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# Demonstration of problems of lexical stress on the pronunciation Turkish English teachers and teacher trainees by computer

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## Abstract

Stress is an important intonational and prosodic feature both in North American English (NAE) and British English (BrE.); therefore, lexical stress placement of the speaker and its perception as lexical stress detection occupy a crucial role in teaching English as a foreign language. The identification, determination and assignment of lexical stress are crucial issues because the perception of stressed syllables can provide non-native speaking teachers islands of reliability where the phonetic information is more prominent. But still the issue of stress assignment has not received much attention in foreign language teacher training programs. This paper stresses that nuclear stress placement has important implications for non-native speaking teachers.

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## 1. Introduction

This paper examines the perception of the English primary stress system as a learning problem for Turks in terms of intelligibility, and the difficulties with nonnative speech where primary stress is misused. In general, stress is the extra emphasis given to certain syllables on the parts of lexical items. In English, stress is produced with a longer, louder and higher **pitched** sounds than unstressed sounds. Unlike many languages, stress in English is unpredictable, and non-native learners of English generally need to memorize individual vocabulary items. Pitch, loudness, and duration (length) are three significant parts of stress. The ups (higher) and downs (lower) during the transitions from one syllable to another in surrounding syllables is called musical accent and is also related to intonation and prosody. Loudness is also called dynamic accent, which is accompanied by greater respiratory power. Quantitative accent comes from the length of the syllable while qualitative accent is related with full vowels.

## 2. Lexical Stress

Stress is an *abstract* linguistic property of words. Each word has just one syllable with primary stress. Stress in English varies from word to word. Lexical Stress is definitely the key to understanding spoken English. It is crucial in English because it marks the function of words in spoken English. Lexical stress refers to the opposition of stressed and unstressed syllables within single words and is necessarily exhibited in only polysyllabic words (Arciuli, J. and Cupples, L., 2006.:919). Word stress or lexical stress helps to understand syllables. Every word is

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made from syllables. Each word has one, two, three, or more syllables. Due to its stressed-language feature, lexical stress is triggered by vowel reduction. Lexical vowel reduction stems from stress shift and is defined as the substitution of a full vowel with a schwa in specific words. In the latter case the schwa has become a characteristic (generally accepted) part of the word and therefore we call this phenomenon lexical vowel reduction (Jenkins, 2000). Even though pronunciation can be one of the most difficult parts for a language learner to master, the least attention is allocated to teaching pronunciation in many English language classrooms. Arguably today the most pressing issue in L2 pronunciation research is the pronunciation-intonation relationship, which is connected with consonant-vowel-semivowel relations because they carry over the suprasegmental powers of utterances in spoken English.

### 3. A Stress-timed Language

English is a stress-timed language, and therefore stress allocation on lexical items is special because it has a mobile characteristic. In stress-timed languages (e.g., British and American English, German, Dutch, Thai), “stressed syllables fall at regular intervals throughout an utterance” (Crystal, 2003, p. 245). Being a stressed time language, stressed syllables in English are heard at roughly a constant rate, and inbetween them the non-stressed syllables are shortened to accommodate this. Stress-timed languages are languages in which speakers modulate attention from syllable to syllable, and hence also listeners must modulate attention from syllable to syllable (de Jong, 1998 ; Cole and Jakimik, 1980). The "stress - timed" quality of English does not help the Turkish students to improve their pronunciation skills because they often focus on pronouncing each word correctly and therefore tend to pronounce in an unnatural manner. Recent phonetic research has shown that languages cannot be strictly classified as syllable timed or stress timed. A more accurate description is that they are stress based or syllable based; that is, they are not completely in one category or the other, but tend to have more stress-timed or syllable-timed features (Low, 2006). Turkish, Japanese, and French pronounce each Word with equal importance, but English exploits word stress and an integral part of lexical stress. Natives of English use it to communicate rapidly and accurately.

