CHAPTER-I
INTRODUCTION

Communication plays a very important role in human life. Man has developed language as a system to communicate with one another. Language has a very important social purpose, because it is mainly used for linguistic communication. A language can be used in two ways for the purpose of communication. It can be spoken or written\(^1\). Language is a well organized system of communication consisting of utterances. The utterance can be explained as a word or sequence of words. Word is transmitted through one or more sounds. The language is a system of sound structure which is represented by some given symbols.

To begin with, English has become one of the major languages of interest for communication at national and international level. It is spoken in more parts of the world than any other language and by more people than other tongues. In India English has been in use for more than 150 years and has acquired the status of an official language.

The present English vocabulary consists of more than 1 million words, including slang and dialect expressions and scientific and technical terms after the middle of the 20\(^{th}\) c. English vocabulary is more extensive than any other language in the world. English has been like a magnet attracting words from numerous other languages. Its constant borrowing from every major language especially from Latin, Greek, French and the Scandinavian languages and numerous minor languages accounts for the great number of words in the English vocabulary\(^2\).

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English is an unphonetic language as its spelling system is highly erratic. There are numerous cases in which it is not possible to predict the pronunciation from the spelling or vice-versa. English is probably the worst in this respect among languages written in the Roman alphabet\(^3\). When pronunciation and spelling part comes in, we are not comfortable. It has a complex sound system and English spelling is confusing and chaotic because of its irregularities. The irregularities and inconsistencies give rise to many difficulties to all speakers of English both in identifying a word from its written form and in selecting the appropriate spelling for a word. One has to depend on the context and one's lexical and syntactic knowledge to identify them correctly. There are no simple rules for English spelling.

Other languages (Indian) have a spelling system that more faithfully conforms to how the language is spoken. English does in fact have a very poor phonemic orthography, or correspondence between how the words are written and how they are spoken.

When individual languages have a written as well as a spoken form, it is often the case that the writing system does not represent all the distinctive sounds of the language. The written form of the language is static, unchanging, reflecting the form of the language at the time the alphabet, syllabary or character system was adopted\(^4\).

English spelling has never been systematically updated, and as a result today only haphazardly observes the alphabetic principle. The haphazard nature of English spelling has created a system of weak rules with many exceptions and ambiguities. The spellings through, though, thought, enough, cough, tough, tough,

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daughter and laughter are obvious barriers to reading comprehension, and
common miss spellings of accommodate, conscientious, occurrence, opponent,
existence and personnel are obvious barriers to writing mastery.

Pronunciations change gradually overtime and the alphabetic principle
that lies behind English gradually becomes corrupted. Spellings then need to
adopt to account for the changes. If English spelling was as phonemic as 95%
of the languages in the world, it could be learned in a fraction of the time now
spent trying to learn the written form as a Logography or System of Word
Science⁵.

The fundamental belief of the spelling reformers is that the writing
system should be updated when the pronunciation of language changes.
Various campaigns to change the spelling system of English have been
undertaken by many Linguists to make it simpler and more rationally
consistent. Supporters assert that the many inconsistencies and irregularities of
English spelling lead to severe difficulties for learners. Differences in
pronunciation are one reason why English is considered a difficult language for
non-native speakers to learn.

English is said to have one of the most difficult spelling systems in the
world. The written representation of English is not phonetically exact for two
main reasons. First, the spelling of words has changes to a lesser extent than
their sounds; for eg. ‘k’ in knife and the ‘gh’ in right were formerly
pronounced. Second, certain spelling conventions acquired from foreign
sources have been perpetuated. Outstanding examples of discrepancies between
spelling and pronunciation are the six different pronunciations of ‘ough’, as in
bough, cough, thorough, thought, through and rough⁶.

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⁵. Talk: Simplified Spelling Society, Wikipedia, the free Encyclopedia.
If there was one to one correspondence between sounds (phonemes) and letters (graphemes) to produce accurate spelling would be simple. However in English there is no direct one to one mapping of sounds to letters. English has much more sounds than letters and these sounds may change according to context and may influence each other. There are graphemes that have no corresponding sound in certain context, as for example the ‘g’ in (sign, though, signature) some of them only transport a signal, not a sound, as for example double consonant letters that usually shorten the preceding vowel.

