ENGLISH PHONOLOGY
ENG 302

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Vice-Chancellor's Message

The Distance Learning Centre is building on a solid tradition of over two decades of service in the provision of External Studies Programme and now Distance Learning Education in Nigeria and beyond. The Distance Learning mode to which we are committed is providing access to many deserving Nigerians in having access to higher education especially those who by the nature of their engagement do not have the luxury of full time education. Recently, it is contributing in no small measure to providing places for teeming Nigerian youths who for one reason or the other could not get admission into the conventional universities.

These course materials have been written by writers specially trained in ODL course delivery. The writers have made great efforts to provide up to date information, knowledge and skills in the different disciplines and ensure that the materials are user-friendly.

In addition to provision of course materials in print and e-format, a lot of Information Technology input has also gone into the deployment of course materials. Most of them can be downloaded from the DLC website and are available in audio format which you can also download into your mobile phones, IPod, MP3 among other devices to allow you listen to the audio study sessions. Some of the study session materials have been scripted and are being broadcast on the university's Diamond Radio FM 101.1, while others have been delivered and captured in audio-visual format in a classroom environment for use by our students. Detailed information on availability and access is available on the website. We will continue in our efforts to provide and review course materials for our courses.

However, for you to take advantage of these formats, you will need to improve on your I.T. skills and develop requisite distance learning Culture. It is well known that, for efficient and effective provision of Distance learning education, availability of appropriate and relevant course materials is a *sine qua non*. So also, is the availability of multiple plat form for the convenience of our students. It is in fulfilment of this, that series of course materials are being written to enable our students study at their own pace and convenience.

It is our hope that you will put these course materials to the best use.

Prof. Abel Idowu Olayinka
Vice-Chancellor

Foreword

As part of its vision of providing education for "Liberty and Development" for Nigerians and the International Community, the University of Ibadan, Distance Learning Centre has recently embarked on a vigorous repositioning agenda which aimed at embracing a holistic and all encompassing approach to the delivery of its Open Distance Learning (ODL) programmes. Thus we are committed to global best practices in distance learning provision. Apart from providing an efficient administrative and academic support for our students, we are committed to providing educational resource materials for the use of our students. We are convinced that, without an up-to-date, learner-friendly and distance learning compliant course materials, there cannot be any basis to lay claim to being a provider of distance learning education. Indeed, availability of appropriate course materials in multiple formats is the hub of any distance learning provision worldwide.

In view of the above, we are vigorously pursuing as a matter of priority, the provision of credible, learner-friendly and interactive course materials for all our courses. We commissioned the authoring of, and review of course materials to teams of experts and their outputs were subjected to rigorous peer review to ensure standard. The approach not only emphasizes cognitive knowledge, but also skills and humane values which are at the core of education, even in an ICT age.

The development of the materials which is on-going also had input from experienced editors and illustrators who have ensured that they are accurate, current and learner-friendly. They are specially written with distance learners in mind. This is very important because, distance learning involves non-residential students who can often feel isolated from the community of learners.

It is important to note that, for a distance learner to excel there is the need to source and read relevant materials apart from this course material. Therefore, adequate supplementary reading materials as well as other information sources are suggested in the course materials.

Apart from the responsibility for you to read this course material with others, you are also advised to seek assistance from your course facilitators especially academic advisors during your study even before the interactive session which is by design for revision. Your academic advisors will assist you using convenient technology including Google Hang Out, You Tube, Talk Fusion, etc. but you have to take advantage of these. It is also going to be of immense advantage if you complete assignments as at when due so as to have necessary feedbacks as a guide.

The implication of the above is that, a distance learner has a responsibility to develop requisite distance learning culture which includes diligent and disciplined self-study, seeking available administrative and academic support and acquisition of basic information technology skills. This is why you are encouraged to develop your computer skills by availing yourself the opportunity of training that the Centre's provide and put these into use.

In conclusion, it is envisaged that the course materials would also be useful for the regular students of tertiary institutions in Nigeria who are faced with a dearth of high quality textbooks. We are therefore, delighted to present these titles to both our distance learning students and the university's regular students. We are confident that the materials will be an invaluable resource to all.

We would like to thank all our authors, reviewers and production staff for the high quality of work.

Best wishes.

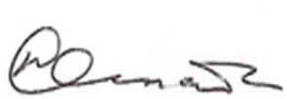

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Table of Contents

Phonology and Phonetics Again

Introduction

This first study session is a review of basic terms and concepts in phonetics and phonology. Some of these concepts were discussed in the prerequisite course to this, ENG 202, *Introductory Phonetics and Phonology* while some new ones have been added. In this study session you will learn about them.

Learning Outcomes for Study Session 1

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Differentiate between phonetics and phonology;
- List facts about phonemes, allophones and phones

1.1 Phonetic and Phonology

We discussed **phonetics** and **phonology** in the course, *Introductory English Phonetics and phonology*, which is a prerequisite to this present course. We need to refresh our memory by looking at these very crucial concepts again. Phonetics is the science of human speech sounds. It is the scientific study of human speech sounds. It studies the defining characteristics of human vocal noise and concentrates its attention on those sounds that occur in world languages. The three fields of phonetics are articulatory phonetics which deals with how the speech organs interact in the course of speech production, acoustic phonetics which deals with the physical ways in which sounds are transmitted though the air from one person to another and auditory phonetics which studies the way human beings perceive sounds through the ear.

Hint: Articulatory phonetics studies how the sound is produced. Acoustic phonetics studies how the air waves journey through the air. Auditory phonetics studies how the listener perceives the sounds.

Phonology, as you already know, is the study of how sounds pattern in human languages. It is also used to refer to the knowledge speakers have about the sound patterns of their language. They know the rules governing the production of sounds and other things and also know what patterns are possible or not in the language.

Language is not randomly articulated noise; it is patterned noise. It is sound with organisation. There are ranges of meaningful and organised noise possible in human languages. A particular language cannot make use of all these sounds. It therefore has its own inventory of sounds referred to as its sound-system i.e. its phonology.

Phonology therefore differs from phonetics in that phonology deals with sounds and their contrasts only within the concept of individual languages whereas phonetics studies sounds not in specific languages. Phonetics is even sometimes called general phonetics. All possible human sounds are concerns of phonetics, unlike phonology which is language-specific. The conclusions we reach on the phonology of a language must not be generalised into the study of another language. The basic unit of phonology is the phoneme while the basic unit of phonetics is the phone.

Hint: All languages in the world use the same phonetics but each language has its own phonology. The phonology of this language is different from that of the other.

