1 **adjective : pronoun,** 14 **adjective : verb,** 4 **adverb : noun,** 4 **adverb : verb,** 1 **noun : conjunction,** 2 **noun : interjection,** 8 **noun : noun,** 2 **noun : preposition,** 119 **noun : verb,** 1 **verb : interjection,** 2 **verb : pronoun,** 23 **verb : verb** opposition pairs.

beat$_1$ /biːt/ adjective 'very tired': **bit** /bɪt/ adverb 'slightly or to a small degree';
deep /diːp/ adjective 'going down from the top or from the surface': **dip**$_2$ /dɪp/ noun 'a quick swim';
deep$_4$ /diːp/ adverb 'a long way into or below the surface of something': **dip**$_2$ /dɪp/ noun;
beat$_1$ /biːt/ adjective: **bit**$_3$ /bɪt/ pronoun 'slightly or to a small degree';
beet /biːt/ noun 'a vegetable that sugar is made from': **bit**$_3$ /bɪt/ pronoun;
peak /piːk/ adjective 'used to talk about the best, highest, or greatest level or amount of something': **pick** /pɪk/ verb 'to choose a person or thing, for example because they are the best or most suitable';
deep$_4$ /diːp/ adverb: **dip** /dɪp/ verb 'to put something into a liquid and lift it out again';
teal /tiːl/ noun 'a small wild duck': **till** /tɪl/ conjunction 'until';

sheet /ʃiːt/ noun 'a large piece of thin cloth that you put on a bed to lie on or lie under': **shit** /ʃɪt/ interjection 'used to express anger, annoyance, fear, or disappointment';
bees' /biːz/ noun, the possessive case of 'a black and yellow flying insect that makes honey and can sting you': **biz** /bɪz/ informal noun 'a particular type of business, especially one relating to entertainment';
mead /miːd/ noun 'an alcoholic drink made from honey': **mid** /mɪd/ preposition 'among or in the middle of';
deed /diːd/ noun 'something someone does, especially something that is very good or very bad': **did** /dɪd/ verb 'to perform an action or activity';
heap /hiːp/ verb 'to put a lot of things on top of each other in an untidy way': **hip** /hɪp/ interjection 'used as a shout of approval';
beat /biːt/ verb 'to get the most points, votes etc in a game, race, or competition': **bit**$_3$ /bɪt/ pronoun;
heed /hiːd/ verb 'to pay attention to someone's advice or warning': **hid** /hɪd/ verb 'to deliberately put or keep something or someone in a place where they cannot easily be seen or found'.

CVCC type word-forms, consisting of the root with either the derivational morpheme *-en* or the inflectional *zero, -s, 's, s', -ed* morphemes, make five hundred and thirty-three pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Eight word classes: 2 pronouns, 20 adjectives, 2 adverbs, 2 determiner, 4 number, 327 verbs and 709 nouns make 3 **adjective : noun,** 17 **adjective : verb,** 1 **adverb : noun,** 1 **adverb : verb,** 1 **noun : determine,** 237 **noun : noun,** 3 **noun : number,** 1 **noun : pronoun,** 225 **noun : verb,** 1 **verb : derterminer,** 1 **verb : pronoun,** 1 **verb : number,** 41 **verb : verb** opposition pairs.

peach /piːtʃ/ adjective 'pinkish-orange in colour': **pitch** /pɪtʃ/ noun 'a marked out area of ground on which a sport is played';
beaten /biːtn/ adjective 'a place that is off the beaten track is not well known and is far away from the places that people usually visit': **bitten** /bɪtn/ verb 'to use your teeth to cut, crush, or chew something';
least$_1$ /liːst/ adverb 'less than anything or anyone else': **list**$_2$ /lɪst/ noun 'a set of things, names, numbers etc usually written one below the other, for example so that you can remember or check them';
least$_1$ /liːst/ adverb: **list**$_5$ /lɪst/ verb 'to write a list, or mention things one after the other';
least$_3$ /liːst/ determiner 'not less than a particular number or amount': **list**$_2$/lɪst/ noun;
least$_3$ /liːst/ determiner : **list**$_5$ /lɪst/ verb;
sheep's /ʃiːps/ noun, the possessive case of 'a farm animal that is kept for its wool and its meat': **ships** /ʃɪps/ noun, the plural of 'a large boat used for carrying people or goods across the sea';
deans /diːnz/ noun, the plural of 'a priest of high rank in the Christian church who is in charge of several priests or churches': **dins** /dɪnz/ verb, the 3rd person singular 'to make someone learn and remember something by saying it to them many times';
six$_6$ /sɪks/ number 'the number 6': **Sikhs** /siːks/ noun the plural of 'a member of an Indian religious group that developed from Hinduism in the 16th century';

least$_4$ **/liːst/** pronoun 'not less than a particular number or amount': **list**$_2$ **/lɪst/** noun;
least$_4$ **/liːst/** pronoun : **list**$_5$ **/lɪst/** verb;
seeks /siːks/ verb 'to try to achieve or get something': **six**$_6$ **/sɪks/** number;
reamed /riːmd/ verb, the past tense of 'to treat someone badly, especially by cheating': **rimmed /rɪmd/** verb, the past participle of 'to be around the edge of something'.

CVCCC type word-forms comprise the root with the inflectional morphemes *-s, 's, s', -ed* and make eleven pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes: 7 verbs and 15 nouns make 6 **noun : noun,** 3 **noun : verb,** 2 **verb : verb** opposition pairs.

feasts /fiːsts/ noun, the plural of 'a large meal where a lot of people celebrate a special occasion': **fist's**$_1$ **/fɪsts/** noun, the possessive case of 'the hand when it is tightly closed, so that the fingers are curled in towards the palm';
feasts /fiːsts/ verb, the 3rd person singular 'to eat a lot of a particular food with great enjoyment': **fists**$_5$ **/fɪsts/** noun, the plural;
beached /biːtʃt/ verb, the past tense of 'to pull a boat onto the shore away from the water': **bitched /bɪtʃt/** verb, the past participle of 'to make unpleasant remarks about someone'.

CVCCVC type word-forms contain the root with the inflectional *zero, -s, 's, s'* morphemes make twenty-nine pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. 3 word classes consiting of 2 adjectives, 15 verbs and 41 nouns make 2 **adjective : verb,** 14 **noun : noun,** 14 **noun : verb** opposition pairs.

secret /siːkrɪt/ adjective 'known about by only a few people and kept hidden from others': **secrete /sɪkriːt/** verb 'if a part of an animal or plant secretes a liquid substance, it produces it';
beaches$_1$ **/biːtʃiz/** noun the plural of 'an area of sand or small stones at the edge of the sea or a lake': **bitches /bɪtʃiz/** verb the 3rd person singular 'to make unpleasant remarks about someone'.
beaches$_1$ **/biːtʃiz/** noun, the plural : **bitches' /bɪtʃiz/** noun the possessive case of 'a female dog';

CVCCVCC type word-forms consist of the root with the inflectional morphemes *-ed, -s, 's, s'* make five pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes: 7 verbs and 3 nouns make **4 verb : verb, 2 noun : verb** opposition pairs.

secretes /sɪkriːts/ verb, the 3rd person 'if a part of an animal or plant secretes a liquid substance, it produces it': **secrets /siːkrɪts/** noun, the plural of 'something that is kept hidden or that is known about by only a few people';

CVCCVVC type word-forms made of the root with the derivational morphemes *re-* and make two pairs of opposition and discriminate the lexical and grammatical

meaning of words in the same word class. 2 verbs make 1 **verb : verb** opposition pair.

rejoin /rɪːdʒɔɪn/ verb 'to go back to a group of people, organization etc that you were with before': **rejoin** /rɪdʒɔɪn/ verb 'to say something in reply, especially rudely or angrily'.

CVCVC type word-forms composed of the root with either the derivational morphemes *-y, -er, -ie, fore-*, *re-*, *-ing* or the inflectional *zero, -ing, 's, s', -s* morphemes make one hundred and fifty-nine pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Three word classes that is 68 verbs, 237 nouns and 13 adjectives make 6 **adjective : noun,** 7 **adjective : verb,** 88 **noun : noun,** 55 **noun : verb,** 3 **verb : verb** opposition pairs.

weeping /wiːpɪŋ/ adjective 'a tree with branches that hang down towards the ground': **whipping** /wɪpɪŋ/ verb 'to hit someone or something with a whip';
Parsee's /pɑːsiːz/ noun, the possessive case of 'a member of an ancient Persian religious group in India': **passes** /pɑːsiz/ noun, the plural of 'an official piece of paper which shows that you are allowed to enter a building or travel on something without paying';
beading /biːdɪŋ/ noun 'long thin pieces of wood or stone that are used as a decoration on the edges of walls, furniture etc': **bidding** /bɪdɪŋ/ verb, the present participle of 'to offer to pay a particular price for goods, especially in an auction';
reason /riːzən/ verb 'to form a particular judgment about a situation after carefully considering the facts': **risen** /rɪzən/ verb 'to increase in number, amount, or value'.

VC type word-forms comosed of the root and make five pairs of opposition. They discriminate the lexical and grammatical meaning of words in different and the same word classes. Five word classes take of 3 nouns, one adjective, 4 verbs, one adverb, one pronoun in pairs and make 1 **noun : verb,** 1 **noun : adjective,** 1 **noun : adverb,** 2 **pronoun : verb,** 1 **verb : verb** opposition pairs.

eel$_1$ /iːl/ noun 'a long thin fish that looks like a snake and can be eaten': **ill** /ɪl/ adjective 'suffering from a disease or not feeling well';
eel$_1$ /iːl/ noun: **ill** /ɪl/ adverb 'to be unable to do or have something without making the situation you are in very difficult';
ease /iːz/ noun 'if you do something with ease, it is very easy for you to do it': **is**$_2$ /ɪz/ verb, the 3rd person singular 'used to say that someone or something is the same as the subject of the sentence';
eat /iːt/ verb 'to put food in your mouth and chew and swallow it': **it** /ɪt/ pronoun 'used to refer to a thing, animal, situation, idea etc that has already been mentioned or is already known about';
ease /iːz/ verb 'if something unpleasant eases, or if you ease it, it gradually improves or becomes less': **is**$_2$ /ɪz/ verb, the 3rd person singular.

VCC type word-forms consist of the root with the inflectional *zero, -s, 's, s'* morphemes and make fifteen pairs of opposition and discriminate the lexical and

grammatical meaning of words in different and the same word classes. Five word classes: 17 nouns, 5 determiners, 4 verbs, 2 adverbs, 2 pronouns make 3 **noun : determiner,** 6 **noun : noun,** 1 **noun : adverb,** 1 **verb : adverb,** 1 **verb : determiner,** 1 **pronoun : noun,** 1 **pronoun : verb,** 1 **verb : determiner** opposition pairs.

each$_1$ /iːʧ/ adverb 'every one of two or more things or people, considered separately': **itch**$_2$ /ɪʧ/ noun 'an uncomfortable feeling on your skin that makes you want to rub it with your nails';
each$_1$ /iːʧ/ adverb : **itch**$_4$ /ɪʧ/ verb 'if part of your body or your clothes itch, you have an unpleasant feeling on your skin that makes you want to rub it with your nails';
each$_3$ / Iːʧ/ determiner 'every one of two things or people, considered separately': **itch**$_4$ /ɪʧ/ verb;
each$_3$ /Iːʧ/ determiner: **itch**$_2$ /ɪʧ/ noun;
eel's /iːlz/ noun the possessive case of 'a long thin fish that looks like a snake and can be eaten': **ills** /ɪlz/ noun, the plural of 'problems and difficulties';
each$_5$ /iːʧ/ pronoun 'every one of two or more things or people, considered separately': **itch** /ɪʧ/ noun 'an uncomfortable feeling on your skin that makes you want to rub it with your nails';
each$_3$ /iːʧ/ pronoun: **itch**$_4$ /ɪʧ/ verb;
eats /iːts/ verb, the 3rd person, singular 'to put food in your mouth and chew and swallow it': **its** /ɪts/ determiner, the possessive case of 'used to refer to something that belongs to or is connected with a thing, animal, baby etc that has already been mentioned'.