English spelling is so eccentric in its use of letters to represent sounds that to label the sounds by a letter, or a group of letters, is confusing. Hence it is essential to have some way of making it clear that one is talking about the letters written or the sounds spoken.

The pronunciation of words changes over time and languages have to update their spelling systems or they become divorced from pronunciation and very difficult to learn. English spelling has been simplified a little over the centuries, but it is in need of similar further improvements.

English spells many identical sounds differently when they occur in different positions in a word, for example, the /ʃ/ sound is spelt as in shop, station, vicious and session, the long /ætʃ/ sound as in plate and play, the long /ætʃ/ sound as in mine and dry.

That English script has not undergone a change towards its pronunciation for over 1000 years. Spelling and pronunciation problem has lead to this amount of discrepancy of sound-to-spelling correspondence and the problems therein. Attempts to change or regularize English spelling have been made. There is a history about spelling reform efforts in US and Britain since the mid 1870s. The first known attempt in history was made by the British monk Orrmin in 1180 A.D. Many other exponents best known in England like Isaac
Spelling reform proposals have been made over the past several centuries (going back to at least the 1400s). In 1180 A.D. a British monk named Orrmin tried to reform English spelling for the first time. He distinguished short vowels from long by doubling the succeeding consonants, or when not feasible, by marking the short vowels with a super imposed breve accent. In 1634 Rev. Charles Butler, a British naturalist proposed that men should write altogether according to the sound now generally received, and espoused a system in which the h in digraphs was replaced with bars. Dr. Samuel Johnson, poet, critic, broadly credited with the standardization of English spelling into its current contentious form in his Dictionary of the English Language in 1755. Noah Webster, author of the first important American Dictionary believed that Americans should adopt simpler spellings where available and recommended it in his dictionaries that were published in 1806 and 1828.

In 1879, the British Spelling Reform Association was founded. Poet, Lord Alfred Tennyson and Charles Darwin gave support to this spelling reform association. In 1886, the Philological Association came out with a list of 3500 spellings. In 1898, the (American) National Education Association began promoting a list of spellings and continued to do so until 1921. In 1906, the Simplified Spelling Board was found in U.S. and celebrated philanthropist, Andrew Carnegie, was one of the founding members Mark Twain and Theodore Roosevelt voiced support for Simplified Spelling Board. In 1908, In U.K. as a “sister” organization the Simplified Spelling Society was formed with the aim of updating English spelling. The society promotes the use of phonetic writing systems, and advocates elimination of difficult words form English language. George Bernard Shaw, English playwright of international renown,
had expressed support for changing English spelling. He willed part of his estate to fund the creation of a new alphabet. A new phonetic alphabet named "Shavian alphabet" having, 48 characters was designed by Kingsley Read.

English spelling reform is necessary to make it simpler and more rationally consistent. The opinion of Simplified Spelling Society was that "the only spelling that can be described as correct is phonetic spelling, is spelling that records the spoken word". Although phonetic spelling was the answer, the simplified spellers thought that it would be too radical to be generally accepted so they try to come up with easier spells. They supported American spelling updated by Webster. Later they had some New spelling but though the Society has existed for a century, no one has yet come up with a truly workable solution. At the moment their main focus is to publicise the need for reform, says Dr. Gledhill7.

Written and spoken forms of the same language can be compared by studying the fit between the writing system and spoken language. In many kinds of writing system each letter used stands for a sound in the spoken language. In English one letter of the alphabet stands for more than one sound and, conversely, the same sound is represented by different letters of the alphabet. This means that there is no one-to-one correspondence between the letters of the alphabet and sounds they represent.

For example, the letter c represents a certain sound in the word scale and the same letter represents a different sound in cease. The letter g is pronounced differently in 'give' and 'gin'. The letter j is pronounced like the letter g in 'gin'. The letters gh are pronounced differently in ghost and cough. The same two letters gh aren't pronounced at all in a word like cough; gh in 'cough', f in 'fun', ff in 'coffee' and ph in 'physics' are pronounced exactly alike. The letter l in 'film' is pronounced whereas it is not pronounced at all in 'palm' and

'calm'. The letters ee in 'see', ea in 'sea', i in machine and police are pronounced alike. Key and quay are pronounced alike. How many unnecessary letters are there in the English word 'queue'.