#### 3.1. *The Status of Stress Phonemes North American English (NAE)*

The interactions of four types of stresses are the basis of pronunciation intelligibility. Smith and Smith and Nelson (1985) note that terms such as intelligibility and comprehensibility are often used interchangeably. English marks lexical stress in three different ways: by duration, loudness, and pitch movement. That is why lexical stress plays a central role in determining the recognition profiles of words and phrases in spoken English. In addition to stress, pitch, and juncture, lexical stress within junctures assists listeners in dividing up whole stretches of connected speech by providing cues as to where words begin and end. Therefore, stress, pitch, and juncture are three integral elements of intonation, and the relative duration of weak and strong syllables contributes to the intelligibility of pronunciation of content words in different ways. The consequences of misinterpreting even a small number of content words can be extremely damaging to global understanding.

### 4. Types of Stress Phonemes in English

When a word has many syllables, one of them is always pronounced more strongly. By means of vowels and semi-vowels suprasegmental of speech are bridged to spoken English; therefore, stress, together with pitch and juncture, are suprasegmental cues. Suprasegmental information is also exploited in lexical access. Stress is an important prosodic feature in North American English (NAE). Changes in a combination of intensity, fundamental frequency, and duration signal different stress levels. A stressed vowel tends to have higher intensity, longer duration, and higher *fundamental frequency*. While producing stressed syllables the muscles of articulation, used to expel the air from the lungs, are often more active. Along with phonemic structure, lexical stress patterns help to identify a word. In sentences, stressed words are mostly longer, louder, clearer, and carry over higher pitch.

In English, patterns of stress on syllables can be used to distinguish the different syntactic roles of a word. The vowels in stressed syllables tend to have higher articulatory energy and longer duration than the same vowels of the minimal pairs in unstressed syllables. Perceptually speaking, all stressed syllables in vocabulary items have a common characteristic of prominence. Loudness, length, pitch, and quality makes a syllable prominent. However, it

must be borne in mind that stressed vowels do not necessarily have longer duration than the unstressed vowel in the same word

There are four types of stress phonemes in modern English which happen to be very challenging to non-native teachers and teacher trainees. “The physical properties which signal stress in English do not enable hearers, even trained phoneticians, to distinguish consistently more than three degrees of strength, plus an unstressed category” (Fudge, 1984: 137). Further functions of stress are lexical, grammatical, emphatic, and contrastive impacts in vocabulary items.

#### 4.1. Primary stress / ' /:

In words containing three syllables or more, other syllables may have secondary stress. The remaining syllables are unstressed. In other words, if a word has only one syllable (for example: pen, house), the syllable is always stressed. Primary stress can occur only once in each word; monosyllabic words always have it falls only vowels not consonants, and is the strongest degree of stress. It makes a syllable more forceful and strongly perceived. Stressed vowels are more fully realized and much more audible. If the primary stress is not correctly placed, the resulting pronunciation indicates an accented speech. English is a non-phonetic language in which there is no one-sound for one-letter; therefore, the best way of grasping the place of stress is to take a look at phonetic transcriptions in an English dictionary (which is necessary because the spelling of an English word does not tell you how you should pronounce it):

all /ɔl/,            /book //bʊk/      cab /kæb/            cage /keɪdʒ/,            calm /kɑm/,      dad /dæd/  
did /dɪd/,            face /feɪs/,      fact /fækt/            sand /sænd/

#### 4.2. Secondary stress / ^ /:

It generally falls on the lexical items that begin with prefixes some of which are { **ac-**, **bi-**, **con-**, **de-**, **en-**, **ex-**, **in-**, **re-**, **sub-**, **pre-**, **pro-**, **un-**}. It can occur no more than twice in words. It is weaker than the primary stress. It is also mostly encountered in words that have three or more syllables and it primarily important in long words. Here are some examples:

graduation /grædʒʊeɪʃən/	resurrect /rɪzə'reɪkt/
immature /ɪmætʃʊr/	computerization /kəm'pjʊ:zə'reɪzə:ʃən/
macaroni /mækə'ri:ʊni/	confederation /kɒnfə'deɪrɪeɪʃən/
subconscious /sʌbkənʃəs/	electronic /ɪlekt'rɒnɪk/
experimental /ɪkspərɪ'mentəl/	education /ɛdʒə'keɪʃən/
hallucination /həlu:'sɛneɪʃən/	congratulations /kɒŋgrætʃə'leɪʃənz/
dissatisfaction /dɪs'sæ'tɪsfækʃən/	unmistakable /ʌnmɪ'steɪkəbəl/