VCCVCC type word-forms have a structure of the root with the derivational morpheme *-in* make or the inflectional morpheme *-ed* two pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two nouns and 2 verbs make 2 **noun : verb** opposition pairs.

infield /ɪnfiːld/ noun 'the part of a cricket field nearest to the player who hits the ball': **infilled** /ɪnfɪld/ verb, the past tense of 'something that is used to fill a space'.

CVCVCVC type word-forms have a structure of the root and make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes: one adjective and one noun make 1 **noun : adjective** opposition pair.

saccharin /sækərɪn/ noun 'a chemical substance that tastes sweet and is used instead of sugar in drinks': **saccharine** /sækəriːn/ adjective 'too romantic in a way that seems silly and insincere'.

CVCVCVC type word-forms composed of the root and make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes: one adjective and one noun make 1 **noun : adjective** opposition pair.

benedictine$_1$ /benɪdɪktiːn/ noun 'a strong alcoholic drink that is a type of liqueur': **Benedictine**$_2$ /benɪdɪktɪn/ adjective 'of or relating to Saint Benedict or his works'.

CVCVCVC type word-forms made up of the root root with the inflectional *-s, 's, s'* morphemes and make six pairs of opposition and discriminate the lexical and grammatical meaning of words in the same word class. 12 nouns make **6 noun : noun** opposition pairs.

benedictines$_{1\ (above)}$ /**benɪdɪktiːnz**/ noun, the plural: **Benedictine's**$_{2\ (above)}$ /**benɪdɪktɪnz**/ noun, the possessive case.

- **Oppositions in the derivational and the root morpheme**

CCVCCCVVCVC type word-forms include the root with either the derivational morpheme *-ee* or the inflectional morphemes *-s, 's, s'* and make nine pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes consisting of 3 verbs and 15 nouns make 6 **noun : noun,** 3 **noun : verb** opposition pairs.

franchisee's$_1$ /frænʧaɪ**ziːz**/ noun, the possessive case of 'someone who is given or sold a franchise to sell a company's goods or services': **franchises** /**frænʧaɪz**iz/ noun, the plural of 'permission given by a company to someone who wants to sell its goods or services';
franchisees$_1$ /frænʧaɪ**ziːz**/ noun, the plural: **franchises** /**frænʧaɪz**iz/ verb, the 3rd person, singular 'to give or sell a franchise to someone'.

CCVCCV type word-forms consist of the root with the derivational morphemes *-ee, -y* make three pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes: 3 adjectives and 3 nouns make 3 **noun : adjective** opposition pairs.

draftee /dr*aː*f**tiː**/ noun 'someone who has been drafted into the army, navy etc': **drafty** /**drɑː**fti/ adjective 'a draughty room or building has cold air blowing through it'.

CVCVCC type word-forms comprising the root and the inflectional morpheme *-s* make one pair of opposition and discriminate the lexical and gramatical meaning of words in the same word class. Two nouns make 1 **noun : noun** opposition pair.

physics /**fɪz**ɪks/ noun 'the science concerned with the study of physical objects and substances, and of natural forces such as light, heat, and movement': **physiques** /fɪ**ziːks**/ noun, the plural of 'the size and appearance of someone's body'.

CVCVC type word-forms consist of the root make two pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same

word classes. Two word classes take 2 verbs, 2 nouns and make 2 **noun : verb** opposition pairs.

remit /rɪ**mɪt**/ verb 'to send a payment': **remit** /**ri:**mɪt/ noun 'the particular piece of work that someone has been officially asked to deal with'.

CVCCVC type word-forms embrace bare root or with the derivational morphemes *-ee* and the inflectional morphemes *-s, 's, s'* and make six pairs of opposition and discriminate the lexical and grammatical meaning of words in the same word classes. 12 nouns make 6 **noun : noun** opposition pairs.

bargees /ba**ɑ:dʒi:z**/ noun, the plural of 'someone who drives or works on a barge': **barges** /**bɑ:**dʒiz/ verb, the 3rd preson, singular 'to move somewhere in a rough careless way, often hitting against things'.

CVCVV type word-forms consisting of the root make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes that of the verb and the noun 1 **noun : verb** opposition pair.

decoy /**di:**kɔɪ/ noun 'someone or something that is used to trick someone into going somewhere or doing something, so that you can catch them, attack them etc': **decoy** /dɪ**kɔɪ**/ verb 'lure or entrap with or as if with a decoy'.

CVCCVCC type word-forms have structure of the root and make one pair of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes verb and noun make 1 **noun : verb** opposition pair.

reject /rɪ**dʒekt**/ verb 'to refuse to accept, believe in, or agree with something': **reject** /**ri:**dʒekt/ noun 'a product that has been rejected because there is something wrong with it'.

CVCCVCCC type word-forms comprise of the root and the inflectional morphemes *-s, 's, s'* make three pairs of opposition and discriminate the lexical and the grammatical meaning of words in different word classes. Two word classes take 3 verbs and 3 nouns make 3 **noun : verb** opposition pairs.

rejects /rɪ**dʒekts**/ verb, the 3rd person, singular 'to refuse to accept, believe in, or agree with something': **rejects** /**ri:**dʒekts/ noun, the plural of 'a product that has been rejected because there is something wrong with it'.

CVCCVCVC type word-forms consist of the root with the derivational morphemes *de-* and the inflectional morphemes *-s, s'* make two pairs of opposition and discriminate

the lexical and grammatical meaning of words in different word classes. Two word classes take 2 verbs and 2 nouns make 2 **noun : verb** opposition pairs.

decreases /dɪ**kriːs**iz/ verb, the 3rd person, singular 'to become less or go down to a lower level, or to make something do this': **decreases** /**diː**kriːsiz/ noun, the plural of 'the process of becoming less, or the amount by which something becomes less'.

CVCVCC type word-forms embody the root or with either the derivational morphemes *re-* or the inflectional *zero, 's, s', -s* morphemes makesix pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes: 4 verbs and 8 nouns make 4 **verb : noun,** 2 **noun : noun** opposition pairs.

refund$_1$ /**riː**fʌnd/ noun 'an amount of money that is given back to you if you are not satisfied with the goods or services that you have paid for': **refund**$_2$ /rɪ**fʌnd**/ verb 'to give someone their money back, especially because they are not satisfied with the goods or services they have paid for';
retards /rɪ**tɑːdz**/ verb, the 3rd person singular of 'to delay the development of something, or to make something happen more slowly than expected': **retards** /**riː**tɑːdz/ noun, the plural of 'an offensive word for a stupid person';
leavings' /**liːvɪŋz**/ noun 'things that are left because people do not want them': **living's** /**lɪvɪŋz**/ noun 'the way that you earn money or the money that you earn'.

CVCVCCC type word-forms include the root with the derivational morphemes *re-* and the inflectional morphemes *'s, s', -s* make three pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes: 3 verbs and 3 nouns make 3 **verb : noun** opposition pairs.

refunds$_1$ /**riː**fʌndz/ noun, the plural: **refunds**$_2$ /rɪ**fʌndz**/ verb, the 3rd person singular.

CVCVCVC type word-forms are made up of the root with the derivational morphemes *-ee* and the inflectional morphemes *'s, s', -s* make seven pairs of opposition and discriminate the lexical and the grammatical meaning of words in different and the same word classes. Two word classes: 3 verbs and 11 nouns make 4 **noun : noun,** 3 **noun : verb** opposition pairs.

divorcee's$_1$ /dɪvɔː**siːz**/ noun, the possessive case of 'a man or woman who is divorced': **divorces** /dɪ**vɔː**siz/ noun, the plural of 'the legal ending of a marriage';
divorcees$_1$ /dɪvɔː**siːz**/ noun, the plural: **divorces** /dɪ**vɔː**siz/ verb, the 3rd person, singular 'if someone divorces their husband or wife, or if two people divorce, they legally end their marriage'.

CVCVVC type word-forms compose the root the inflectional morphems *'s, s', -s* make six pairs of opposition and discriminate the lexical and grammatical meaning of

words in different word classes. Three word classes: 5 nouns, one adverb and 6 verbs make 5 **noun : verb,** 1 **adverb** : **verb** opposition pairs.

decoys /**diː**kɔɪz/ noun, the plural of 'someone or something that is used to trick someone into going somewhere or doing something, so that you can catch them, attack them etc': **decoys** /d**ɪkɔɪz**/ verb, the 3rd person, singular 'lure or entrap with or as if with a decoy';
retail /**riː**teɪl/ adverb 'if you buy or sell something retail, you buy or sell it in a shop': **retail** /r**ɪteɪl**/ verb 'to give other people private information about someone or something'.

CVCVVCVC type word-forms embrace the root with the derivational morphemes *-ing* make one pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes of 1 noun and 1 verb make 1 **noun : verb** opposition pair.

retailing /r**ɪteɪlɪŋ**/ verb, the present participle of 'to give other people private information about someone or something': **retailing** /**riː**teɪlɪŋ/ noun 'the business of selling goods to customers in shops'.

CVVCVCCVC type word-forms consist of the root with the derivational morphemes *-ee* and the inflectional morphems *'s, s', -s* make six pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. Two word classes make opposition pairs: 9 noun and 3 verbs make 3 **noun : noun** and 3 **noun : verb** opposition pair.

licences /**laɪ**sənsiz/ noun, the plural of 'an official document giving you permission to own or do something for a period of time': **licensee's**$_1$ /laɪsən**siːz**/ noun, the possessive case of 'someone who has official permission to do something';
licenses /**laɪs**ənsiz/ verb, the 3rd person, singular 'to give official permission for someone to do or produce something, or for an activity to take place': **licensees**$_1$ /laɪsən**siːz**/ noun, the plural.

VCCVCC type word-forms made of the root and the inflectional morphems *'s, s', -s* make six pairs of opposition and discriminate the lexical and grammatical meaning of words in different word classes. 12 nouns make 6 **noun : noun** opposition pairs.

antics /**æn**tɪks/ noun, the plural of 'behaviour that seems strange, funny, silly, or annoying': **antique's** /ænt**iːks**/ noun, the possessive case of 'a piece of furniture, jewellery etc that was made a very long time ago and is therefore valuable'.

- **Oppositions in the derivational morpheme**

VCVCCC type word-forms comprise the root with the derivational morphemes *-ist, -iste* and the inflectional morphems *'s, s', -s* make six pairs of opposition and

discriminate the lexical and the grammatical meaning of words in the same word class. 12 nouns make 6 **noun : noun** opposition pairs.

artistes /**ɑ:**ti:sts/ noun, the plural of 'a professional singer, dancer, actor etc who performs in a show': **artist's** /*ɑ:***tɪsts**/ noun, the possessive case of 'someone who produces art, especially paintings or drawings'.

- **Oppositions in the inflectional and root morpheme**

CVVCVC type word-forms contain the root with the inflectional morphemes *'s, s', -s* and make eleven pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes participate in oppositions: 19 nouns and 3 verbs make 8 **noun : noun** and 3 **noun : verb** opposition pairs.

bases /**beɪ**siz/ verb, the 3rd person, singular 'to have your main place of work, business etc in a particular place': **bases**$_1$ /be**ɪsi:z**/ noun, the plural of 'the facts, ideas, or things from which something can be developed';
basses' /**beɪ**siz/ noun, the possessive case of, the plural of 'a very low male singing voice, or a man with a voice like this' : **bases**$_1$ /be**ɪsi:z**/ noun, the plural.