When we discuss syntax and morphology, we describe the components of sentences at various levels: morphemes, words, phrases. Also, in phonology we're interested in the ways in which sounds combine to form words, and there are again a number of different levels of description. Generalizations or rules about how different sounds can be combined to form words hold at each of the levels we shall see below:

Organisation of Sounds

Syllables	g□ + tə
Segments	g+□+t+ə
Features	(These are descriptions of each of the sounds. e.g. /g/ is voiceless, velar, stop etc. We shall discuss this in details in Lecture)

This diagram presents the word as divisible into syllables and syllables into segments which are further divisible into features. Classical phonemics will view the segment as an indivisible unit of sound but generative phonology will portray the segment as divisible into features such as the example of /g/ above which is [+velar]. [+voice], [+stop]

1.2 Phonemes, Allophones and Phones

We have discussed these concepts in the course *Introductory Phonetics and Phonology* (ENG 202). It is good to quickly take a look at them again to refresh our memory. A phoneme is a distinct sound of a language. It is an abstract sound that is able to contrast the meaning of words in any human language and changing a phoneme to another in similar contexts will result in a change of meaning. The phoneme is the fundamental unit of phonology. Many phonological theories hold that spoken language can be broken down into a string of sound units (which are phonemes). It is believed that each language has a small, relatively fixed set of these phonemes which are combined in various ways to form the words that are spoken in that language. Phonemes can be put into groups. In the English language, under the group 'plosives' are the phonemes / p, b, t, d, k, g /.

Phonemes have many variants, depending on the position in the word since by now we know that sounds tend to be modified by the environments in which they occur. These variants are called allophones. Allophones are the phonetic variants of a phoneme. They are very similar sounds in a language that cannot change the meaning of words but add phonetic details to the word. The allophones of any phoneme are all alternative pronunciations for a phoneme but the allophone selected in a given situation is often predictable. Let's do a quick revision of the example in ENG 202:

	[p^h]	e.g **p**in	(aspirated)
	[p^N]	e.g. ha**pp**en	(nasally released)
/ p /	[p^L]	e.g a**pp**le	(laterally released)
	[p^o]	e.g to**p**coat	(unreleased)

We already know that phones are phonetic units of sounds with detailed production. They are called allophones when they are grouped together under a phoneme. So we say allophones of the same phoneme. [p^N], [p^L], and [p^o] are allophones of the same phoneme. Appropriate phones of a language can only be produced when you know the phonological rules of that language. After applying those phonological rules on the abstract phonemes, you will come up with appropriate phones.

1.2.1 Phonemic and Phonetic Alphabets

The phonetic alphabet is universal. It contains all the possible sounds of human languages. Each language has its inventory as a part of this larger collection. However, the phonemic alphabet is language specific. It varies from language to language. For example, English has no nasal vowel in its phonemic inventory/ alphabet. All English vowels are oral. However, in the Yoruba language, there is a nasal vowel because nasality of vowel contrasts meaning in Yoruba minimal pairs e.g. [sa] (to run) and [sã] (to crack). In English speech, oral vowels get nasalized only when they occur before nasal consonants and they do not contrast meaning. This means, nasal vowels are phonemic in Yoruba but phonetic in English. This implies that though there are no memorized nasal vowels in English, there are physically produced nasal vowels in certain context: before nasal consonants. In consequence, among the phonemic alphabets of English, there are no nasal vowels but among the phonetic alphabet, there are nasalized vowels.

Another good example is aspiration which in English is phonetic but in Thai phonemic. The addition of aspiration to /p/ in Thai will change the meaning of words such that /paa/ has a different meaning from /p^haa/. In English however, whether aspiration is added to the /p/ of /pɪn/ or not, the meaning remains the same but though it affects correct pronunciation.

aspirated [pʰ] will be put within the square brackets in English because it is phonetic while it will be put within slashes in Thai because it is phonemic /p/.

1.2.2 How to Identify the Phonemes of a Language

An important question in phoneme theory is 'how do we identify what constitutes phonemes in a language?' We can simply do this by noting that the phoneme is the sound that is in the speaker's mind. This is different from what he or she utters which are phones. Phones are sounds derived from phonemes that are put in contexts. They are therefore sounds that are affected by the contexts in which they occur. How then can we find out what's in someone's mind? How do we know how the speakers of a language store the sounds of words in that language in their memories?

We already know that phonemes are contrastive and that sounds that occur in exact positions in words and contrast the meaning of such words are assumed to be distinct phonemes of that language. We therefore need to find cases where the difference between two words is dependent on the difference between two phonemes in the same position of two words in such language. In ENG 202, we discussed minimal pairs and minimal sets. For example, we can prove that the difference between 'pen' and 'pan' depends on the vowels , /e/ and / æ/ in the same position of the two words. We can therefore conclude that in the English language, / e/ and / æ/ are different phonemes. Pairs of words that differ in just one phoneme are known as minimal pairs. When they are more than a pair, they are called minimal sets. We can establish the same fact about /p/ and /b/ by citing 'pin' and 'bin'.

However, to test the possibility of phonemes through minimal pairs or set, there must be a process of phonetic analysis which will make possible a provisional list of possible phonemes in the language under analysis.

Let's look at the following pair too:

[s□p] and [z□p]

These are two different words of English that differ only in their initial sounds. Therefore, the difference between /s/ and /z/ is significant for meaning in the English language. It is therefore assumed that the sounds [s] and [z] are stored in the memory of English speakers as parts of their mental alphabet.

Each of these pairs is a minimal pair.

Pill	bill	Kill	gill
Tin	din	Pin	bin

Let us also look at these words which constitute a minimal set in English:

Minimal Set	**Words**	**Sounds that differentiate meanings**
[bi:t]	beat	/ i:/
[beɪt]	Bait	/eɪ/
[b□t]	Bit	/□/
[bet]	Bet	/e/
[bæt]	Bat	/æ/
[bƏ□t]	Boat	/ə□/
[bu:t]	Boot	/u:/
[b□:t]	Bought	/□:/
[b□t]	But	/□/

This minimal set confirms that all the vowels listed under 'sounds that differentiate meanings' in the table above are mentally distinct in English. They are therefore regarded as phonemic.

characteristic of allophones of the same phoneme. Where one occurs, the other will never be found there. A nasally released /p/, [p^N], will never occur before a lateral sound; an aspirated /p/, [p^h], will never occur at word boundary finally where you may find an unreleased /p/, [p^o]. Let us use the aspiration rule in English as example. Where unaspirated [p] is found, the aspirated [p^h] will not be found. They are then said to be in complimentary distribution.

	[p]	[p^h]
syllable-initial	no	Yes
following /s/	yes	No
syllable-final	yes	No

1.2.4 Contexts

In the example above, 'syllable-initial', 'following /s/' and 'syllable-final' are contexts for the two phonetic sounds in question, [p] and [p^h]. In phonology, contexts are environments of sounds. The context of a sound could be other sounds in the environment of the sound you're dealing with (i.e. the sounds before or after it). The context of a sound can also be determined by parameters such as the location of the sound such as whether or not the sound occurs initially (as the first sound of a word), medially (at the middle of the word) or finally (at the end of the word).