In spite of the fact that English users generally resist changes to spelling, some change has occurred in the past couple of centuries. There are the well-known examples of American English Spelling “-our” words with “-or” and “-re” with “-er”. Americans also usually write “-ize” of course, and there are a few other changes like “draft” and “plow”. So, at least one sizeable group of English speakers accepted changes, as long as these changes were not too much. One of Noah Webster’s dictionaries came out in 1806, and another was published in 1828. The earlier version had spellings such as “hart”, “munth”, “reezon”, and “rug”. But there was resistance to those, and ones like them, so Webster “restored” these to “heart”, etc. in the 1820s dictionary (which is the main one that people usually refer to). So, people would accept some changes, but not others.

All in all, the mastery of English spelling presents a greater challenge than learning to read and most people are able to read more words than they can spell accurately. In other languages the letters of a script are learned in a fixed order and each letter usually represents a sound.

The alphabetical principle which underlies the spelling system of English states that the letters in the spelling should represent the phonemes in the pronunciation. Ideally, the correspondence would be one to one, as in phonemic transcription. While the correspondence in some languages is close to one-to-one, in English it is many-to-one and one-to-many.

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9. Bell, Masha, *op. cit.*
If many of the difficult spellings were made simple by following basic English spelling rules, English spelling would become easier to learn and easier to teach. More people would become confident about writing. Learning to spell English also takes a long time and is never quite conquered by millions of learners. Spellers often fail to insert silent letters; 'bild, dout, frend, yor, yung'. They put the surplus letters in the wrong place; 'friend, debt, laughs'. They insert surplus letters; 'chaeous, nervious, suddenly, vigourously, gowing, hellow'. They fail to double the 'correct' consonants; 'account, apply, occurred'. They double wrong consonants instead; 'accross, affraid, gett, leggs'. When identically sounding words are spelt differently, spellers often pick the wrong.

It is well known that English spelling is difficult to learn because there are host of irregularities and oddities. If the English system were regular each individual phoneme (sound) would have been spelt the same way every time and thus there would be one-to-one correspondence between phonemes (sounds) and graphemes (letters). It becomes necessary that an individual should have the phonemic awareness, that is, awareness that sound corresponds to individual letter and vice-versa. So it becomes important to recognize how the graphemes of spelling (which can be either one letter or a group of letters that function together) correspond to the phonemes used in the pronunciation of a language.

In human language, a phoneme is the theoretical representation of a sound. It is a sound of a language as represented (or imagined) without reference to its position in a word or a phrase. A phoneme therefore, is the conception of a sound in the most neutral form possible. A phoneme is the
smallest contrastive unit in the sound system of a language; phonologists have differing views of the phoneme. A phoneme is the basic unit of spoken language. It is a speech sound. Phonemes are the simplest sound elements used to distinguish one word from another very frequently, the spelling of English words does not conform to the number of phonemes for example ‘enough’ which has four phonemes is spelling with six letters.

The simplest explanation is that a phoneme is an abstract concept used to represent a group of sounds or sound combinations that are similar enough to each other to be perceived as performing the same function in a speech chain. The idea of the phoneme is mainly based upon the fact that we can establish distinction of meaning between words by replacing certain sounds by one another.

A grapheme is the basic unit of written language, corresponding in most cases to the letter. English orthography (spelling) was largely phonemic at one point in the past, but is now more conventional. There is no longer an exact correspondence between graphemes and phonemes.

English spelling system involves learning through instructions and experience with print, how graphemes are used to represent phonemes in English spelling. Theoretically, the spelling of phonemes should indicate precisely the sound characteristics of the language. Very frequently, however, the spelling of English words does not conform to the number of phonemes. Scientifically seen the English language is a kind of goldmine in that it offers complex possibilities of investigations to this matter. A successful reform of

11. Bell, Masha, op. cit.
13. Ibid.
English Spelling would create a precedent and hopefully make a further reform easier at a later date.