VCCVC type word-forms embody the root with the inflectional morphemes *s', -s* make four pairs of opposition and discriminate the lexical and grammatical meaning of words in different and the same word classes. Two word classes take part in oppositions: 6 nouns and 2 verbs make 2 **noun : noun** and 2 **noun : verb** opposition pairs.

axes' /**æk**siz/ noun, the plural, the possessive case of 'a tool with a heavy metal blade on the end of a long handle, used to cut down trees or split pieces of wood': **axes**$_1$ /æk**si:z**/ noun, the plural of 'the imaginary line around which a large round object, such as the Earth, turns';
axes /**æk**siz/ verb, the 3rd person singular of 'to suddenly dismiss someone from their job': **axes**$_1$ /æk**si:z**/ noun, the plural.

The general consolidated design for classes of words and word-pairs participating in long and short vowel oppositions refer to the appendix 7, for generalized information on kind of word-classes and number of syllables in opposition see the appendix 8, and for summative percentage of functional meaning in oppositions see appendix 16 and for graphical representation in the chart see the appendix 19.

CONCLUSIONS

1. The overall research has proved that long and short *uː–ʊ, iː–i, ɔː–ɒ, ɑː–ʌ, ɜː–e (ə)* vowel oppositions is not an episodic but a regular language phenomenon which yields to systematic structural and functional analysis.

Consequently, the 1st hypothesis is fully confirmed.

2. Having analyzed morphonological structure of the constituent parts of words, namely, the stem (root morphemes, derivational morphemes) and the inflexion (inflectional morphemes) it has been determined that 98,3% of oppositions occur in root morphemes, 1,3% of oppositions occur in derivational morphemes, and 0,43% of oppositions occur in inflectional morphemes.

Consequently, the 2nd hypothesis raised in the introduction is only partially confirmed.

3. The structural analysis has shown that the boundaries of syllables and morphemes in stems and word-forms may coincide or may not.

3.a. The boundaries coincide in one-syllabic word-forms when the stem consists of the root and zero inflectional morphemes; in word-forms with derivational morphemes (prefixes); in the cases when one-syllabic root or stem adds derivational (suffix) morpheme with initial consonant phoneme.

3.b. The boundaries of syllables and morphemes in the stem and word-forms do not coincide in oppositions where root morpheme itself is two-syllabic, the syllabic split goes immediately after the first vowel which makes the first syllable open; in oppositions where the root or stem adds a derivational (suffix) or an inflectional morpheme with an initial vowel phoneme to the root or stem, the syllabic division line moves backwards and splits the root immediately after the first vowel. The former closed root syllable becomes open; in oppositions where the root morpheme adds the affix (derivational or inflectional) with consonant phoneme, the word-form becomes two-morphemic; however, the syllabic structure does not change and it remains one-syllabic.

Consequently, the 3rd hypothesis is fully confirmed because the addition of a bound morpheme influences the segmentation of words. In most cases (74%) the

morpheme and syllable division do not coincide, but there are instances (26%) when the demarcation lines coincide (98% of them coincide in pure roots).

4. Having completed the functional morphonological analysis it was discovered that the oppositions of the type VCV, VCVC, CVCV, VCVCV, CVCCVVC, CCVC, CCVCV reveal the lexical meaning and the word-form oppositions of the type CV, VC, VCC, CVC, CVCC, CVCVC, CVCCVC, CVCVCC, CVCVCVC, CVCCVVCC, CCVCC, CCVCCC, CCVCVC, CCVCCVC discriminate the lexical and grammatical meaning. The overall analysis revealed that English long and short vowel oppositions do not differentiate grammatical meaning alone.

On the base of these findings, it is possible to claim that hypothesis four has been confirmed.

5. The systematic structural analysis of the morphonological long and short vowel oppositions has determined the syllabic structure of word-forms (onset, nucleus, and coda), the initial and final series of consonants in them. One-syllabic opposition pairs *ɒ–ɔː, ʌ–aː, e–ɜː, ɪ–iː* exhibit the most composite structure. A member of opposition embraces trinomial consonant clusters, either in the onset or in coda. Two-syllabic opposition pairs exclude trinomial clusters and show the preferences to binomial onset and coda. These occurrences are not valid in *ʊ-uː* opposition. Three-syllabic and four-syllabic opposition pairs demonstrate the simplest, mostly monomial onsets and codas. Consequently, the 5th hypothesis raised at the beginning of the research is not confirmed because the analysis has proved opposite results.

6. Vowel oppositions and syllabification are of great importance in scientific research of languages. Phonological processes are simpler expressed if they refer to syllables. The results of the carried research will help the programmes of speech synthesizer in writing programme descriptions. The generalized formulas can be regarded as rudiments of algorithms of future programme description.

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APPENDICES

Structure of syllables, word-forms, and number of pairs participating in opposition APPENDIX 1

ʊ – uː										
Syllables	1	1	2	2	2	3	**1**	**2**	**3**	Total
	cvc	cvcc	cvcv	cvcvc	cvccvc	cvccvccvc				
Pairs	28	62	3	1	9	9	**90**	**13**	**9**	**112**
adjective / adjective	1						**1**	**0**	**0**	**1**
adjective / adverb	1						**1**	**0**	**0**	**1**
adjective / noun	2		1				**2**	**1**	**0**	**3**
adjective / verb	1						**1**	**0**	**0**	**1**
adverb / noun	1		1				**1**	**1**	**0**	**2**
adverb / verb	1						**1**	**0**	**0**	**1**
interjection / noun	2	3					**5**	**0**	**0**	**5**
interjection / verb		1					**1**	**0**	**0**	**1**
noun / noun	6	40	1		9	9	**46**	**10**	**9**	**65**
noun / verb	10	13					**23**	**0**	**0**	**23**
verb / verb	3	5		1			**8**	**1**	**0**	**9**

Variety of word classes, the number of words and pairs making ʊ – uː opposition

ʊ – uː					
	adjective	adverb	interjection	noun	verb
Words	7	4	6	163	44
Pairs	6	3	6	98	35

Structure of syllables, word-forms, and number of pairs participating in opposition

APPENDIX 2

ם – כ׳																									
Syllables	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	**1**	**2**	**3**	Total
	vc	cv	vcc	cvc	cvcc	ccvc	ccvcc	ccvccc	vcv	vcvc	cvcv	cvcvc	cvccv	ccvcv	cvcvcc	cvccvc	ccvcvc	cvccvvc	ccvccvc	cvccvvcc	vcvcv	cvcvcvc				
Pairs	10	4	3	191	391	31	80	6	3	4	14	91	2	2	23	4	14	1	18	9	1	1	**716**	**185**	**2**	**903**
adjective / adjective	1			3							1	1		1									**4**	**3**	**0**	**7**
adjective / adverb				1									1										**1**	**1**	**0**	**2**
adjective / noun		1		9		4	1		1	1	3	1		1			1				1		**15**	**8**	**1**	**24**
adjective / verb	2	1		14	5	3	1	2	1		1	6					3		1				**28**	**12**	**0**	**40**
adverb / adverb													1										**0**	**1**	**0**	**1**
adverb / noun		1		1						2	1												**2**	**3**	**0**	**5**
adverb / number				1																			**1**	**0**	**0**	**1**
adverb / pronoun				1																			**1**	**0**	**0**	**1**
adverb / verb		1		3						1													**4**	**1**	**0**	**5**
conjunction / noun				8																			**8**	**0**	**0**	**8**
conjunction / verb				3																			**3**	**0**	**0**	**3**
determiner / noun				1																			**1**	**0**	**0**	**1**
interjection / noun				1																			**1**	**0**	**0**	**1**
noun / noun	6		3	26	230	7	46				6	52			9	4	1	1	9	9			**318**	**91**	**0**	**409**
noun / number				1	3																		**4**	**0**	**0**	**4**
noun / predeterminer				1																			**1**	**0**	**0**	**1**
noun / pronoun				3																			**3**	**0**	**0**	**3**
noun / verb	1			80	106	13	26		1		2	14			9		3		6				**226**	**35**	**0**	**261**
number / verb				1	1																		**2**	**0**	**0**	**2**
pronoun / verb				1																			**1**	**0**	**0**	**1**
verb / verb				32	46	4	6	4				17			5		6		2			1	**92**	**30**	**1**	**123**

Variety of word classes, the number of words and pairs making ם – כ׳ opposition

ם – כ׳											
	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	80	16	11	1	1	1126	7	1	0	5	558
Pairs	71	15	11	1	1	717	7	1	0	5	435

Structure of syllables, word-forms, and number of pairs participating in opposition

APPENDIX 3

ʌ – ɑː																								
Syllables	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	**1**	**2**	**3**	Total
	vc	cvc	cvcc	ccvc	cvccc	ccvcc	ccvccc	vcv	cvcv	cvcvc	cvccv	ccvcv	cvccvc	cvcccv	ccvcvc	ccvccvc	ccvcccvc	cvcvvc	cvccvvc	ccvcvvc				
Pairs	2	176	324	31	42	62	18	1	38	159	7	5	41	1	28	7	12	3	1	1	**655**	**299**	**5**	**959**
adjective / adjective		2	1	1					1												**4**	**1**	**0**	**5**
adjective / adverb		2	1	1							1										**4**	**1**	**0**	**5**
adjective / interjection		3																			**3**	**0**	**0**	**3**
adjective / noun		11	2	2					5	3	1										**15**	**9**	**0**	**24**
adjective / verb		11	8	3		2				7	1		1		1						**24**	**10**	**0**	**34**
adverb / adverb														1							**0**	**1**	**0**	**1**
adverb / interjection		1																			**1**	**0**	**0**	**1**
adverb / noun		6	5																		**11**	**0**	**0**	**11**
adverb / verb		5	4	3												2					**12**	**2**	**0**	**14**
conjunction / noun		3																			**3**	**0**	**0**	**3**
determiner / noun		1	2																		**3**	**0**	**0**	**3**
determiner / verb			2																		**2**	**0**	**0**	**2**
interjection/interjection		1																			**1**	**0**	**0**	**1**
interjection / noun	1	3	3																		**7**	**0**	**0**	**7**
interjection / verb	1	3																			**4**	**0**	**0**	**4**
noun / noun		43	166	4	27	22	10	1	20	100	1	2	18		10		9				**272**	**161**	**0**	**433**
noun /predeterminer		1																			**1**	**0**	**0**	**1**
noun / pronoun		4	2																		**6**	**0**	**0**	**6**
noun / verb		55	81	11	9	17	7		10	22	2	2	11		8		3	1			**180**	**58**	**1**	**239**
predeterminer/ verb		1																			**1**	**0**	**0**	**1**
pronoun / verb		1	2																		**3**	**0**	**0**	**3**
verb / verb		19	45	6	6	21	1		2	27	1	1	11		9	5		2	1	1	**98**	**56**	**4**	**158**

Variety of word classes, the number of words and pairs making ʌ – ɑː opposition

ʌ – ɑː										
	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	pronoun	verb
Words	76	33	3	5	17	1160	0	2	9	613
Pairs	71	31	3	5	16	727	0	2	9	455

Structure of syllables, word-forms, and number of pairs participating in opposition