Sounds tend to adjust or adapt to the characteristics of other sounds in the environments in which they occur. This adjustment or adaptation is responsible for the phonetic variants of phonemes such as affects our example, the /p/ sound, which could be realized as [p^h], [p^L] and [p^o], depending on contexts.

1.2.5 Boundary

Boundary is a very important notion in phonetics and phonology. At the segmental level, we need to know where one segment ends and another begins. Establishing boundaries may be very difficult because some sounds are not easily divisible. For instance, determining syllable boundaries especially in the English language could be difficult. Let us look at the word extra /ekstrə/. Which of these options will be correct? Why? /e+kstrə/, /ek+strə/, /eks+trə/, /ekst+rə/, /ekstr+ə/. We will re-address this when we get to the next study session which is sequences of English phonemes.

Apart from the phoneme boundaries of words, there are boundaries for stress (word and sentence stress), intonation and rhythm. For stress in the English language, the boundaries are not usually predictable by simple rules but for intonation and rhythm, the notions of intonation and rhythm groups confirm boundaries.

1.2.6 Phonemic and Phonetic Transcription Systems

We discussed this while dealing with ENG 202, Introductory phonetics and phonology. It is very important to go though it again in this course because it is expected that you're able to do both phonetic and phonemic transcriptions as well as differentiate them.

Transcription is the visual representation of speech sounds using particular symbols. Symbols are very specific and non-negotiable. A symbol in phonetics has a specific meaning and representation. If it is changed, it is no longer representing that sound which it's supposed to represent. It is important to know this because in the course of your contact with phonetics and phonology, you will be reading and doing transcription.

There are two types of transcriptions – phonemic transcription and phonetic transcription. The phonemic transcription is abstract transcription (you can infer that from the word phoneme which by now you should be used to), while the phonetic transcription is detailed (you can also infer the meaning from phonetic as earlier learned).

- ITQ Which among the two transcriptions uses diacritics?
- ITA Phonetic transcription

brackets. The conventional way of writing phonetic or phonemic transcription is to use brackets at the beginning and end of the sound, word or passage to indicate the nature of the symbols. Phonemic transcriptions are usually placed within slant brackets which are also known as obliques / /. On the other hand, square brackets are used to enclose phonetic transcription [ ]. For example, for the word 'pin', the abstract phonemic transcription will be / pɪn / while the detailed phonetic transcription will be [pʰĨn].

We will add additional features as necessary.

Summary of Study Session 1

In the foregoing lecture we revised the basic concepts that are used in phonetics and phonology with the addition of new concepts. We differentiated phonemes, allophones and phones and related them to the transcription systems: phonemic and phonetic. Phonemic transcription are consisted of phonemes while phonetic transcription are composed of phones. We also discussed how to identify the phonemes of a language using minimal pairs and sets and looking for complimentary distribution.

Self-Assessment Questions (SAQs) for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 1.1 (tests Learning Outcome 1.1) this is an example of the self-assessment question and the learning outcome that will be tested.

Phonetics and phonology are united in that they are both about human languages; what differentiate them?

SAQ 1.2 (tests Learning Outcome 1.2) this is an example of the self-assessment question and the learning outcome that will be tested.

Substitution of one phoneme for another changes the word to another, and, needless to say, changes the meaning. Substitution of one phoneme for another, however, does not change the word. What other facts are there about phonemes, allophones and phones?

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 1.1 (i) Phonetics studies how sounds are produced while phonology studies how those sounds pattern to form syllables, how syllables form words etc.

(ii)Phonetics concerns itself with all languages in the world (studies the sounds used in all languages in the world) while phonology deals with individual languages.

SAQ 1.2 Allophones are variants of a phoneme.

Phones are allophones. A phone becomes an allophone when it is examined in relation to its parent phoneme.

A phoneme is an abstract standard while an allophone is the form (of that phoneme) actually produced.

An allophone is a phoneme altered by and/or adapted to the context within which it finds itself.

English Phonotactics (Sequencing of English Phonemes)

Introduction

Every language has ways in which sounds are strung together to form words. In this study session, you will learn about how sounds are joined together to form English words. We must not forget that no two languages are the same.

Learning Outcomes for Study Session 2

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- demonstrate knowledge of possible syllable structures for English
- demonstrate the knowledge of possible and impossible syllable structure
- correctly identify cases of consonant clustering
- identify cases of silent letters
- demonstrate knowledge of the pronunciation of English plural forms–s, -es, verb forms that require –s, -es and past tense morpheme–d, -ed
- differentiate between the simple syllabic system of most Nigerian languages and the complex syllabic system of English.

1.1 What is Phonotactics?

Phonotactics is the study of sound sequences. It is the study of how sounds are arranged in a particular language. It is good to emphasize at this juncture that the knowledge of a language goes beyond knowing its phonetic inventory. It also goes beyond knowing its individual phonemes. It extends as far as knowing how sounds are strung (that is, added) together in that language. It is good to note here, however, that most phonotactic analyses are based on the syllable. Therefore the constraints we talk about here are often related to how segments (i.e. phonemes) are ordered into syllables in a particular language. Do not forget that there are different kinds of words as we learned in ENG 202: monosyllabic, disyllabic and polysyllabic words. You really need to be able to differentiate words and syllables to have a good grasp of what we are discussing here. 'Man' is a monosyllabic word. It is a syllable; it is a word. 'Manage' is a disyllabic word. It is a word; it has two syllables. 'Managerial' is a polysyllabic word. It has four syllables. A good student of phonology should be able to differentiate between words and syllables.

Hint: monosyllable—a word with one syllable
Disyllable—a word with two syllables
Polysyllable—a word with three or more syllables

Now let's go on with our explanation. It has often been observed that no language allows phonemes to be put together arbitrarily. For instance, a native speaker of English can easily identify with the sequence of phonemes in the word 'strengths'/ streŋθs / and state with confidence that it is an English word. This is because he has an instinct (i.e. a natural way of knowing) about what is wrong or right in his mother tongue. This instinct is also called intuition. He knows the possible ways in which the sounds/phonemes/segments could be strung together in his native language without being taught in school. Do not forget that all the rules of pronunciation that we learn as second language users in the school are naturally known by those who speak English as a mother tongue.

There is a universal tendency for certain sounds to occur in several languages as distinct phonemes but the pattern of stringing the sounds together may differ from one language to another. For instance, though /s,t,r/ occur in Yoruba language, they cannot follow one another in quick succession as we have in the initial consonant sequencing of the English word: street. This is because Yoruba language does not permit consonant clustering. Whether initially, medially or finally, consonant clusters do not occur in the Yoruba language. It is important for you to know that the knowledge of such facts as we have discussed here is important in phonotactics, the study of sound sequences.