As learning English spelling and pronunciation takes much time and effort, updating a spelling system can make it easier to learn. One should develop a new writing system so that the graphemes match the phonemes. An ideal spelling system for English could be expected to create a one-to-one correspondence of graphemes and phonemes.

In this backdrop, this thesis proposes to study the correspondence of graphemes and phonemes of English language as cues to spelling improvement. The study is based on the Cambridge Learner’s Dictionary (2001 version)\(^\text{15}\) which contains 15298 words. The problem is titled “A Statistical Linguistic Analysis of the English Phonemes and Graphemes”.

**METHODOLOGY**

An attempt is made in this work to know how many phonemes (correspondences) a grapheme can have when it occurs in four different positions of occurrences. To help learn correct pronunciation it is necessary to know the grapheme occurrences in words and also the pronunciation of the graphemes in different positions of occurrence.

All the 15298 head words are studied alphabetically in isolation. Starting from grapheme A to Z, the work studies how many phonemes a grapheme can have when it occurs in four positions of occurrences, that is, initial, medially

\(^{15}\) Cambridge Learner’s Dictionary (2001 version).
before, medially after and final occurrences. In the study, in all the chapters, the graphemes and the phonemes in initial occurrence are represented in pink colour, in medially before occurrence are represented in blue colour, in medially after occurrence are represented in purple colour and in final occurrence are represented in green colour.