APPENDIX 4

e – ɜː																															
Syllables	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	**1**	**2**	**3**	Total
	vc	cv	vcc	cvc	vccc	cvcc	ccvc	cvccc	ccvcc	vccv	cvcv	cvcvv	vccvc	cvcvc	ccvcv	vccvcc	cvcvvc	cvcvcc	cvccvc	ccvcvc	cvcvvc	vvcvcvc	vccvcvc	cvccvcv	ccvcvcv	ccvcvcvc				
Pairs	11	14	11	121	4	310	21	39	33	1	31	5	26	115	5	18	17	21	35	2	2	6	1	2	1	1	564	276	13	**853**
adjective / adjective				1		4								1	1									1			**5**	**2**	**1**	**8**
adjective / adverb						4									1												**4**	**1**	**0**	**5**
adjective / interjection															1												**0**	**1**	**0**	**1**
adjective / noun				3		12	1				8	1		1	1									1			**16**	**11**	**1**	**28**
adjective / verb				6		17	3				6	1		8	1							2					**26**	**16**	**2**	**44**
adverb / adverb						1																			1		**1**	**0**	**1**	**2**
adverb / noun						5					2			1				3									**5**	**6**	**0**	**11**
adverb / verb	1					5					2											2					**6**	**2**	**2**	**10**
article / noun	1																										**1**	**0**	**0**	**1**
article / verb	1																										**1**	**0**	**0**	**1**
conjunction / noun		2		3																							**5**	**0**	**0**	**5**
conjunction / verb	1	1	2																								**4**	**0**	**0**	**4**
determiner / noun	1																										**1**	**0**	**0**	**1**
determiner / verb	1																										**1**	**0**	**0**	**1**
interjection / noun	1																										**1**	**0**	**0**	**1**
interjection / verb	1			1																							**2**	**0**	**0**	**2**
noun / noun			1	21		125	2	27	18		6	1	10	48		9	9	9	18							1	**194**	**110**	**1**	**305**
noun / number				2		6																					**8**	**0**	**0**	**8**
noun /predeterminer		3																									**3**	**0**	**0**	**3**
noun / pronoun	1					1																					**2**	**0**	**0**	**2**
noun / verb		2	5	36		68	4	3	4		5	2	11	20		6	6	7	12	1		2					**122**	**70**	**2**	**194**
number / verb				1		1																					**2**	**0**	**0**	**2**
predeterminer/ verb	1	2								1																	**3**	**1**	**0**	**4**
pronoun / verb	1			2		2																					**5**	**0**	**0**	**5**
verb / verb		4	3	45	4	59	11	9	11		2		5	36		3	2	2	5	1	2		1				**146**	**56**	**3**	**205**

Variety of word classes, the number of words and pairs making e – ɜː opposition

e – ɜː												
	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb	article
Words	94	30	9	2	4	864	10	0	7	7	677	2
Pairs	86	28	9	2	4	559	10	0	7	7	472	2

Structure of syllables, word-forms, and number of pairs participating in opposition

APPENDIX 5

ɪ – iː																															
Syllables	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	vc	cv	vcc	cvc	cvcc	ccvc	cvccc	ccvcc	ccvcc	cvcv	vcvcc	vccvc	cvccvv	cvcvc	ccvcv	vcvccc	vccvcc	cvvcvc	cvcvvc	cvcvcc	cvccvc	cvccvc	cvccvc	cvccvv	cvcvccc	cvccvvc	cvccvcc	ccvcvcc	ccvccvc	ccvccvc	vccvvcc	cvccvccc
Pairs	7	1	18	295	723	98	16	256	2	42	1	6	1	248	13	9	11	15	6	29	50	66	6	3	1	4	3	45	1	5	3
adjective / adjective				2	1	1				3				3	4																
adjective / adverb				2											2								1								
adjective / noun	1			19	3	5				13				6	1								3						1		
adjective/predeterminer						1																									
adjective / pronoun				1																											
adjective / verb				14	17	7		2	2	2				7							1	2									
adverb / adverb																							1								
adverb / noun	1		1	4	1	3				1																					
adverb / verb			1	4	1	3													1			1									
conjunction / noun				1																											
determiner / noun			3		1																										
determiner / verb			2		1																										
interjection / noun				2																											
interjection / verb				1																											
noun / noun	2		9	67	355	23	9	147		16	1	4		136	4	9	9	12		24	34	29	1					40			
noun / number					3																										
noun / predeterminer				2		1																									
noun / pronoun		1	1	2	1																										
noun / verb	1			119	225	37	3	72		6		2	1	57	2		2	3	5	5	13	18		3		4	3	5			3
number / verb					1																										
predeterminer / verb						1																									
pronoun / verb	1		1	2	1																										
verb / verb	1			53	112	16	4	35		1				39							2	16			1				5		

Syllables	3	3	3	3	3	3	3	4	4	**1**	**2**	**3**	**4**	Total
	cvcvvc	cvcvcvc	cvcvvcvc	cvccvcvc	cvvcvccvc	cvccvvcvc	ccvccvcvc	cvcvcvccvc	cvcvcvccvc					
Pairs	1	9	1	2	9	1	12	2	9	**1416**	**568**	**35**	**11**	**2030**
adjective / adjective										**4**	**10**	**0**	**0**	**14**
adjective / adverb										**2**	**3**	**0**	**0**	**5**
adjective / noun								1		**28**	**24**	**0**	**1**	**53**
adjective/predeterminer										**1**	**0**	**0**	**0**	**1**
adjective / pronoun										**1**	**0**	**0**	**0**	**1**
adjective / verb										**42**	**12**	**0**	**0**	**54**
adverb / adverb										**0**	**1**	**0**	**0**	**1**
adverb / noun										**10**	**1**	**0**	**0**	**11**
adverb / verb										**9**	**2**	**0**	**0**	**11**
conjunction / noun										**1**	**0**	**0**	**0**	**1**
determiner / noun										**4**	**0**	**0**	**0**	**4**
determiner / verb										**3**	**0**	**0**	**0**	**3**
interjection / noun										**2**	**0**	**0**	**0**	**2**
interjection / verb										**1**	**0**	**0**	**0**	**1**
noun / noun		6			6		9	1	9	**612**	**319**	**21**	**10**	**962**
noun / number										**3**	**0**	**0**	**0**	**3**
noun / predeterminer										**3**	**0**	**0**	**0**	**3**
noun / pronoun										**5**	**0**	**0**	**0**	**5**
noun / verb		3	1	2	3		3			**457**	**132**	**12**	**0**	**601**
number / verb										**1**	**0**	**0**	**0**	**1**
predeterminer / verb										**1**	**0**	**0**	**0**	**1**
pronoun / verb										**5**	**0**	**0**	**0**	**5**
verb / verb	1					1				**221**	**64**	**2**	**0**	**287**

ɪ – iː	**Variety of word classes, the number of words and pairs making ʌ – aː opposition**										
	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	142	29	1	7	3	2608	4	0	5	11	1250
Pairs	128	28	1	7	3	1646	4	0	5	11	963

General consolidated design of all opposition pairs

APPENDIX 6

959	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	**1**	**2**	**3**	**Total**
ʌ – ɑː	vc	cvc	cvcc	ccvc	cvccc	ccvcc	ccvccc	vcv	cvcv	cvccv	cvccv	ccvcv	cvccvc	cvcccv	ccvcvc	ccvccvc	ccvcccvc	cvcvvc	cvccvvc	ccvcvvc				
Pairs	2	176	324	31	42	62	18	1	38	159	7	5	41	1	28	7	12	3	1	1	**655**	**299**	**5**	**959**

853	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	**1**	**2**	**3**	**Total**
e – ɜː	vc	cv	vcc	cvc	vccc	cvcc	ccvc	cvccc	ccvcc	vccv	cvcv	cvcvv	vccvc	cvcvc	ccvcv	vccvcc	cvccvc	cvccvc	cvccvc	ccvcvc	cvccvvc	vvcvcvc	vccvcvc	cvccvcv	ccvcvcv	ccvcvcvc				
Pairs	11	14	11	121	4	310	21	39	33	1	31	5	26	115	5	18	17	21	35	2	2	6	1	2	1	1	**564**	**276**	**13**	**853**

112	1	1	2	2	2	3	**1**	**2**	**3**	Total
ʊ – uː	cvc	cvcc	cvcv	cvcvc	cvccvc	cvccvccvc				
Pairs	28	62	3	1	9	9	**90**	**13**	**9**	**112**

903	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	**1**	**2**	**3**	Total
ɒ – ɔː	vc	cv	vcc	cvc	cvcc	ccvc	ccvcc	ccvccc	vcv	vcvc	cvcv	cvcvc	cvccv	ccvcv	cvcvcc	cvccvc	ccvcvc	cvccvvc	ccvccvc	cvccvvcc	vcvcv	cvcvcvc				
Pairs	10	4	3	191	391	31	80	6	3	4	14	91	2	2	23	4	14	1	18	9	1	1	**716**	**185**	**2**	**903**

2063	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ɪ – iː	vc	cv	vcc	cvc	cvcc	ccvc	cvccc	ccvcc	cccvcc	cvcv	vcvcc	vccvc	cvccvv	cvcvc	ccvcv	vcvccc	vccvcc	cvvcvc	cvccvvc	cvcvcc	cvccvc	ccvcvc	ccvccv	cvcvccc	cvccvvc	cvccvcc	ccvcvcc	ccvccvc	cccvccv	cvccvvcc	cvccvccc
Pairs	7	1	18	295	723	98	16	256	2	42	1	6	1	248	13	9	11	15	6	29	50	66	6	3	1	4	3	45	1	5	3

3	3	3	3	3	3	3	4	4	**1**	**2**	**3**	**4**	**Total**
cvcvvc	cvcvcvc	cvcvvcvc	cvccvcvc	cvvcvccvc	cvcvvccvc	cvccvvcvc	cvcvcvccvc	cvcvcvccvcc					
1	9	1	2	9	1	12	2	9	**1416**	**568**	**35**	**11**	**2030**

959	1	2	3	4	Total
ʌ – ɑː					
Pairs	**655**	**299**	**5**		**959**

853	**1**	**2**	**3**	**4**	Total
e – ɜː					
Pairs	**564**	**276**	**13**		**853**

112	**1**	**2**	**3**	**4**	Total
ʊ – uː					
Pairs	**90**	**13**	**9**		**112**

903	**1**	**2**	**3**	**4**	Total
ɒ – ɔː					
Pairs	**716**	**185**	**2**		**903**

2030	**1**	**2**	**3**	**4**	Total
ɪ – iː					
Pairs	**1416**	**568**	**35**	**11**	**2030**

4857	**1**	**2**	**3**	**4**	**Total**
Total					
Pairs	**3441**	**1341**	**64**	**11**	**4857**

General consolidated design of word calsses and word pairs of all opposition pairs

APPENDIX 7

ʊ – uː	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	7	4	0	0	6	163	0	0	0	0	44
Pairs	6	3	0	0	6	98	0	0	0	0	35

ɒ – ɔː	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	80	16	11	1	1	1126	7	1	0	5	558
Pairs	71	15	11	1	1	717	7	1	0	5	435

ʌ – ɑː	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	76	33	3	5	17	1160	0	2	0	9	613
Pairs	71	31	3	5	16	727	0	2	0	9	455

e – ɜː	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb	article
Words	94	30	9	2	4	864	10	0	7	7	677	2
Pairs	86	28	9	2	4	559	10	0	7	7	472	2

ɪ – iː	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	142	29	1	7	3	2608	4	0	5	11	1250
Pairs	131	29	1	7	3	1646	4	0	5	11	963

Words	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb	article
ʊ – uː	7	4	0	0	6	163	0	0	0	0	44	
ɒ – ɔː	80	16	11	1	1	1126	7	1	0	5	558	
ʌ – ɑː	76	33	3	5	17	1160	0	2	0	9	613	
e – ɜː	94	30	9	2	4	864	10	0	7	7	677	2
ɪ – iː	142	29	1	7	3	2608	4	0	5	11	1250	
Total	**399**	**112**	**24**	**15**	**31**	**5921**	**21**	**3**	**12**	**32**	**3142**	**2**