Part of the linguistic competence of the speaker of any language is to know of the sequential rules of a language. A speaker of any language should be able to identify a string of sounds as possible or impossible arrangement or order in that language. Words such as cilkb, kninb, though constituted by possible phonemes of English (/k, I, l, b, n/) are not acceptable English words because they defy the possible patterning of English words. One's knowledge of a language therefore, tells one that certain strings of phonemes are permissible and that some are not. This knowledge, for a mother tongue speaker, is unconscious and intuitive. Children acquire this rule when they acquire the language; just as they acquire the phonemes. For second language speakers such as Nigerians, this knowledge has to be learned in school.

For instance, though / ŋ / occurs in both Ashanti and English, it can start an Ashanti word but never an English word. / ŋnu/ is an Ashanti word, whereas such sequencing allowing / ŋ/ to occur initially is not permissible in English. It can only occur medially or finally as in the word / sɪŋɪŋ /. Also the sound /w / and / j / will never occur finally in English though they could occur initially and medially.

Hint: Non-native speakers of a language learn in school features that native speaker naturally know.

Now let us look at the English syllable structure. The first thing we need to know is that the English syllable structure is complex when compared to some other world languages. It is said to be complex because of the nature of the arrangement of syllables in the language. It is possible to have as many as three initial consonants (C3) and four final consonants (C4) and an indispensable vowel (V), that is CCCVCCCC. (C3) V (C_4) is a summary of the syllable structure of English. This implies that you could find an English word with as many as three consonants clustering at the beginning as its ONSET and as many as four consonants at the end as its CODA. You can also find an English syllable with no onset and no coda. But, it must always have a vowel (NUCLEUS). Onset here refers to the initial consonants before the vowel, Nucleus to the vowel itself and coda to the final consonants i.e. after the vowel.

It has been observed that in most human languages, the vowel is often the obligatory part of the syllable while the consonants, whether initially (ONSET) or finally (CODA) are optional. The vowel is therefore referred to as a nucleus because it is believed that it gives life to the syllable. It is the peak of the syllable.

We must never forget that the phonotactics of any language is rule governed. Sounds do not arrange arbitrarily in any human language. They are arranged following particular orders. When an English syllable has consonant clusters initially (i.e. when 3 consonants form the onset of an English syllable), the first sound will be the /s/, the second sound will be any of the voiceless plosives (i.e. /p, t, k/) and the third will be a liquid. The initial clustering cannot follow any other pattern but this:

/s/ (p t k) (l w r j)

Now let us look at some possible syllable structures for English. Not all the structures are listed here because they are many. However, majority are presented.

V as in a, air, ah, I

CV as in - go, to, poor, cow, core, car, toe, pea

CVC as in rat, this, zip, gap, cap

CVCC as in prank, kernel, petal, panel, knuckle

CCV as in try, play, few, fly
CCVC as in brag, fridge, cringe
CCVCC as in spank, stink, scalp
CVCCC as in sinks, hinged, thinks
CCCV as in square, spray
CVCCCC as in sixths, texts
VC as in an, ache, aim, aid, aide, all

VCC - able, amp, edged etc
VCCC angle

1.2 Possible and Impossible syllables

We already know that there are particular ways in which each language structures its phonemes to form syllables. We also know that this structuring are based on rules; not arbitrarily done. However sometimes we may come across some words that look like a word from a language we know but still sound or look strange to us. An **accidental gap** is a possible word in a language that is not a word of that language. In English, 'spl' can start a word as in the word 'splash'. A nonsensical word like *splish* which follows this pattern but is not an English word is therefore an accidental gap. It is a word that could pass for good in a language but does not have a meaning in that language. These kinds of words are often explored by advertisers to name products and services. For instance, TOPDAM PUBLISHERS. 'Tope and Damilola', Yoruba names, when clipped and grafted resulted in Topdam, which though not an English word, sounds like English.

- ITQ What is likely to be the reaction of a first language user of English to these sentences?
  I just bought a beautiful blick.
  I just bought a beautiful bkli.

- ITA Though not an English word, the first sentence has a pattern that follows the possible sequence of an English word while the second does not. He is most likely going to tell you he doesn't know the meaning of the first word but that the second word is not English.

There are other sequencing rules that are obeyed by users of English. An English word beginning with the sound /□/ must be followed by a vowel. Therefore we have 'church', 'change', 'challenge' etc. The sound [l] and [r] must be followed by vowels when they occur initially e.g. 'liver, river, rouse, lost' etc. As explained earlier on, the sound [ŋ] must not begin an English word. It can only occur initially and finally.

It is also good to note that the phonotactic studies of English have come up with some interesting findings. Let us look at some of them. It has been discovered that certain sequences seem to be associated with particular feelings or human characteristics, for no obvious reason. Words such as 'bump', 'rump,' 'lump', 'hump', 'mump(s)', 'clump' and others are associated with large blunt shapes. You will also find a whole family of words ending with a plosive and a syllabic / l / all having meanings to do with clumsy, awkward or difficult actions ('muddle', 'straddle', 'fumble', 'fiddle', 'cuddle', 'buckle' (vb.), 'struggle', 'wriggle'.

2.3 English Consonant Clusters

Earlier, we discussed the patterns of English syllable and the fact that up to three sounds could start an English syllable while up to four consonants can end it. Therefore, an English ONSET may have up to three optional consonants (C^3) while the CODA could have up to four consonants (C^4). The case of consonants following in quick succession without a vowel coming between them is called consonant clustering. This we already discussed as very common in the English language. We have also learned that when consonants cluster at the beginning of the English syllable, it has its ordering rule.

us look at the following examples together. There are two consonant letters visible as clustering in the word **sq**ueeze but when pronounced, there are three consonant sounds clustering in the word. /**skw**I:z/ squeeze. Also in the word te**xts,** there are three visible consonant letters clustering but when pronounced, four consonant letters are realized as clustering /te**ksts**/.

We also have instances where three letter consonant clusters are produced as two sound consonant clusters. Let us look at the following example together. ***Shr****ank* has '**shr-',** three consonant letters clustering at the beginning of the word but when produced, the three consonants are realised as **/ʃr/** , which are two sounds. Another example is the word **si<u>ng</u>** where the two letters **'-ng'** are produced as a single sound /ŋ/.

Hint: Spelling and pronunciation are often divergent (different) in English. In many cases, what is written (spelt) is not what is pronounced and/or what is pronounced is not what is written (spelt).