The phonemes chart showing the phonemes used as pronunciation symbols for transcription in English words is given below. Altogether 48 phonemes are used in the Cambridge Learner’s Dictionary to indicate 26 graphemes in the four occurrences.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Phonemes</th>
<th>Words</th>
<th>Transcription</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>/s/</td>
<td>pit</td>
<td>/pit/</td>
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<tr>
<td>2.</td>
<td>/e/</td>
<td>wet</td>
<td>/wet/</td>
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<tr>
<td>3.</td>
<td>/æ/</td>
<td>cat</td>
<td>/kæt/</td>
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<tr>
<td>4.</td>
<td>/æ/</td>
<td>run</td>
<td>/tæn/</td>
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<tr>
<td>5.</td>
<td>/ə/</td>
<td>hot</td>
<td>/hɒt/</td>
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<td>6.</td>
<td>/u/</td>
<td>put</td>
<td>/put/</td>
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<tr>
<td>7.</td>
<td>/ə/</td>
<td>ago</td>
<td>/ægəʊ/</td>
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<td>8.</td>
<td>/i/</td>
<td>cosy</td>
<td>/kəuzi/</td>
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<tr>
<td>9.</td>
<td>/u/</td>
<td>influence</td>
<td>/ɪnfluəns/</td>
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<td>10.</td>
<td>/iː/</td>
<td>see</td>
<td>/siː/</td>
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<td>11.</td>
<td>/ɑː/</td>
<td>arm</td>
<td>/ɑːm/</td>
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<td>12.</td>
<td>/ɔː/</td>
<td>saw</td>
<td>/sɔː/</td>
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<td>13.</td>
<td>/uː/</td>
<td>too</td>
<td>/tuː/</td>
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<td>14.</td>
<td>/ɜː/</td>
<td>her</td>
<td>/hɜː/</td>
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<td>15.</td>
<td>/ei/</td>
<td>day</td>
<td>/deɪ/</td>
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<td>16.</td>
<td>/aɪ/</td>
<td>my</td>
<td>/maɪ/</td>
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<td>17.</td>
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<td>boy</td>
<td>/boɪ/</td>
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<td>18.</td>
<td>/əu/</td>
<td>low</td>
<td>/ləʊ/</td>
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<td>19.</td>
<td>/au/</td>
<td>how</td>
<td>/həʊ/</td>
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<tr>
<td>20.</td>
<td>/ɪə/</td>
<td>near</td>
<td>/nɪə/</td>
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<tr>
<td>21.</td>
<td>/eə/</td>
<td>hair</td>
<td>/heə/</td>
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<td>22.</td>
<td>/uə/</td>
<td>poor</td>
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<tr>
<td>23.</td>
<td>/aɪə/</td>
<td>fire</td>
<td>/faɪə/</td>
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<tr>
<td>24.</td>
<td>/auə/</td>
<td>sour</td>
<td>/sauə/</td>
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<td>25.</td>
<td>/b/</td>
<td>bee</td>
<td>/bi:/</td>
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<td>26.</td>
<td>/d/</td>
<td>do</td>
<td>/du:/</td>
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<td>27.</td>
<td>/t/</td>
<td>fat</td>
<td>/fæt/</td>
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<td>28.</td>
<td>/g/</td>
<td>go</td>
<td>/gəʊ/</td>
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<td>29.</td>
<td>/h/</td>
<td>hat</td>
<td>/hæt/</td>
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<td>30.</td>
<td>/j/</td>
<td>yet</td>
<td>/jet/</td>
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<td>31.</td>
<td>/k/</td>
<td>key</td>
<td>/ki:/</td>
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<td>32.</td>
<td>/l/</td>
<td>led</td>
<td>/led/</td>
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<td>33.</td>
<td>/m/</td>
<td>map</td>
<td>/maɪp/</td>
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<td>34.</td>
<td>/n/</td>
<td>nap</td>
<td>/naɪp/</td>
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<td>35.</td>
<td>/p/</td>
<td>pen</td>
<td>/pɛn/</td>
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<td>36.</td>
<td>/r/</td>
<td>red</td>
<td>/red/</td>
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<td>37.</td>
<td>/s/</td>
<td>sun</td>
<td>/saɪn/</td>
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<td>38.</td>
<td>/t/</td>
<td>ten</td>
<td>/ten/</td>
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<td>39.</td>
<td>/v/</td>
<td>van</td>
<td>/væn/</td>
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<td>/w/</td>
<td>wet</td>
<td>/wet/</td>
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<td>/z/</td>
<td>zip</td>
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<tr>
<td>42.</td>
<td>/dʒ/</td>
<td>general</td>
<td>/dʒen'ral/</td>
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<tr>
<td>43.</td>
<td>/ŋ/</td>
<td>hang</td>
<td>/hæŋ/</td>
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<td>44.</td>
<td>/θ/</td>
<td>that</td>
<td>/ðæt/</td>
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<td>45.</td>
<td>/ð/</td>
<td>thin</td>
<td>/θɪn/</td>
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<td>46.</td>
<td>/ʃ/</td>
<td>ship</td>
<td>/ʃɪp/</td>
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<td>47.</td>
<td>/ʒ/</td>
<td>measure</td>
<td>/meʒər/</td>
</tr>
<tr>
<td>48.</td>
<td>/tʃ/</td>
<td>chin</td>
<td>/tʃɪn/</td>
</tr>
</tbody>
</table>

The analysis of the graphemes and phonemes is carried out in one-to-one correspondence, one-to-many correspondence, many-to-one correspondence, single-to-sequence correspondence and sequence-to single correspondence. For the analysis of the graphemes and phonemes, the tables presented help to analyse the grapheme combinations and their corresponding phonemes in a number of words and also calculate their percentage.

In the study, though all the occurrences are represented by four different colours, the grapheme in the initial occurrence is shown with a hyphen after the following grapheme (ab- grapheme as in abacus), in the medially before and medially after occurrences the hyphen is shown before and after the following grapheme (-me- grapheme as in general and -ha- grapheme as in that) and in the final occurrence the hash mark follows the grapheme (-et# grapheme as in yet). The hash indicates nothing precedes or follows the phoneme under
consideration in the word. The phonemes are indicated between the slashes, for example /ʌ/ phoneme as in the word 'un' /ʌn/.

Certain graphemes in all the four occurrences are not pronounced, they remain silent. The silent graphemes are indicated by the (∅) mark, as in the word knife /naɪf/, that is, not represented phonemically.

The phoneme /s/ as in the word sudden /sʌdən/ and the phoneme /t/ as in the word teacher /tiːʃə/ may or may not be pronounced. In the study, if they are not pronounced, the (∅) mark is used to indicate it.