Pairs	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb	article
ʊ – uː	6	3	0	0	6	98	0	0	0	0	35	
ɒ – ɔː	71	15	11	1	1	717	7	1	0	5	435	
ʌ – ɑː	71	31	3	5	16	727	0	2	0	9	455	
e – ɜː	88	30	9	2	4	559	10	0	7	7	472	2
ɪ – iː	131	29	1	7	3	1668	4	0	5	11	975	
Total	**367**	**108**	**24**	**15**	**30**	**3769**	**21**	**3**	**12**	**32**	**2372**	**2**

General information on kind of word classes and number of syllables in oppositions

APPENDIX 8

	ʌ – ɑː				e – ɜː				ɪ – iː					ɒ – ɔː				ʊ – uː								
Syllables	1	2	3	Total	1	2	3	Total	1	2	3	4	Total	1	2	3	Total	1	2	3	Total	**1**	**2**	**3**	**4**	**Total**
Pairs	**655**	**299**	**5**	**959**	**564**	**276**	**13**	**853**	**1416**	**568**	**35**	**11**	**2030**	**716**	**185**	**2**	**903**	**90**	**13**	**9**	**112**	**3441**	**1341**	**64**	**11**	**4857**
noun / noun	272	161	0	**433**	194	110	1	**305**	612	319	21	10	**962**	318	91	0	**409**	46	10	9	**65**	**1442**	**691**	**31**	**10**	**2174**
noun / verb	180	58	1	**239**	122	70	2	**194**	457	132	12	0	**601**	226	35	0	**261**	23	0	0	**23**	**1008**	**295**	**15**	**0**	**1318**
verb / verb	98	56	4	**158**	146	56	3	**205**	221	64	2	0	**287**	92	30	1	**123**	8	1	0	**9**	**565**	**207**	**10**	**0**	**782**
adjective / verb	24	10	0	**34**	26	16	2	**44**	42	12	0	0	**54**	28	12	0	**40**	1	0	0	**1**	**121**	**50**	**2**	**0**	**173**
adjective / noun	15	9	0	**24**	16	11	1	**28**	28	24	0	1	**53**	15	8	1	**24**	2	1	0	**3**	**76**	**53**	**2**	**1**	**132**
adverb / verb	12	2	0	**14**	6	2	2	**10**	9	2	0	0	**11**	4	1	0	**5**	1	0	0	**1**	**32**	**7**	**2**	**0**	**41**
adverb / noun	11	0	0	**11**	5	6	0	**11**	10	1	0	0	**11**	2	3	0	**5**	1	1	0	**2**	**29**	**11**	**0**	**0**	**40**
adjective / adjective	4	1	0	**5**	5	2	1	**8**	4	10	0	0	**14**	4	3	0	**7**	1	0	0	**1**	**18**	**16**	**1**	**0**	**35**
adjective / adverb	4	1	0	**5**	4	1	0	**5**	2	3	0	0	**5**	1	1	0	**2**	1	0	0	**1**	**12**	**6**	**0**	**0**	**18**
conjunction / noun	3	0	0	**3**	5	0	0	**5**	1	0	0	0	**1**	8	0	0	**8**	0	0	0	**0**	**17**	**0**	**0**	**0**	**17**
noun / pronoun	6	0	0	**6**	2	0	0	**2**	5	0	0	0	**5**	3	0	0	**3**	0	0	0	**0**	**16**	**0**	**0**	**0**	**16**
interjection / noun	7	0	0	**7**	1	0	0	**1**	2	0	0	0	**2**	1	0	0	**1**	5	0	0	**5**	**16**	**0**	**0**	**0**	**16**
noun / number	0	0	0	**0**	8	0	0	**8**	3	0	0	0	**3**	4	0	0	**4**	0	0	0	**0**	**15**	**0**	**0**	**0**	**15**
pronoun / verb	3	0	0	**3**	5	0	0	**5**	5	0	0	0	**5**	1	0	0	**1**	0	0	0	**0**	**14**	**0**	**0**	**0**	**14**
determiner / noun	3	0	0	**3**	1	0	0	**1**	4	0	0	0	**4**	1	0	0	**1**	0	0	0	**0**	**9**	**0**	**0**	**0**	**9**
interjection / verb	4	0	0	**4**	2	0	0	**2**	1	0	0	0	**1**	0	0	0	**0**	1	0	0	**1**	**8**	**0**	**0**	**0**	**8**
noun /predeterminer	1	0	0	**1**	3	0	0	**3**	3	0	0	0	**3**	1	0	0	**1**	0	0	0	**0**	**8**	**0**	**0**	**0**	**8**
conjunction / verb	0	0	0	**0**	4	0	0	**4**	0	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**	**7**	**0**	**0**	**0**	**7**
determiner / verb	2	0	0	**2**	1	0	0	**1**	3	0	0	0	**3**	0	0	0	**0**	0	0	0	**0**	**6**	**0**	**0**	**0**	**6**
predeterminer/ verb	1	0	0	**1**	3	1	0	**4**	1	0	0	0	**1**	0	0	0	**0**	0	0	0	**0**	**5**	**1**	**0**	**0**	**6**
adverb / adverb	0	1	0	**1**	1	0	1	**2**	0	1	0	0	**1**	0	1	0	**1**	0	0	0	**0**	**1**	**3**	**1**	**0**	**5**
number / verb	0	0	0	**0**	2	0	0	**2**	1	0	0	0	**1**	2	0	0	**2**	0	0	0	**0**	**5**	**0**	**0**	**0**	**5**
adjective / interjection	3	0	0	**3**	0	1	0	**1**	0	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	**3**	**1**	**0**	**0**	**4**
adjective/predeterminer	0	0	0	**0**	0	0	0	**0**	1	0	0	0	**1**	0	0	0	**0**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**
adjective / pronoun	0	0	0	**0**	0	0	0	**0**	1	0	0	0	**1**	0	0	0	**0**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**
adverb / interjection	1	0	0	**1**	0	0	0	**0**	0	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**
adverb / number	0	0	0	**0**	0	0	0	**0**	0	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**
adverb / pronoun	0	0	0	**0**	0	0	0	**0**	0	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**
interjection / interjection	1	0	0	**1**	0	0	0	**0**	0	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**
article / noun	0	0	0	**0**	1	0	0	**1**	0	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**
article / verb	0	0	0	**0**	1	0	0	**1**	0	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	**1**	**0**	**0**	**0**	**1**

Summative percentage of congruent and incongruent morpheme and syllable boundaries APPENDIX 9

	ʊ – uː		ɒ – ɔː		ʌ – ɑː		e – ɜː		ɪ – iː		Total	
Total	**112**		**903**		**959**		**853**		**2030**		**4857**	
Coincide	28	25,0%	240	26,6%	247	25,8%	270	31,7%	455	22,4%	**1240**	**25,5%**
coincide in pure roots	*28*	*100%*	*238*	*99%*	*245*	*99%*	*260*	*96%*	*444*	*98%*	*1215*	*98%*
Do not coincide	84	75,0%	663	73,4%	712	74,2%	583	68,3%	1575	77,6%	**3617**	**74,5%**

The table presents a list of meanings of the derivational morphemes which are used in the systematic functional analysis.

Derivational morpheme	Meaning of the derivational morpheme
-ee	**'someone who is being treated in a particular way' builds nouns**
-er	**'having as dominant characteristic', 'something that does something' builds nouns**
-er	**'action' builds verbs**
-ie	**'another form of the suffix -y', diminutive, builds nouns**
-ly	**'in aparticular way','considered in a particular way' builds adverbs**
-ly	**'like a particular thing in manner, nature, or appearance' builds adjectives**
-ing	**'something used to do something or used for making something' builds nouns**
-ing	**'the action or process of doing something' builds nouns**
-ing	**'having the property of' builds adjectives**
-ing	**'an example of doing something' builds nouns from verbs**
-ed	**'having a particular thing' builds adjectives from nouns**
-ed	**'quality or state resulting from action' builds adjectives from verbs**
-y	**'interested in something', 'full of or covered with something' builds adjectives**
-y	**'used to make a word less formal, to show care' diminutive builds nouns**
-y	**'fond of or interested in something' builds adverbs**
-al	**'having nature or character of'**
-al	**'the action, result of' builds nouns**
-ar	**'resembling, related to something' builds adjectives**
-ist	**'skilled in' builds nouns**
-ist	**'someone who believes in a particular religion or set of principles or ideas' builds nouns**
-ist	**'relating to or showing a particular political or religious belief' builds adjectives**
-ness	**'quality' builds nouns from adjectives**
fore-	**'front part of, before'**
de-	**'the reverse of', 'something reduced, removed', 'an opposite'**
re-	**'again, back', 'back to a former state'**
in-	**'the opposite or lack of something'**
-ward	**'towards a particular direction or place' builds adjectives**

Table : A variation of the derivational morphemes and their meaning. (2003 LDOCE, <http:// ueno.cool.ne.jp/let/prefix.html>, < http://www.cycfoundation.org/concepts/EnglishSuffix>)

Functional Realization of Oppositions with Lexical and Lexical-Grammatical Meaning

APPENDIX 11

ʊ – uː	Lexical -Gramatical									
Syllables	1	1	2	2	2	3	**1**	**2**	**3**	Total
	cvc	cvcc	cvcv	cvcvc	cvccvc	cvccvccvc				
Pairs	20	45	2	0	6	6	**65**	**8**	**6**	**79**
adjective / adverb	1						**1**	**0**	**0**	**1**
adjective / noun	2		1				**2**	**1**	**0**	**3**
adjective / verb	1						**1**	**0**	**0**	**1**
adverb / noun	1		1				**1**	**1**	**0**	**2**
adverb / verb	1						**1**	**0**	**0**	**1**
interjection / noun	2	3					**5**	**0**	**0**	**5**
interjection / verb		1					**1**	**0**	**0**	**1**
noun / noun		26			6	6	**26**	**6**	**6**	**38**
noun / verb	10	13					**23**	**0**	**0**	**23**
verb / verb	2	2					**4**	**0**	**0**	**4**

	adjective	adverb	interjection	noun	verb
Words	5	4	6	109	34
Pairs	5	3	6	71	30

ʊ – uː	Lexical meaning									
Syllables	1	1	2	2	2	3	**1**	**2**	**3**	Total
	cvc	cvcc	cvcv	cvcvc	cvccvc	cvccvccvc				
Pairs	8	17	1	1	3	3	**25**	**5**	**3**	**33**
adjective / adjective	1						**1**	**0**	**0**	**1**
noun / noun	6	14	1		3	3	**20**	**4**	**3**	**27**
verb / verb	1	3		1			**4**	**1**	**0**	**5**

	adjective	adverb	interjection	noun	verb
Words	2	0	0	54	10
Pairs	1	0	0	27	5

Functional Realization of Oppositions with Lexical and Lexical-Grammatical Meaning