The fact that most Nigerian languages do not have consonant clusters in them makes it challenging for most Nigerians to use the consonant clusters of English. More often than not, some of the sounds are dropped off to make the words easier to pronounce. Therefore, many produce the word 'text' as /tes/ or /test/.This may affect meaning and cause confusion or misunderstanding since the meaning of 'text' differs from 'test'. However, this is not a challenge that cannot be overcome with constant practice and cautious speaking and reading.

Examples of some English words with consonant clusters are given below:

English Consonant Clusters		
Initial	**Medial**	**Final**
Scrap	Mi**xt**ure	Bi**nds**
Square	E**xt**reme	Gli**mpse**
Shrank	Resi**gn**ation	Di**sks**
Quit	Mali**gn**ant	Atte**mpt**
Dwindle	Rea**ct**ion	Ma**sked**
Blue	A**nch**or	Dre**nched**
Clean	A**ppr**aise	Activi**sts**
Twice	E**xp**ect	Responde**nts**
Splash	Re**sp**ect	Sto**pped**
Spurious	Assi**st**ance	Dum**ped**

- ITQ Why would a Yoruba speaker change "bread" to "buredi" to make it a Yoruba word?

- ITA Most Nigerian languages do not have consonant clusters in them; consequently, when an English word such as "bread" is to be loaned into Yoruba, vowels would be systematically introduced to separate the clustering consonants. That accounts for "br" that becomes "bure". Consonants do not occur at the end of Yoruba words; in the situation of a loan, consequently, a vowel is placed behind the consonant that ends the word in the original language. That accounts for the "d" that becomes "di".

2.4 English Silent letters

As we have continued to emphasise in the spoken English, phonetics and phonology courses, there is no one-to-one correlation between English words and letters. One of the major characteristics of English that makes it different from most Nigerian languages is the fact that some letters which are written are not pronounced. These are called silent letters. They are there in the written word but not realized as any sound. When you spell such words, the silent letters must be included. However, they must not be included in the pronunciation.

the letter 'h' in *hour* is silent. Someone may ask the question 'Why the inconsistency?' The answer is simply that the English writing system is a bit challenging to predict. We should therefore be very ready to look for the right pronunciation of English words and practise constantly to master them.

Now, let us look at some English words that have silent letters in them. The letters in bold forms are silent in them.

Hour	**H**onest	**h**onourable	**h**onesty	Fore**h**ead
Pes**t**le	Wres**t**le	whis**t**le	sof**t**en	lis**t**en, chale**t**, balle**t**
Gnash	**G**nome	**g**nat	**g**narled	**G**naw
Know	**K**nack	**k**nit	**k**nead	**K**nickers
Psalm	**P**sychology	**p**syche	**p**sychiatrist	**P**neumonia
Bom**b**	Lam**b**	tom**b**	com**b**	Plum**b**
Yo**l**k	Ta**l**k	wa**l**k	pa**l**m	Ha**l**f
si**g**n	Ali**g**n	mali**g**n		
Condem**n**	Dam**n**	solem**n**		
Em**p**ty	Recei**p**t			
Chassi**s**				

Looking through the table above; you must have discovered some words with silent letters that you have been pronouncing. There are many other words that are not included here but that we also need to observe and avoid pronouncing their silent letters.

2.5 The Pronunciation of English plural forms–s, -es, Verb forms that require –s, -es and past tense morpheme–d, -ed

2.5.1 The Pronunciation of English plural forms–s, -es and Verb forms that require –s, -es

As part of the phonotactics of English, it is good for us to know the variation that we need to observe when we realise the plural forms of English nouns that add 's' or 'es' as well as the verb forms that take 's' or 'es' to agree with the subject. We must have learned in our grammar class that the regular way of changing to the plural form of a noun is to add the suffix –s to the word. E.g. 'mat' becomes 'mats'. We also know that when we use *he, she, John (or any name at all)* and *it*, we should add *–s* or *–es* to the verb, if it is in the present tense form. e.g.

He *gives* arms to the poor.

She *loves* to dance.

John *likes* fish.

It *lives* in the jungle.

This is regular because there are other forms such as *child* (singular), *children* (plural) but the addition of –s is the most frequently occurring form so it is often said to be regular.

The –s that is joined to the noun to change it to the plural form is not pronounced as the same sound all the time. There are three different ways of pronouncing it which depends on the sound (not letter!) that ends the noun to which it is joined. The three forms are: /s/, /z/ and /ɪz/. Let us study the diagram below:

(1)/-s/ after nouns and verbs that end with voiceless sounds E.g. pick+s = pick**s** /pɪk**s**/ (/k/, the last sound of pic**k**, is a voiceless sound, so '–s' should be pronounced as /s/)

/-Z/

(2)/-z/ after nouns and verbs that end with voiced consonants. E.g. rub+s = rubs /r□bz/ (/b/, the last sound of rub, is a voiced sound, so '–s' should be pronounced as /-z/)

(3)/-z/ after nouns and verbs that end with vowels. E.g. star+s = stars / sta:z / (/a:/, the last sound of star, is a vowel which is an automatically voiced sound, so '–s' should be pronounced as /-z/)

(4) /-ɪz/ after /s/, /z/, /ʃ/, /□/, /□/, /□/ sounds E.g. search+es=searches / s□□□ɪz / (/□ /,the last sound of search is similar in pronunciation to /s/ and /z/, so / ɪ / is inserted between the two sounds)

How do we know the correct form for a noun we intend pluralizing? It is easy. Do not forget that sounds tend to be modified by the environment in which they occur. The first step is to see if the noun ends with a voiceless consonant. If it does, the option is /-s/ which is also voiceless. E.g./t/ is a voiceless sound. Therefore, *mat* will take the plural form /s/. Does the noun end with a voiced consonant? If it does, chose /-z/. E.g. the last sound of *teacher* is the vowel /ə/. Since all vowels are voiced, the option will be /-z/ . However, if it ends with /s/, /z/, /ʃ/, /□/, /□/, /□/ then take the option /-ɪz/. e.g. *match**es*** /mæ□ɪz/.

Let us take a quick look at the voiced and voiceless sounds of English.

English Sounds		
Voiceless Consonants	**Voiced Consonants and Vowels**	
	Voiced Consonants	**Vowels *(All vowels are automatically voiced)***
/p, t, k, f, □, s, ʃ, h/	**/b, d, g, v, ð, z, □, □, □, m, n ŋ,l, r, w, j/**	**/i :, ɪ, e, æ, a:, □, □:, □, u:, □, ɜ:, ə, eɪ, əu, aɪ, a□, ɪə, eə, □ɪ, □ə/**

The above is a table of the voiced and voiceless sounds of English. Now, let us look at a table indicating which of the three options should be used in particular contexts.