CHAPTERISATION

The present thesis consists of eight chapters. As the research work has become bulky, it is put in two volumes. The first volume contains the 1st, 2nd and 3rd chapters. In the second volume contains the 3rd chapter is continued, along with 4th, 5th, 6th, 7th, 8th chapters and the Bibliography.

Chapter – I : INTRODUCTION

This chapter contains a brief account of the problem (A STATISTICAL LINGUISTIC ANALYSIS OF THE ENGLISH PHONEMES AND GRAPHEMES) at hand, review of literature, the methodology followed in this research work and also the chapterisation. The research work is supplemented by appending tables and graphs wherever necessary.
Chapter – II: ONE TO ONE CORRESPONDENCE

In this chapter, one to one correspondence is studied when a single grapheme stands for a single phoneme. It occurs in initial, medially before, medially after and final positions. Tables are used to analyse the grapheme and phoneme correspondence.

Example:

2.1.1. \( b = /b/ \) Initial Occurrence

The grapheme \( b \) occurs initially in eight combinations. These eight combinations are \( ba-, be-, bi-, bl-, bo-, by- \) and they occur in eight hundred and fifty-two words. There are no words with initial occurrence of \( bb-, bc-, bd-, bf-, bg-, bh-, bj-, bk-, bm-, bn-, bp-, bq-, bs-, bt-, bv-, bw-, bx-, bz- \) combinations.

The grapheme \( b \) in the combinations of \( ba-, be-, bi-, bl-, bo-, by- \) is pronounced as \( /b/ \).

\( b \) in the combination \( ba- \) is pronounced as \( /b/ \) and occurs in one hundred and sixty-five words (19.4%).

Example:

1. babble \( /bæbl/ \) 2. back \( /bæk/ \)

Similarly each grapheme is studied.

Chapter – III: ONE TO MANY CORRESPONDENCE

In this chapter, one to many correspondence is studied when a single grapheme stands for many phonemes. It occurs in initial, medially-before, medially-after and final positions. Tables and graphs (Bar-graphs and Pie-
charts) are used to represent the analysis of the grapheme and phoneme correspondences.

Example:

3.1.1. a = /e/, /æ/, /ə/, /əː/, /ɛt/, /eə/ Initial Occurrence

The grapheme a occurs initially in twenty-two combinations. These twenty-two combinations are ab-, ac-, ad-, ae-, af-, ag-, ah-, ai-, aj-, ak-, al-, am-, an-, ap-, aq-, ar-, as-, at-, au-, av-, aw-, ax- and they occur in eight hundred and sixty-nine words. There are no words with initial occurrence of aa-, ao-, ay-, az-combinations.

The grapheme a in the combinations of ae-, ai-, an- is pronounced as /e/.

a in the combination ae- is pronounced as /e/ and occurs in nine words (25%).
Example:
1. aesthetic /esθetk/  
2. aesthetics /esθetiks/

The grapheme a in the combinations of ab-, ac-, ad-, af-, ag-, al-, am-, an-, ap-, ar-, as-, at-, au-, av-, aw-, ax- is pronounced as /æ/.

a in the combination ab- is pronounced as /æ/ and occurs in twenty words (7.1%).
Example:
1. abacus /æbəkəs/  
2. abject /æbdʒekt/

The grapheme a in the combinations of ab-, ac-, ad-, af-, ag-, ah-, aj-, ak-, al-, am-, an-, ap-, aq-, ar-, as-, at-, av-, aw- is pronounced as /ə/.

a in the combination ab- is pronounced as /ə/ and occurs in forty-one words (9.5%).
Chapter – IV: MANY TO ONE CORRESPONDENCE

In this chapter, many to one correspondence are studied when many graphemes stand for a single phoneme. It occurs in initial, medially-before, medially-after and final positions.

Example:

The graphemes a, e, i, u, y with different grapheme combinations are pronounced as phoneme /ɪ/.

4.1.1.2. a = /ɪ/ Medially before Occurrence

The grapheme a in the combinations of -ac-, -ag-, -an- is pronounced as /ɪ/.

a in the combination -ac- is pronounced as /ɪ/ and occurs only in one word (1.2%).