APPENDIX 12

ס – כ	Lexical -Gramatical																									
Syllables	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	**1**	**2**	**3**	Total
	vc	cv	vcc	cvc	cvcc	ccvc	ccvcc	ccvccc	vcv	vcvc	cvcv	cvcvc	cvccv	ccvcv	cvcvcc	cvccvc	ccvcvc	cvccvvc	ccvccvc	cvccvvcc	vcvcv	cvcvcvc				
Pairs	9	4	3	151	299	22	60	4	3	4	7	61	1	1	17	2	9	0	13	6	1	0	**552**	**124**	**1**	**677**
adjective / adverb				1									1										**1**	**1**	**0**	**2**
adjective / noun		1		9		4	1		1	1	3	1		1			1				1		**15**	**8**	**1**	**24**
adjective / verb	2	1		14	5	3	1	2	1		1	6					3		1				**28**	**12**	**0**	**40**
adverb / noun		1		1						2	1												**2**	**3**	**0**	**5**
adverb / number				1																			**1**	**0**	**0**	**1**
adverb / pronoun				1																			**1**	**0**	**0**	**1**
adverb / verb		1		3						1													**4**	**1**	**0**	**5**
conjunction / noun				8																			**8**	**0**	**0**	**8**
conjunction / verb				3																			**3**	**0**	**0**	**3**
determiner / noun				1																			**1**	**0**	**0**	**1**
interjection / noun				1																			**1**	**0**	**0**	**1**
noun / noun	6		3	0	160	0	30				0	36			6	2	0	0	6	6			**199**	**56**	**0**	**255**
noun / number				1	3																		**4**	**0**	**0**	**4**
noun / predeterminer				1																			**1**	**0**	**0**	**1**
noun / pronoun				3																			**3**	**0**	**0**	**3**
noun / verb	1			80	106	13	26		1		2	14			9		3		6				**226**	**35**	**0**	**261**
number / verb				1	1																		**2**	**0**	**0**	**2**
pronoun / verb				1																			**1**	**0**	**0**	**1**
verb / verb				21	24	2	2	2				4			2		2						**51**	**8**	**0**	**59**

	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	66	14	11	1	1	818	7	1	0	5	430
Pairs	64	14	11	1	1	563	7	1	0	5	371

ס – כ	Lexical meaning																									
Syllables	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	**1**	**2**	**3**	Total
	vc	cv	vcc	cvc	cvcc	ccvc	ccvcc	ccvccc	vcv	vcvc	cvcv	cvcvc	cvccv	ccvcv	cvcvcc	cvccvc	ccvcvc	cvccvvc	ccvccvc	cvccvvcc	vcvcv	cvcvcvc				
Pairs	1	0	0	40	92	9	20	2	0	0	7	30	1	1	6	2	5	1	5	3	0	1	**164**	**61**	**1**	**226**
adjective / adjective	1			3							1	1		1									**4**	**3**	**0**	**7**
adverb / adverb													1										**0**	**1**	**0**	**1**
noun / noun				26	70	7	16				6	16			3	2	1	1	3	3			**119**	**35**	**0**	**154**
verb / verb				11	22	2	4	2				13			3		4		2			1	**41**	**22**	**1**	**64**

	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	14	2	0	0	0	308	0	0	0	0	128
Pairs	7	1	0	0	0	154	0	0	0	0	64

Functional Realization of Oppositions with Lexical and Lexical-Grammatical Meaning

APPENDIX 13

ʌ – ɑː	Lexical -Gramatical																							
Syllables	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	**1**	**2**	**3**	Total
	vc	cvc	cvcc	ccvc	cvccc	ccvcc	ccvccc	vcv	cvcv	cvcvc	cvccv	ccvcv	cvccvc	cvcccv	ccvcvc	ccvccvc	ccvcccvc	cvcvvc	cvccvvc	ccvcvvc				
Pairs	2	127	239	22	29	41	13	0	17	106	5	2	29	1	17	4	9	1	0	0	**473**	**190**	**1**	**664**
adjective / adverb		2	1	1							1										**4**	**1**	**0**	**5**
adjective / interjection		3																			**3**	**0**	**0**	**3**
adjective / noun		11	2	2					5	3	1										**15**	**9**	**0**	**24**
adjective / verb		11	8	3		2				7	1		1		1						**24**	**10**	**0**	**34**
adverb / adverb														1							**0**	**1**	**0**	**1**
adverb / interjection		1																			**1**	**0**	**0**	**1**
adverb / noun		6	5																		**11**	**0**	**0**	**11**
adverb / verb		5	4	3												2					**12**	**2**	**0**	**14**
conjunction / noun		3																			**3**	**0**	**0**	**3**
determiner / noun		1	2																		**3**	**0**	**0**	**3**
determiner / verb			2																		**2**	**0**	**0**	**2**
interjection / noun	1	3	3																		**7**	**0**	**0**	**7**
interjection / verb	1	3																			**4**	**0**	**0**	**4**
noun / noun		6	107		18	14	6		2	66			13		6		6				**151**	**93**	**0**	**244**
noun /predeterminer		1																			**1**	**0**	**0**	**1**
noun / pronoun		4	2																		**6**	**0**	**0**	**6**
noun / verb		55	81	11	9	17	7		10	22	2	2	11		8		3	1			**180**	**58**	**1**	**239**
predeterminer/ verb		1																			**1**	**0**	**0**	**1**
pronoun / verb		1	2																		**3**	**0**	**0**	**3**
verb / verb		10	20	2	2	8				8			4		2	2					**42**	**16**	**0**	**58**

	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	pronoun	verb
Words	66	33	3	5	15	782	0	2	9	413
Pairs	66	31	3	5	15	538	0	2	9	355

ʌ – ɑː	Lexical meaning																							
Syllables	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	**1**	**2**	**3**	Total
	vc	cvc	cvcc	ccvc	cvccc	ccvcc	ccvccc	vcv	cvcv	cvcvc	cvccv	ccvcv	cvccvc	cvcccv	ccvcvc	ccvccvc	ccvcccvc	cvcvvc	cvccvvc	ccvcvvc				
Pairs	0	49	85	9	13	21	5	1	21	53	2	3	12	0	11	3	3	2	1	1	**182**	**109**	**4**	**295**
adjective / adjective		2	1	1					1												**4**	**1**	**0**	**5**
interjection/interjection		1																			**1**	**0**	**0**	**1**
noun / noun		37	59	4	9	8	4	1	18	34	1	2	5		4		3				**121**	**68**	**0**	**189**
verb / verb		9	25	4	4	13	1		2	19	1	1	7		7	3		2	1	1	**56**	**40**	**4**	**100**

	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	pronoun	verb
Words	10	0	0	0	2	378	0	0	0	200
Pairs	5	0	0	0	1	189	0	0	0	100

Functional Realization of Oppositions with Lexical and Lexical-Grammatical Meaning

APPENDIX 14

e – 3:	Lexical -Gramatical																												
Syllables	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	**1**	**2**	**3**	Total
	vc	cv	vcc	cvc	vccc	cvcc	ccvc	cvccc	ccvcc	vccv	cvcv	cvcvv	vccvc	cvcvc	ccvcv	vccvcc	cvcvvc	cvcvcc	cvccvc	ccvcvc	cvcvvc	vvcvcvc	vccvcvc	cvccvcv	ccvcvcv	ccvcvcvc				
Pairs	11	14	9	91	2	232	15	25	25	1	24	4	20	77	4	14	12	17	24	2	2	6	0	1	1	0	424	199	10	**633**
adjective / adverb						4									1												**4**	**1**	**0**	**5**
adjective / interjection															1												**0**	**1**	**0**	**1**
adjective / noun				3		12	1				8	1		1	1									1			**16**	**11**	**1**	**28**
adjective / verb				6		17	3				6	1		8	1							2					**26**	**16**	**2**	**44**
adverb / adverb						1																			1		**1**	**0**	**1**	**2**
adverb / noun						5					2			1				3									**5**	**6**	**0**	**11**
adverb / verb	1					5					2											2					**6**	**2**	**2**	**10**
article / noun	1																										**1**	**0**	**0**	**1**
article / verb	1																										**1**	**0**	**0**	**1**
conjunction / noun		2		3																							**5**	**0**	**0**	**5**
conjunction / verb	1	1	2																								**4**	**0**	**0**	**4**
determiner / noun	1																										**1**	**0**	**0**	**1**
determiner / verb	1																										**1**	**0**	**0**	**1**
interjection / noun	1																										**1**	**0**	**0**	**1**
interjection / verb	1			1																							**2**	**0**	**0**	**2**
noun / noun				4		76		18	12				6	30		6	6	5	12								**110**	**65**	**0**	**175**
noun / number				2		6																					**8**	**0**	**0**	**8**
noun /predeterminer		3																									**3**	**0**	**0**	**3**
noun / pronoun	1					1																					**2**	**0**	**0**	**2**
noun / verb		2	5	36		68	4	3	4		5	2	11	20		6	6	7	12	1		2					**122**	**70**	**2**	**194**
number / verb				1		1																					**2**	**0**	**0**	**2**
predeterminer/ verb	1	2								1																	**3**	**1**	**0**	**4**
pronoun / verb	1			2		2																					**5**	**0**	**0**	**5**
verb / verb		4	2	33	2	34	7	4	9		1		3	17		2		2		1	2						**95**	**26**	**2**	**123**

	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb	article
Words	78	30	9	2	4	604	10	0	7	7	513	2
Pairs	78	28	9	2	4	429	10	0	7	7	390	2

e – 3:	Lexical meaning																												
Syllables	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	**1**	**2**	**3**	Total
	vc	cv	vcc	cvc	vccc	cvcc	ccvc	cvccc	ccvcc	vccv	cvcv	cvcvv	vccvc	cvcvc	ccvcv	vccvcc	cvcvvc	cvcvcc	cvccvc	ccvcvc	cvcvvc	vvcvcvc	vccvcvc	cvccvcv	ccvcvcv	ccvcvcvc				
Pairs	0	0	2	30	2	78	6	14	8	0	7	1	6	38	1	4	5	4	11	0	0	0	1	1	0	1	140	77	3	**220**
adjective / adjective				1		4								1	1									1			**5**	**2**	**1**	**8**
noun / noun			1	17		49	2	9	6		6	1	4	18		3	3	4	6							1	**84**	**45**	**1**	**130**
verb / verb			1	12	2	25	4	5	2		1		2	19		1	2		5				1				**51**	**30**	**1**	**82**

	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb	article
Words	16	0	0	0	0	260	0	0	0	0	164	0
Pairs	8	0	0	0	0	130	0	0	0	0	82	0

Functional Realization of Oppositions with Lexical and Lexical-Grammatical Meaning APPENDIX 15

ɪ – iː	Lexical -Gramatical																													
Syllables	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	vc	cv	vcc	cvc	cvcc	ccvc	cvccc	ccvcc	cccvcc	cvcv	vcvcc	vccvc	cvcvv	cvcvc	ccvcv	vcvccc	vccvcc	cvvcvc	cvcvvc	cvcvcc	cvccvc	ccvcvc	ccvccv	cvcvccc	cvccvvc	cvccvcc	ccvcvcc	ccvccvc	cccvccv	cvccvvc	cvccvccc
Pairs	5	1	15	204	533	61	11	185	2	22	0	4	1	161	5	6	8	11	6	21	34	41	4	3	0	4	3	31	1	2	3
adjective / adverb				2											2								1								
adjective / noun	1			19	3	5				13				6	1								3						1		
adjective/predeterminer						1																									
adjective / pronoun				1																											
adjective / verb				14	17	7		2	2	2				7							1	2									
adverb / noun	1		1	4	1	3				1																					
adverb / verb			1	4	1	3													1			1									
conjunction / noun				1																											
determiner / noun			3		1																										
determiner / verb			2		1																										
interjection / noun				2																											
interjection / verb				1																											
noun / noun			6	8	237		6	98				2		88		6	6	8		16	20	18						26			
noun / number					3																										
noun / predeterminer				2		1																									
noun / pronoun		1	1	2	1																										
noun / verb	1			119	225	37	3	72		6		2	1	57	2		2	3	5	5	13	18		3		4	3	5			3
number / verb					1																										
predeterminer / verb						1																									
pronoun / verb	1		1	2	1																										
verb / verb	1			23	41	3	2	13						3								2								2	