Add /–s/ after any noun or verb that ends with any of the sounds below:	**Add / –z/ after any noun or verb that ends with any of the sounds below:**	**Add /-ɪz/ after any of the sounds below.**

		automatically voiced)	**pronunciation.**
/p, t, k, f, □, h/	/b, d, g, v, ð, m, n ŋ,l, r, w, j/	/i:, ɪ, e, æ, a:, □, □:, □, u:, ^, ɜ:, ə, eɪ, əu, ai, a□, ɪə, eə, □ɪ, □ə/	s, z, ʃ, □, □, □

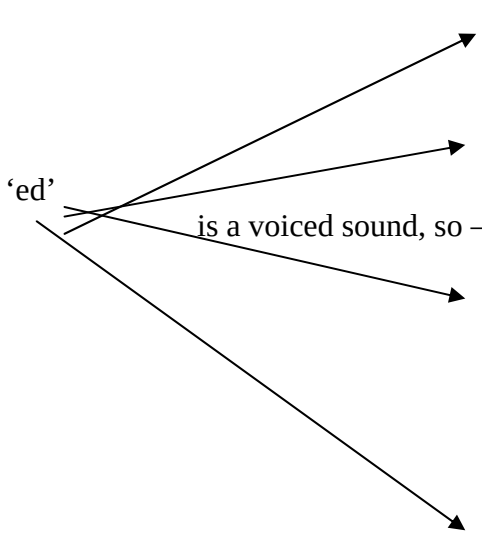
Practise with the following words:

/–S/	**/–Z/**	**/–Z/**	**/–IZ/**
tips /tɪ**p**s/	beads /b**i:**dz/	stars /st**a:**z/	watches /w□□ɪz /
cats /kæ**t**s/	sings /sɪ**ŋ**z/	prays /pr**e**ɪz/	judges /d□□**d**□ɪz /
coughs /k□**f**s/	gives /gɪ**v**z/	roars /r□**:**z /	sizes /saɪ**z**ɪz/
packs /pæks/	paths /p□:ðz/	boys /b□ɪz/	brush /br□ʃɪz/
	beans / bi:nz/	ears /ɪəz/	badges /bæd□ɪz/

2.5.2 The Pronunciation of the past tense morpheme –d, -ed

As we learned with the plural morpheme realisation, so also there is variation in the realisation of the past tense morpheme in English. The regular way of showing that the action of the verb was performed in the past is to add ***–d*** or ***–ed*** to the verb. E.g *search/ searched, rub/rubbed, cough/coughed* etc. However, there are other irregular forms such as ***swim/swam, teach/taught, go/went*** but we are concerned here with the pronunciation of the regular forms that take the suffixes ***–d, ed***.

The suffixes ***–d*** and ***–ed*** that are joined to the verb to change it to the past tense form are not pronounced as the same sound all the time. There are three different ways of pronouncing them depending on the sound (not letter!) that ends the verb to which they are joined. These are: /-t/, /-d/ and /-ɪd/.



/-t/ after verbs that end with voiceless sounds

E.g. pick+ ed = pick**ed** /pIk**t**/ (/k/, the last sound of pick, is a voiceless sound, so –ed should be pronounced as /t/)

/-d/ after verbs that end with voiced sounds

E.g. rub+ed = rubbed /r□bd/ (/b/, the last sound of rub, is a voiced sound, so –ed should be pronounced as /d/)

/-d/ after all vowels because all vowels are automatically voiced in English

E.g. star+ed = starr**ed** /sta:d/ (/a:/, the last sound of **st*ar***, is a vowel sound, so **–ed** should be pronounced as /d/)

/-Id/ after the sounds /t/ and /d/.

E.g. want+ed = want**ed** (/t/, the last sound of want***t***, is a a plosive just as the sound to be added, so **-ed** should be pronounced as /-Id/)

verb that ends with any of the sounds below:	**with any of the sounds below:**		**sounds below.**
Voiceless Consonants	**Voiced Consonants**	**Vowels *(All vowels are automatically voiced)***	**These sounds are the same as /t/ and /d/ in pronunciation.**
/p, k, f, □/	/b, g, v, ð, m, n, ŋ,l/	/ɪ:, ɪ, e, æ, a:, □, □:, □, u:, ^, ɜ:, ə, ei, əu, ai, a□, ɪə, eə, □ɪ, □ə /	/t, d/

Practise with the following words:

/–t/	**/–d/**	**/–d/**	**/–Id/**
tipped /tɪ**p**t/ coughed /k□**f**t/ packed /pæ**k**t/	mou**th**ed / ma□**ð**d/ ba**nn**ed / bænd / si**z**ed / sa□zd /	st**arr**ed/st**a:**d/ pr**aye**d /pr**ei**d/ r**oare**d /r□**:**d /	wa**de**d / we□**d**ɪd / ma**tt**ed /□mæ**t**□d / pa**dd**ed /pæ**d**ɪd/

Now that we know that the plural morphemes '-s' and '-es' as well as the past tense morphemes '-d' and '-ed' have variations based on the context, we now want to predict the pronunciations. Which of the variants is changing to the others. And in which contexts/ environments?

We need to pick one of the pronunciation that is assumed to be stored in memory. We should pick the **least predictable** one to store in memory. The least predictable refers to the sound that occurs in more context than the others. For the plural morphemes, we will store [z] before it occurs in more contexts than [s]. Therefore, the memorized representation for the plural morpheme in English is /z/. Now we need to write rules to get the pronunciations right. We will look at the table together.

1	**2**	**3**	**4**
tips /tɪ**p**s/ cats /kæ**t**s/ coughs /k□**f**s/ packs /pæ**k**s/	beads /b**i:**dz/ sings /sɪ**ŋ**z/ gives /gɪ**v**z/ paths /p□:**ð**z/ beans / bi:**n**z/	stars /st**a:**z/ prays /pr**e**ɪz/ roars /r□**:**z / boys /b□ɪz/ ears /ɪəz/	watches /w□□ɪz / judges /d□□**d**□ɪz / sizes /saɪ**z**ɪz/ brush /br□ʃɪz/ badges /bæd□ɪz/

Based on earlier discussions, can you identify what is similar about all the stems in the first column, the ones that take [s] in the plural? They all end in voiceless sounds! So the rule for these must be:

/z/ (a voiced alveola fricative) becomes [s] (a voiceless alveola fricative) when it comes after a voiceless sound. Do you remember that sounds tend to be modified by their environments?

However, we can do better than this. Since the difference between /z/ and [s] is that /z/ is [voiced] and [s] is [voiceless], we can write the rule as:

/z/ becomes [voiceless] when it comes after a [voiceless] sound

Thus, this is a rule of assimilation. You will know more about this when we get to the lecture on English phonological rules.