Example:

1. furnace /fɜːrnɪs/

4.1.2.1. e = /ɪ/ Initial Occurrence

The grapheme e in the combinations of ea-, eb-, ec-, ed-, ef-, eg-, ej-, el-, em-, en-, ep-, eq-, er-, es-, et-, ev-, ex- is pronounced as /ɪ/.

e in the combination ea- is pronounced as /ɪ/ and occurs in eight words (2.1%).
Example:

1. ear /ɪə/ 2. earache /ɪərəʊkl/ 4.1.3.1. i = /ɪ/ Initial Occurrence

The grapheme i in the combinations of id-, if-, ig-, il-, im-, in-, ir-, is-, it-

is pronounced as /ɪ/.

i in the combination id- is pronounced as /ɪ/ and occurs only in four

words (0.6%).

Example:

1. idiom /ˈidiəm/ 2. idiot /ˈidiət/

Similarly each grapheme is studied.

Chapter—V: SINGLE TO SEQUENCE CORRESPONDENCE

In this chapter, single to sequence correspondence is studied when single
grapheme stands for various phoneme sequences. It occurs in initial, medially-
before, medially-after and final positions.

Example:

5.1.1. o = /wʌ/ Initial Occurrence

The grapheme o in the combinations of on- is pronounced as /wʌ/.

O in the combination on- is pronounced as /wʌ/ and occurs in ten words

(100%).

Example:

1. one /wʌn/ 2. once /wʌns/
5.2.1. **u = /jʌ:/, /jʊə/ Initial Occurrence**

The grapheme *u* in the combinations of *ub-, un-, us-, ut-* is pronounced as /jʌ:/.

*u* in the combination *ub-* is pronounced as /jʌ:/ and occurs only in one word (2.6%).

Example: 1. ubiquitous /ju:bɪkwɪtɪs/

Similarly each grapheme is studied.

**Chapter – VI: SEQUENCE TO SINGLE CORRESPONDENCE**

In this chapter, sequence to single correspondence is studied when various grapheme sequences stand for a single phoneme. It occurs in initial, medially-before, medially-after and final positions.

Example:

6.1.1.1. **au = /əʊ/**

The grapheme *a* in the combinations of **au-** is pronounced as /əʊ/.

The grapheme sequence **au-** is pronounced as /əʊ/ and occurs only in two words (0.5%).

Example:

1. aubergine /əubərʒiːm/ 2. aupair /əupɛə/ 19

6.1.1.2. **au = /ɔː/**

The grapheme *a* in the combinations of **au-, aw-** is pronounced as /ɔː/.

The grapheme sequence **au-** is pronounced as /ɔː/ and occurs in thirty-five words (61.4%).

Example:

1. auburn /ɔːbɜːn/ 2. audio /ɔːdɪəʊ/
6.1.2.2. \textit{aw} = /ɔː:/

The grapheme sequence \textit{aw-} is pronounced as /ɔː/ and occurs in six words (10.5%).
Example:

1. \textit{awe} /ɔː/  
2. \textit{awful} /ɔːˈfʊl/  

Similarly each grapheme is studied.

\textbf{Chapter – VII : CONCLUSION}

In this chapter the number of words having each grapheme in initial, \textbf{medially-before}, \textbf{medially-after} and \textbf{final} positions and their corresponding phonemes are shown in chart forms and the findings are presented comprehensively.

\textbf{Chapter – VIII : LEXICON}

In this chapter, all the words with grapheme \textit{z} are given in all the four positions of occurrence, namely \textbf{initial}, \textbf{medially-before}, \textbf{medially-after} and \textbf{final} as a sample.

Similarly all the words with the other 25 graphemes are worked out, but they are not given here, as the thesis would be bulky. But the data is preserved.

The bibliography is given at the last.

This document is intended mainly to be a resource for those teachers and other professionals who have an interest in Spoken English and how it is encoded in the spelling system. Most specifically, this work is intended for those who teach spelling to pupils and for others who have an interest in this area.