Syllables	3	3	3	3	3	3	3	4	4	**1**	**2**	**3**	**4**	Total
	cvcvvc	cvcvcvc	cvcvvcvc	cvccvcvc	cvvcvccvc	cvccvvcvc	ccvcccvvcv	cvcvcvccv	cvcvcvccvcc					
Pairs	0	7	1	2	6	0	9	1	6	**1017**	**371**	**25**	**7**	**1420**
adjective / adverb										**2**	**3**	**0**	**0**	**5**
adjective / noun								1		**28**	**24**	**0**	**1**	**53**
adjective/predeterminer										**1**	**0**	**0**	**0**	**1**
adjective / pronoun										**1**	**0**	**0**	**0**	**1**
adjective / verb										**42**	**12**	**0**	**0**	**54**
adverb / noun										**10**	**1**	**0**	**0**	**11**
adverb / verb										**9**	**2**	**0**	**0**	**11**
conjunction / noun										**1**	**0**	**0**	**0**	**1**
determiner / noun										**4**	**0**	**0**	**0**	**4**
determiner / verb										**3**	**0**	**0**	**0**	**3**
interjection / noun										**2**	**0**	**0**	**0**	**2**
interjection / verb										**1**	**0**	**0**	**0**	**1**
noun / noun		4			3		6		6	**355**	**190**	**13**	**6**	**564**
noun / number										**3**	**0**	**0**	**0**	**3**
noun / predeterminer										**3**	**0**	**0**	**0**	**3**
noun / pronoun										**5**	**0**	**0**	**0**	**5**
noun / verb		3	1	2	3		3			**457**	**132**	**12**	**0**	**601**
number / verb										**1**	**0**	**0**	**0**	**1**
predeterminer / verb										**1**	**0**	**0**	**0**	**1**
pronoun / verb										**5**	**0**	**0**	**0**	**5**
verb / verb										**83**	**7**	**0**	**0**	**90**

	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	114	27	1	7	3	1812	4	0	5	11	856
Pairs	114	27	1	7	3	1248	4	0	5	11	766

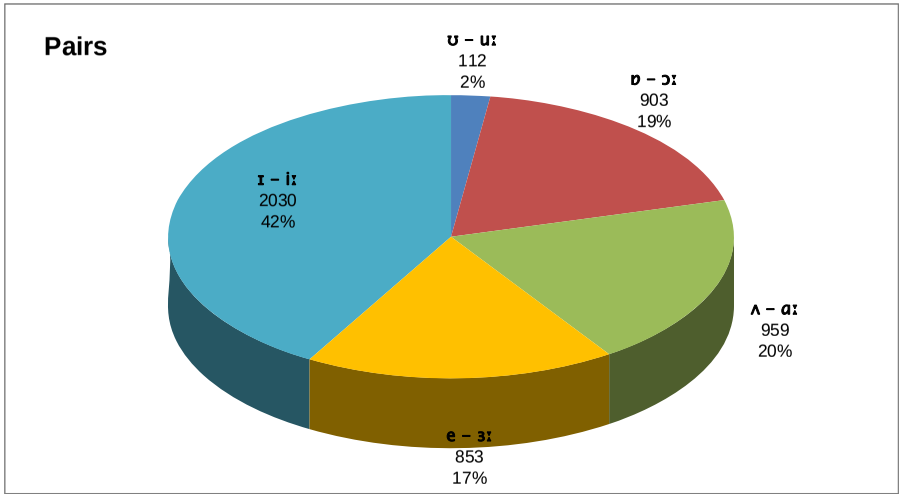
ɪ – iː	Lexical meaning																																
Syllables	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	**1**	**2**	**3**	**4**	Total
	vc	vcc	cvc	cvcc	ccvc	cvccc	ccvcc	cvcv	vcvcc	vccvc	cvcvc	ccvcv	vcvccc	vccvcc	cvvcvc	cvcvcc	cvccvc	ccvcvc	ccvccv	cvccvvc	ccvccvc	cvccvvc	cvcvvc	cvcvcvc	cvvcvccvc	cvccvvcvc	ccvcccvvcv	cvcvcvccv	cvcvcvccvcc					
Pairs	2	3	91	190	37	5	71	20	1	2	87	8	3	3	4	8	16	25	2	1	14	3	1	2	3	1	3	1	3	**399**	**197**	**10**	**4**	**610**
adjective / adjective			2	1	1			3			3	4																		**4**	**10**	**0**	**0**	**14**
adverb / adverb																			1											**0**	**1**	**0**	**0**	**1**
noun / noun	2	3	59	118	23	3	49	16	1	2	48	4	3	3	4	8	14	11	1		14			2	3		3	1	3	**257**	**129**	**8**	**4**	**398**
verb / verb			30	71	13	2	22	1			36						2	14		1		3	1			1				**138**	**57**	**2**	**0**	**197**

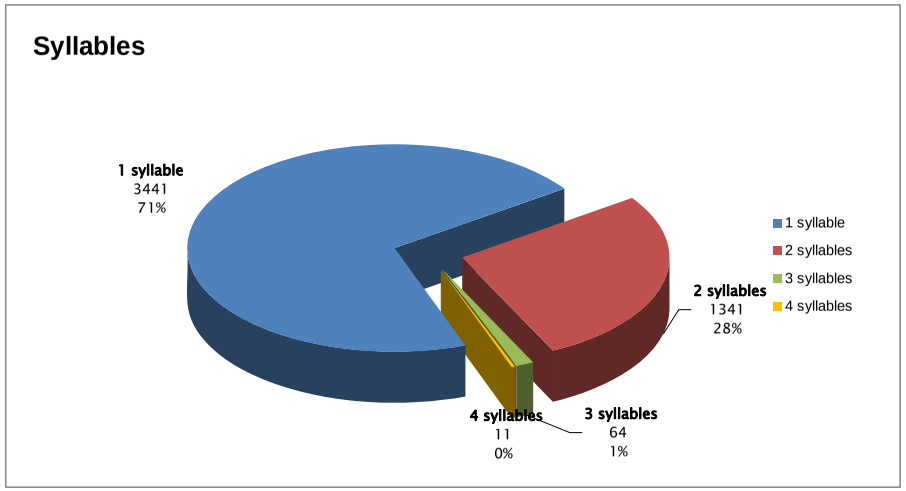
	adjective	adverb	conjunction	determiner	interjection	noun	number	predeterminer	preposition	pronoun	verb
Words	28	2	0	0	0	796	0	0	0	0	394
Pairs	14	1	0	0	0	398	0	0	0	0	197

Summative percentage of lexical and lexical-grammatical meanings in oppositions APPENDIX 16

	ʊ – uː	%	ɒ – ɔː	%	ʌ – ɑː	%	e – ɜː	%	ɪ – iː	%	Total	%
Lexical -Gramatical	79	70,5%	677	75,0%	664	69,2%	633	74,2%	1420	70,0%	3473	71,5%
Lexical meaning	33	29,5%	226	25,0%	295	30,8%	220	25,8%	610	30,0%	1384	28,5%
	112		903		959		853		2030		4857	

Distribution of oppositions according to vowel pairs and syllables





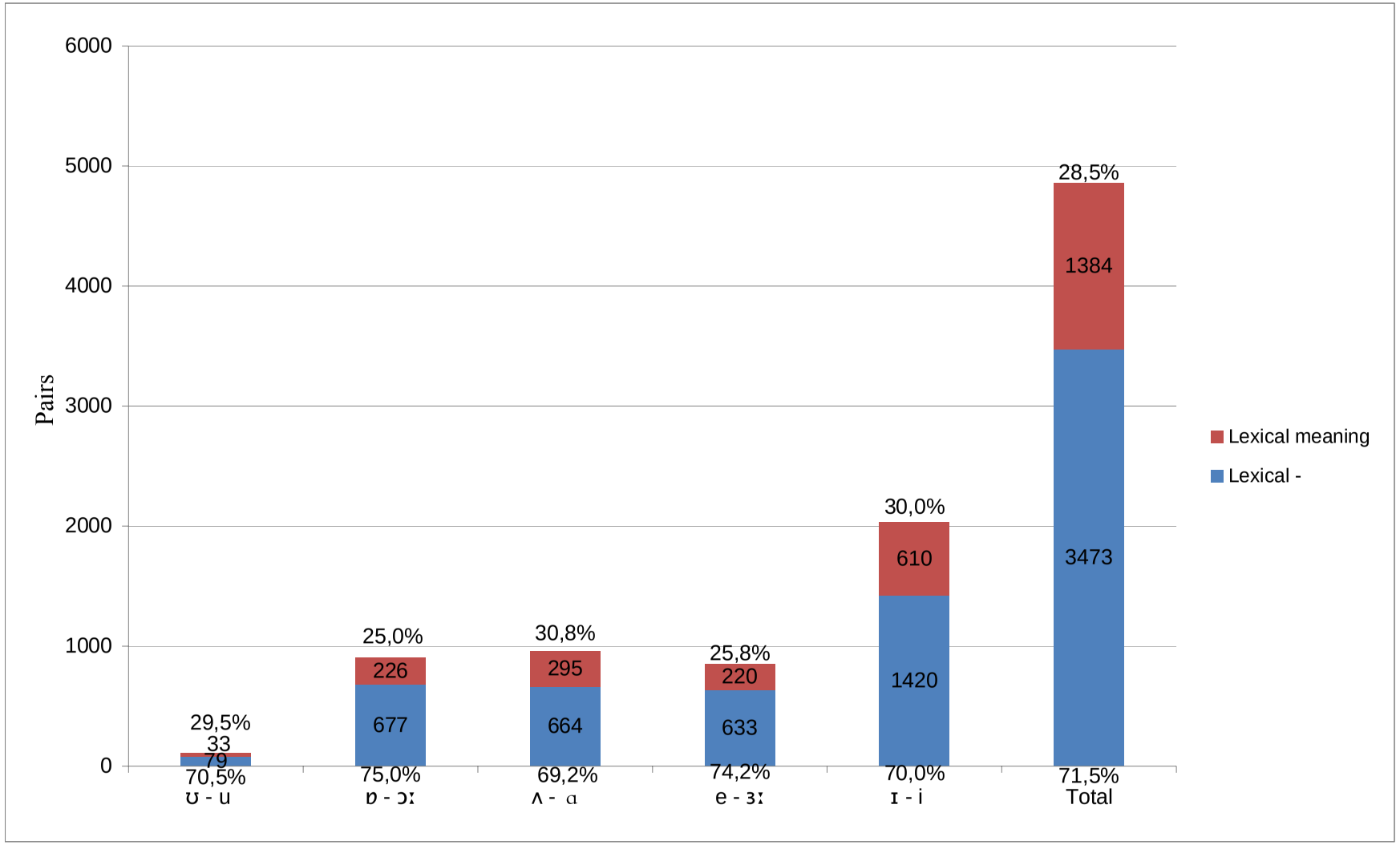
APPENDIX 18

The variety of word-form structure participating in oppositions is presented in the table bellow:

Monosyllabic word-forms	Two-syllabic word-forms	Three-syllabic word-forms	Four-syllabic word-forms
CV	VCV	VCVCV	CVCVCVCCVC
VC	CVCV	CVCVVC	CVCVCVCCVCC
CVC	VCCV	CCVCVCV	
VCC	VCVC	CCVCVVC	
CCVC	CCVCV	CVCCVCV	
CVCC	CVCCV	CVCCVVC	
VCCC	CVCVC	CVCVCVC	
CCVCC	CVCVV	VCCVCVC	
CVCCC	VCCVC	VVCVCVC	
CCCVCC	VCVCC	CCVCVCVC	
CCVCCC	CCVCCV	CVCCVCVC	
	CCVCVC	CVCVVCVC	
	CVCCCV	CVCCVCCVC	
	CVCCVC	CVCCVVCVC	
	CVCVCC	CVVCVCCVC	
	CVCVVC	CCVCCCVVCVC	
	CVVCVC		
	VCCVCC		
	VCVCCC		
	CCCVCCV		
	CCVCCVC		
	CCVCVCC		
	CVCCVCC		
	CVCCVVC		
	CVCVCCC		
	CCVCCCVC		
	CVCCVCCC		
	CVCCVVCC		
	CVCCVVCC		

Lexical and lexical-grammatical meaning diagram

APPENDIX 19



The analysis results of syllabic structures of the word-forms:

Morphonological structure of One-syllabic word-forms with root **ʊ-u:** opposition:

S/T/W→ ʊ ← T/S/R : S/T/W→ u: ← T/S/R;

Morphonological structure of Two-syllabic word-forms with root **u-u:** opposition:

T/R/S → ʊ ← Ø //TS/R/T/Ø/V/Ø/S/T/R : T/R/S → u: ← Ø //TS/R/T/Ø/V/Ø/S/T/R;

Morphonological structure of Three-syllabic word-forms with root **u-u:** opposition:

R/V/Ø// S/W →ʊ← Ø//T/S/V/S : R/V/Ø// S/W → uː ← Ø//T/S/V/S;

Morphonological structure of One-syllabic word-forms with root **ɒ–ɔː**opposition:

T/S/R/W/ST/SR/SW/SS/TR/TS/Ø → ɒ ←
Ø/T/S/R/TS/TR/RT/RS/ST/SR/SW/SS/TT/TST
: T/S/R/W/ST/SR/SW/SS/TR/TS/Ø → ɔː ←
Ø/T/S/R/TS/TR/RT/RS/ST/SR/SW/SS/TT/TST;

Morphonological structure of Two-syllabic word-forms with root **ɒ–ɔː** opposition:

Ø/T/S/W/R/ST → ɒ ← Ø/T//Ø/T/R/S/ TS /V/VV/T/R/S/ TS/RS/RT :
Ø/T/S/W/R/ST → ɔː ← Ø/T// Ø/T/R/S/ TS /V/VV/T/R/S/ TS/RS/RT;

Morphonological structure of Three-syllabic word-forms with root **ɒ–ɔː** opposition:

Ø/W→ ɒ ← Ø//R/T/V/Ø//R/V/R/Ø : Ø/W → ɔː ← Ø//R/T/V/Ø//R/V/R/Ø;

Morphonological structure of One-syllabic word-forms with root **ʌ–ɑː** opposition:

T/S/R/Ø/TR/ST/SR/TS → ʌ ←R/S/T/RS/ST/TS/ RT/ RTS/ TT/ STS/STT :
T/S/R/Ø/ TR/ST/SR/TS → ɑː←R/S/T/ RS/ST/TS/ RT/ RTS/ TT/ STS/STT;

Morphonological structure of Two-syllabic word-forms with root **ʌ–ɑː** opposition:

S/T/R/Ø/TR/ST/SR → ʌ ← Ø/R/S//S/R/T/TR/ ST/TS/ V/S/T/R/Ø :
S/T/R/Ø/TR/ST/SR → ɑː← Ø/R/S//S/R/T/TR/ ST/TS/ V/S/T/R/Ø;

Morphonological structure of Three-syllabic word-forms with root **ʌ–ɑː** opposition:

R/T→ ʌ ← Ø/S//T/V/Ø//Ø/V/R : R/T→ ɑː← Ø/S//T/V/Ø//Ø/V/R;

Morphonological structure of One-syllabic word-forms with root **e–ɜː** opposition:

W/T/S/R/Ø/TS/SW/ST/SR/TR → e←
Ø/T/S/R/TRS/TST/STS/RRS/TS/ST/TT/RT/RS/TR :
W/T/S/R/Ø/TS/SW/ST/SR/TR → ɜː←
Ø/T/S/R/TRS/TST/STS/RRS/TS/ST/TT/RT/RS/TR;

Morphonological structure of Two-syllabic word-forms with root **e–ɜː** opposition, occurring in the first syllable:

S/T/R/W/ST/Ø/SW → e←Ø//Ø/S/R/T/TS/ST/VV/V/Ø/T/R/S/ST/RT :

S/T/R/W/ST/Ø/SW → ɜː←Ø// /S/R/T/TS/ST/VV/V/Ø/T/R/S/ST/RT;

When opposition occurs in the second syllable of the word-form:

Ø/S/W/T/V/Ø/R//S/W/T/R→ e←Ø/T/R/TS/RT :

Ø/S/W/T/V/Ø/R//S/W/T/R→ɜː←Ø/T/R/TS/RT;

Morphonological structure of Three-syllabic word-forms with root **e–ɜː** opposition, occurring in the first syllable:

ST/S→ e←Ø//TW/T/V/Ø//R/Ø/V/Ø/S : ST/S→ ɜː←Ø//TW/T/V/Ø//R/Ø/V/Ø/S;

When opposition occurs in the second syllable of the word-form:

T/S/Ø/V/R/Ø//S →e←Ø//Ø/T/V/R : T/S/Ø/V/R/Ø//S → ɜː←Ø//Ø/T/V/R;

When opposition occurs in the third syllable of the word-form:

Ø/VV/Ø//S/V/Ø//S/→ e←T : Ø/VV/Ø//S/V/Ø//S/→ ɜː←T;

Morphonological structure of One-syllabic word-forms with root **ɪ–iː** opposition:

T/R/S/W/TR/ST/SR/TW/ST/Ø/TS/STR→ɪ←T/R/S/TS/ST/TT/RS/RT/SS/TR/TST/STS :

T/S/R/W/TR/SR/TW/ST/Ø/TS/STR →iː←T/R/S/TS/ST/TT/RS/RT/SS/TR/TST/STS;

Morphonological structure of Two-syllabic word-forms with root **ɪ–iː** opposition, occurring in the first syllable:

T/R/W/S/TR/SR/TW/TS/ST →ɪ←
Ø/S/T//T/R/S/TS/SW/V/VV/Ø/T/S/TR/R/TS/RS/ST/RT/TT/RTS/TTS :

T/R/W/S/TR/SR/TW/TS/ST →iː←
Ø/S/T//T/R/S/TS/SW/V/VV/Ø/T/S/TR/R/TS/RS/ST/RT/TT/RTS/TTS;

When opposition occurs in the second syllable of the word-form:

SR/TR/R/Ø/T/VV/V/Ø/T/R/S//TS/S/T→ɪ←R/Ø/S/T/ST/TS/STS :

SR/TR/R/Ø/T/VV/V/Ø/T/R/S//TS/S/T→iː←R/Ø/S/T/ST/TS/STS;

Morphonological structure of Three-syllabic word-forms with root **ɪ–iː** opposition, occurring in the first syllable:

R/S/T→ɪ←Ø//TS/TR/R/TV/VV/Ø//TR/R/S/V/Ø/R/S :

R/S/T→iː←Ø//TS/TR/R/TV/VV/Ø//TR/R/S/V/Ø/R/S;

When opposition occurs in the third syllable of the word-form:

T/S/SR/R/VV/Ø/R //S/T/TS/V/VV/R/Ø//S/R/Ø →ɪ←S/R :

T/S/SR/R/VV/Ø/R//S/T/TS/V/VV/R/Ø//S/R/Ø →iː←S/R;

Morphonological structure of Four-syllabic word-forms with root **ɪ–iː** opposition:

T/V/Ø//R/V/Ø//T/V/T//T→ɪ←RS : T/V/Ø//R/V/Ø//T/V/T//T→iː←RS.

Definitions of key terms

Allomorph is a positional variant of a morpheme occurring in a specific environment and so characterized by complementary description.

Automatic Speech Recognition (ASR) is technology that allows a computer to identify the words that a person speaks into a microphone or telephone. This technology recognizes speech by estimating the likelihood of each phoneme at small regions (frames) of the speech signal. Each word in a vocabulary list is specified in terms of its component phonemes. A search procedure is used to determine the sequence of phonemes with the highest likelihood. (ASR) is divided into speech-to-text, text-to-speech, and speech-to-speech synthesis areas.

Complementary distribution takes place when two linguistic variants cannot appear in the same environment.

Functional analysis determines the ability of a system under given conditions, what functions the element of the system is supposed to perform, or performs. The function of a system element is determined according to the system demands.

Morphology studies the internal construction of words. It includes the grammatical processes of inflection and derivation.

Morphoneme is the main unit of morphonology. It has the binary opposition: the morphoneme is viewed as a component of a morpheme, and the phoneme – as a component of a morph.

Morphonology is the study of relationship between morphology and phonology. The synonymous terms morphonemics, morphophonemics, phonomorphemics are used. The American tradition prefers the term morphophonemics, whereas in the European tradition the term morphophonology is used. The present thesis employs the term morphonology.

Morphonological opposition identifies what particular meaning is discriminated by the phoneme - lexical, grammatical, or lexical-grammatical. It investigates which phoneme oppositions differentiate morphemes or grammatical categories.

Neutralization is a phonological phenomenon which has morphological consequences. It is a phenomenon when phonemes that are contrastive in certain environments may not be contrastive in all environments. In the environments where they do not contrast, the contrast is said to be neutralized.

Phonology studies the sound structure of a language and does not investigate morphological boundaries (inside words and between words) and morphological identities.

Structural Analysis examines the patterns of roles and functions established within a system in order to fulfil the tasks needed for its survival and development.

Root-morpheme is the lexical nucleus of the word; it has a very general and abstract lexical meaning common to a set of semantically related words constituting one word-cluster.

Stem is defined as that part of the word which remains unchanged throughout its paradigm.

Syllabification is the division of words in terms of phonological segments, i.e. syllables.

APPENDIX 22

Published scientific articles:

1. Morphophonemics as a Philological Problem. *American and European Studies. Yearbook 2006-2007 Volume 2.* Minsk: Propilei, p. 245-249. ISBN978-985-6329-76-3. MLA Modern Language Association International Bibliography http://www.mla.org.

2. Functional and Structural Approach to Morphonological Long and Short i-i: Vowel Oppositions in Nouns of the English language. *Kalba ir kontekstai II. Vilnius 2007,* p. 41-50 ISSN 1822-5357. CSA Linguistics and Language Behavior Abstracts CSA http://www.csa.com.

3. Functional and Structural Approach to Morphonological *i-i:* Noun Oppositions of the English Language. *Аракинские чтения. Актуальные проблемы лингвистики и методики преподавания английского языка.* Москва: МГПУ 2007, p.123-139. ISBN 5-8396-01667.

4. Opposition as a Morphonological Device in the English Language: i-i: opposition of Long and Short vowels in Verbs. *Integrated Scientific Journal 2006 Nr.28 (188)*, Москва 2006. p. 24-35. ISSN 1729-3707.

5. Границы и задачи морфонологических исследований. XVII Международная научно-практическая конференция 'Человек, здоровие, культура в изменяющемся мире'. *Теоретико-практические вопросы общей педагогики и человековедения*. Коломна 2007, p. 475-477. ISBN 978-5-98492-04308.

6. Morphonological Long and Short *o–o:* Vowel Oppositions in the English Language. *Valoda – 2008. Valoda dazadu kulturu kontekst, zinatnisko rakstu krajums XVIII.* Collection of articles. Daugavpils universitates: Saule 2008, p.147-153. ISBN 978-9984-14-412-2. 2008.