Can you identify what is similar about all the stems in Column 2, the ones that take [z] in the plural? They all end in voiced sounds! Knowing that the sound that changes in particular context is the [z] sound, we need no rules since the option here is still [z]. For column 3, the same will occur because all vowel sounds are voiced. Therefore, [z] is retained as the sound in that context too. However, for column 4, the preceding sounds are all sounds that are similar in production to the [z] sound. Therefore /z/ becomes [ɪz] when it comes after a sound that is similar to it. What actually happens is that [I] is inserted to make the pronunciation easier. It would have been difficult to produce *watches* */w□□z/. The insertion of [I] makes it easier so we have /w□□ɪz / as the correct pronunciation.

Now, let us do the same for the past tense morphemes, "-d" and "-ed". We will store /d/ for the past tense morpheme, being the **least predictable** because it affects more contexts than the others. Let us look at the table together:

1	**2**	**3**	**4**
tipped /tɪ**p**t/	mouthed / ma□**ð**d/	stars /st**a:**d/	waded / we□d /
coughed /k□**f**t/	banned / bænd /	prays /pr**e**ɪd/	matted /□mæt□d /
packed /pækt/	sized / sa□zd /	roars /r□**:**d /	padded /pædɪd/

Based on earlier discussions, can you identify what is similar about all the stems in the first column, the ones that take [t] in the plural? They all end in voiceless sounds! So the rule for these must be:

/d/ (a voiced alveola plosive) becomes [t] (a voiceless alveola plosive) when it comes after a voiceless sound. Remember sounds tend to be modified by their environments.

However, we can do better than this. Since the difference between /d/ and [t] is that /d/ is [voiced] and [t] is [voiceless], we can write the rule as:

/d/ becomes [voiceless] when it comes after a [voiceless] sound
/d/ → [voiceless] / [voiceless] ____

This is also a rule of assimilation. You will know more about this when we get to the lecture on English rules. This formalization of rule will be better understood then.

Can you identify what is similar about the items in column 2, the ones that take [d] in the plural? They all end in voiced sounds! Knowing that the sound that changes in particular context is the [d] sound, we need no rules since the option here is still [d]. For column 3, the same will occur because all vowel sounds are voiced. Therefore, [d] is retained as the sound in that context too. However, for column 4, the sounds are all alveola plosives /t/ and /d/ which are the same as the sound under discussion, /d/. Therefore /d/ becomes [ɪd], with [I] inserted when it comes after an alveola plosive.

Summary

We have discussed in this study session that no two languages string words together the same way and that no language strings words together arbitrarily. There are phonotactic constraints on the organisation of phonemes in languages. In this case we are dealing with English and we have discussed the complex syllable structure of English which makes consonant clusters possible but within specific phonotactic constraints (rules).

We have also discussed that accidental gaps are possible words in a language that are not words of that language. They are words that obey the rules guiding how sounds are strung together in that language: in this case, the

vowel. Therefore we have ‘church’, ‘change’, ‘challenge’ etc. The sound [l] and [r] must be followed by vowels when they occur initially e.g. ‘liver, river, rouse, lost’ etc and the sound [ŋ] must not begin an English word. It can only occur initially and finally.

Afterwards, we discussed consonant clusters and silent letters in English and the challenges non-native speakers such as Nigerians have with them. We should not forget the pronunciations of English plural forms of the noun "–s", "-es" and verb forms that require –s, -es as well as the past tense morphemes "-d" and "-ed".

Self-Assessment Questions (SAQs) for Study Session 2

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 2.1 (tests Learning Outcome 2.1) this is an example of the self-assessment question and the learning outcome that will be tested.

Form five possible English syllable structures.

SAQ 2.2 (tests Learning Outcome 2.2) this is an example of the self-assessment question and the learning outcome that will be tested.

While *splun* and *kraan* are possible in English, though not meaningful, why are *chplin*, *lraan*, *rlus* and *ngelish* impossible?

SAQ 2.3 (tests Learning Outcome 2.3) this is an example of the self-assessment question and the learning outcome that will be tested.

In which of the following are there consonant clustering: chirp, slum, joseph, appal, annul?

SAQ 2.4 (tests Learning Outcome 2.4) this is an example of the self-assessment question and the learning outcome that will be tested.

The *h* in *honourable* is silent, so is the *k* in *knowledge*. Give five other examples.

SAQ 2.5 (tests Learning Outcome 2.5) this is an example of the self-assessment question and the learning outcome that will be tested.

Phonemically transcribe the following words paying attention to the pronunciation of English plural forms–s, -es, verb forms that require –s, -es and past tense morpheme–d, -ed

(i) Departed
(ii) Houses
(iii) Monks
(iv) thanked
(v) sends

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 2.1 eg.:

CCVC as in pride

CCCVC as in strap

CCCVCC as in strength

SAQ 2.2

A sequencing rule says /□/ must be followed by a vowel. Another says [l] and [r] must be followed by vowels when they occur initially. Still another says [ŋ] must not begin an English word.

SAQ 2.3 Slum

SAQ 2.4 eg.: the *b* in *subtle*, the *t* in *rapport*

SAQ 2.5

(i)	departed	/dipa:tid/
(ii)	houses	/ha□ziz/
(iii)	monks	/m□ŋks/
(iv)	thanked	/□æŋkt/
(v)	sends	/sendz/

Post Test

1. What are phonotactic constraints and why are they language specific? Give examples from the English language.

2. What are the variants of the past tense and plural noun morphemes in English

Phonological Theories (I)

Introduction

We are now getting to the more technical part of the course. Our assumption is that we have been paying close attention to issues raised earlier in previous chapters. Now, we need to follow the discussion more attentively so that we will not be confused. In this study session, we shall start a discussion of the various phonological theories that are ideal to be understood at this level. This lecture will be linked up with subsequent lectures on phonological theories.

Learning Outcomes for Study Session 3

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Identify the significance/usefulness of phonemics
- List the tools used by phonemicists to determine a phoneme in a language
- Discuss the tenets of Classical phonemics.

3.1 Journey to Phonemics

We shall take a quick look at what **theory** means before discussing phonological theories specifically. A theory is an idea or set of ideas that is intended to explain something about life or the world. It is a set of facts, propositions or principles analyzed in their relation to one another and used to explain a phenomenon. In the case of phonology, a phonological theory will explain certain phonological phenomena in a language or related or unrelated languages. In the case of English, there are different theories on various aspects of the language. Even on phonology, there are many theories from different schools of thoughts and spanning over years. Do note that a succeeding theory is sometimes a reaction to a preceding one. Generative phonology is a reaction to the claims of classical phonemics while metrical phonology is also a reaction to the claims of generative phonology.

A basic fact you should know as students of phonology is that linguists keep attempting to understand how language is organised in the human brain. Up to the 1950s, the focus was on the analysis of what the speaker produced (i.e at the surface level). However, current theories are based on the idea that what is stored in the brain (abstract) and what is produced (in reality) may not be the same.