#### 4.3. Tertiary stress / ` /:

It occurs mostly once in words. This stress includes the fully unstressed vowel, which can be the syllable peak of a syllable with no lexical stress.

reinforce /rɪ'ɪnfɔ:ɪs/	fiancée /fi:'ænsɛɪ, fi:'ænsɛt/
inaccessible /ɪnæksɛ'sɛsəbəl/	reputation /rɛ'pjʊtə'teɪʃən/
monumental /mɒnjə'mɛntəl/	responsibility /rɪspɒnsə'bɪləbɪlɪ/
accidental /æksə'dɛntəl/	chimpanzee /tʃɪmpə'zi:/

#### 4.4. Weak stress / ~ /:

Weak stress falls on a reduced vowel, which carries little sonority, loudness, or acoustic quality. It can occur as much as 5 times in the same word. Unstressed syllables always carry the weak stress, and they have a vowel which is closer to neutral position. The syllable carrying weak stress has a short vowel. Weak stress also indicates vowel weakening in which all full vowels, no matter long or short, are reduced to schwa when the primary stress on them moves to the neighboring syllable. The following minimal pairs are phonetically partially similar word pairs in which the change of primary stress, because it indicates, grammatical category change in the lexical items, marks the existence of different phonemes in English.

Functional stress: The following minimal pairs testify the fact that vowel reduction is phonemic in English:

content /kántěnt/ (n)	content /kěntěnt/ (v., adj.)
contest /kántěst/ (n)	contest /kěntěst/ (v)
contract /kántriækt/	contract /kěntriækt/ (v)
contrast /kántriæst/ (n)	contrast /kěntriæst/ (v)
combine /kámbà:n/ (n)	combine /kěmbà:n/ (v)
convert /kánvəit/ (n)	convert /kěnvəi/ (v)
desert /dézə:it/ (n)	desert /dizé:it/ (v)

The schwa as a distinct phoneme gives a perceptual evidence as a phoneme but its recognition goes unheeded by Turks, so the lexical stress determination is not properly made by the non-native speakers because they make significantly enormous errors.

The occurrence of schwa five times:

**commercialization** /kəmə:ɪʒəleɪʒən/

**interdenominational** /ɪndə:ɪnə:ɪnə:ɪʃənəl/

So, in English, patterns of stress on syllables can be used to distinguish the different syntactic roles of a word. It must also be noted that in the following minimal pairs, which are “stress minimal” word pairs, the lexical stress detection for the location of primary stress for words that have very similar phonetic structure by the non-native speakers of English goes unnoticed. Apparently, there is a primary stress in each monosyllabic word and this case is called nuclear stress, and other types of syllables can take place in disyllabic, trisyllabic, and multisyllabic words.

##### 5. Mobility of Stress in English

In English, each syllable is not said with the same force or strength. Primary stress is realized in speech by combining an audible change in pitch with increased vowel duration and increased intensity (e.g., Bolinger, 1986; Cruttenden, 1997. “As well as being variable, English word stress is also mobile” (Kenworthy, 1990: 59). The primary stress shifts from one syllable to another when certain suffixes are added to the vocabulary items with changes in meaning. The movement of primary stress back and forth provides insights into how using primary stress affects international accepted intelligibility. Mobility of stress is the main cause of transfer from the native language interfered with learners' ability to appropriately produce English-like stress alternations in standard speech. It gets to be very confusing for Turkish teachers of English to make a lexical decision to put the primary stress in the following words. Areas for teachers to focus on include word families, which indicate the addition of certain affixes to the words whose stress patterns undergo remarkable changes. Mobility of stress is the main cause of deviations from the standard English in the speech of non-native speakers whose fluency in the target language does not closely resemble the accent of native English speaker. English pronunciation depends on stress a great deal. Here are some examples:

In the following transcriptions, the mobility of stress in English is indicated:

origin /'ɔːrɪdʒɪn, 'ɑːr-/ (n) - original /ə'ɪrɪdʒənəl/ (adj) - originality /ə'ɪrɪdʒənəleɪDi/

authorize /ɔːθə'raɪz/ (v) - authority /əθə'ɪəDeɪ, əθɑː-/ (n) - authorization /ɔːθə'reɪzɪ'ʃən/ (n)

gratitude /'grædətuːd/ (n) - gratuitous /grə'tuːəDəs/ (adj) - gratuity /grə'tuːəDeɪ/

necessary /nəsə'seɪ/ (adj) - necessity /nəsə'seɪDeɪ/ (n) - necessarily /nəsə'seɪrəli/ (adv.)

negotiate /nɪ'gəʊʃieɪt/ - negotiable /nɪ'gəʊʃiəbəl/ (adj) - negotiation /nɪ'gəʊʃiː'ɛɪʃən/ (n)

hypocrite /'hɪpəkraɪt/ (n) - hypocrisy /'hɪpəkriəsi/ (n) - hypocritical /'hɪpəkriːtɪkəl/ (adj.)

In addition to the mobility of stress, the following suffixes throw the primary stress to the preceding syllable, and this fact is not noticed by Turkish teachers and students of English:

ee, -arily, -eer, -ial, -ic, -ical, -ify, -ity, -graphy, -logy, -ual, -ous, -ious, -eous, -uous, -ual, -ient, -ience, -ency, -inal, -ion, -sion, -tion, -tional -ysis, -esis, -tude, -ate, -ist, -ise, -ize, -ary, -graph, -rat, -ium, -omy.

It must be noted that in English discourse, primary stress signals new and contrastive information (Bardovi-Harlig, 1986; Brown, 1983); also primary stress marks contrasts. The main finding from this experiment is that these serially ordered words that demonstrate the mobility of stress in English words provide insights into using primary stress. Nonnative primary stress dramatically takes place in the speech of the English teacher with poor English. Without the correct placement of primary stress on lexical items, learners cannot achieve communicative competence in English. In other words, if the primary stress is not correctly placed upon its required place, the result will be an accented English, and the speakers will not be able to incorporate the mobility of stress within correct pronunciation into their oral skills. Therefore, the movement of primary stress in English lexical items must be specially practiced. Lexical stress and its mobility within vocabulary items have more communicative value than the phoneme itself. Since 80 percent of English vocabulary stock is borrowed, lexical stress is specific to the individual word because each word may bring its original stress pattern from the borrowed language. Clearly, internalizing a stress pattern for a specific vocabulary item is many times necessary. There are four types of stress phonemes, and especially the misplacement of primary stress appears to seriously impair intelligibility. In this respect, lexical stress should be an area of top concern for pronunciation teachers.

## 6. Conclusion:

The poor pronunciation skills and accented speech of non-native of English language Education teachers' and teaching staff at the departments cannot be defended. Consequently, it can be concluded that lexical stress in English, as a top priority, should be an area of concern for pronunciation teachers who teach at the vocational schools. Pronunciation teaching programs at English Language Education Department programs should rank lexical stress at a top level of importance. The most compelling reason for investigating lexical stress lies in the fact that it disturbs the speaker, listener, and the students. Therefore, if lexical stress is wrongly distributed, it might have serious consequences for the ability of the listener, whether native or nonnative, to locate words within a piece of connected speech (Field, 2005: 419). Then, stress being one of the common cores of phonological features that, if taught systematically, would establish a framework for intelligible speech.

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