Hint: A theory is formed to explain certain phenomena.

Though the views of the various phonological theories vary, the majority hold that spoken language can be broken down into a string of sound units which are technically called phonemes, and that each human language has a fixed set drawn from this pool of phonemes. There is also the relatively general notion that most phonemes can be arranged into groups. Let us look at English, for example. The sounds /p, b, t, d, k, g/ fall in to the group called plosives because they all have the same manner of articulation. The grouping of phonemes could be based on the place of articulation, voice etc. So we talk of bilabial sounds, alveola sounds, voiced and voiceless sounds etc.

When the importance of the phoneme became widely accepted, in the 1930s and 40s, many attempts were made to develop scientific ways of establishing the phonemes of a language and listing each phoneme's allophones. This was known as *phonemics*. Nowadays little importance is given to this type of analysis, and it is considered a minor branch of phonology, except for the practical purpose of devising writing systems for previously unwritten languages.

3.2 Classical Phonemics

The term phonemics refers to the study of the sound system of a given language as well as the analysis and classification of the phonemes of such language. A person who engages in this study is a phonemicist. Though there are different schools of thought such as the Prague School of Phonology and the American Structural Phonemics belonging to this group, what is important is that the phoneme is of central concern to phonemicists, irrespective of the approach.

had never been transcribed before. It derives its greatest strength from its practical orientation, which has proved very beneficial to language teaching and learning.

Some linguists believe Noam Chomsky's criticisms of phonemics are largely unjust because he (Noam Chomsky) has not examined the concept of the phoneme in its own theoretical framework but in the framework of generative phonology. They believe Chomsky's generative phonology should therefore be regarded as an alternative account of sound structure rather than a valid critique of phonemic phonology (This will be clearer to you as we move on in this lecture).

Do not forget that the focus of classical phonemics is the phoneme. It is concerned with the description of phonemic and morphophonemic alternations. It views the phoneme as an entity that is not further divisible. To classical phonemicists, the phoneme is the smallest indivisible unit of sound. This is contrary to the view of generative phonologists. Though we shall discuss generative phonology later, it is good to refer to issues that will make you understand the theories and their areas of disagreement as we go on in this discussion.

As earlier mentioned and emphasized, classical phonemics views the phoneme as the fundamental unit of phonology. There are however different views on the phoneme. Some view the phoneme as a **phonetic reality**; some from the perspective of **function** and others as a **psychological reality**. As a phonetic **reality,** it is believed that sounds that belong to the same phoneme share common phonetic properties. Let's look at our example of the phoneme /p/. The phonetic reality of the phoneme /p/ will be the allophones which are [p^h, p^N, p^L, p^o, p]. From the perspective of **function**, it is believed that distinct phonemes function in languages to distinguish meaning. E.g *pan* and *pen* have the sounds / æ / and /e / distinguishing the meanings of the two words. Another description is one which holds the phoneme as a **psychological reality**. Such view emphasis the phoneme as a mental concept. It is believed to be what the native speaker conceives in his head which may not be what is uttered in reality.

- Though their focuses differ, on what do most phonological theories agree?
- That spoken language can be broken down into a string of sound units which are technically called phonemes, and that each human language has a fixed set drawn from this pool of phonemes

Classical phonemicists use certain criteria for determining what constitutes a phoneme in a language. Minimal pairs, minimal sets and complementary distribution (which we discussed earlier under terminologies) are means by which this is done. When similar sounds are mutually exclusive, that is, where one occurs, the other does not; they are often queried as allophones of the same phoneme. For instance, [p^h], [p^N], [p^L], [p^o] and [p] are mutually exclusive. Where one occurs, the other does not. Therefore, in the example above, [p^h], [p^N], [p^L], [p^o] and [p]are allophones, phonetic or contextual variants of the /p/ phoneme.

Also, when sounds occur as the only contrasting sounds of a pair or set, they are queried as distinct phonemes of a language as long as they account for a change in meaning. Let us look at the minimal pairs/ set below:

/**b**ɪn/	/**p**ɪn/
/nɪ**p**/	/nɪ**b**/
/**k**ɪn/	/**g**ɪn/
/**t**ɪn/	/**d**ɪn/

You can see that in the English language /p/, /b/, /k/, /t/, /d/ and /g/ are distinct phonemes because they occur as minimal contrasts in the pairs/set above, and they account for a change in meaning.

However, while using complimentary distribution as guide to determining the allophones of a phoneme, we have to watch out for some exceptions. For instance, the /h/ sound and the / ŋ/ sound do not occur in the same position in the English language. While /h/ occurs only as initial sounds of a syllable as we have in *hot* and *ahead* (ahead being two syllables), / ŋ / only occurs as the final sound of a syllable. Yet, these two sounds are not to be considered as allophones of the same phoneme. We can then ask why. The two sounds have no phonetic 'likeness' as we often find to exist between allophones of the same phoneme. We cannot therefore claim one is changing to the other for certain phonetically generated reason or reasons. It's a sheer coincidence that they are mutually exclusive.

Summary of Study Session 3

In the foregoing study session, we have defined a theory as an idea or set of ideas that is intended to explain something about life or the world. We also specifically defined phonological theory as an explanation for phonological phenomena in a language. We discussed how classical phonemics dealt only basically with the surface structure of languages but subsequent phonological theories proposing an underlying structure.

We then went on to share the knowledge that though the views of the various phonological theories vary, the majority hold that spoken language can be broken down into a string of sound units which are technically called phonemes, and that each human language has a fixed set drawn from this pool of phonemes.

While discussing classical phonemics, we learned that it became important because it provided a descriptive account of dialects and languages that had never been transcribed before and that it derived its greatest strength from its practical orientation, which has proved very beneficial to language teaching and learning. We also discussed the phoneme as central to classical phonemics and that there are different views on the phoneme. Some view the phoneme as a phonetic reality; some from the perspective of function and others as a psychological reality. We went on to discuss that classical phonemicists use certain criteria for determining what constitutes a phoneme in a language: minimal pairs, minimal sets and complementary distribution.

Self-Assessment Questions (SAQs) for Study Session 3

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 3.1 (tests Learning Outcome 3.1) this is an example of the self-assessment question and the learning outcome that will be tested.

Even though phonemics is now considered a minor branch of phonology, to what important practical endeavour is it indispensable?

SAQ 3.2 (tests Learning Outcome 3.2) this is an example of the self-assessment question and the learning outcome that will be tested.

Classical phonemicists use what criteria for determining what constitutes a phoneme in a language?

SAQ 3.3 (tests Learning Outcome 3.3) this is an example of the self-assessment question and the learning outcome that will be tested.

Some view the phoneme as a **phonetic reality,** believing that sounds that belong to the same phoneme share common phonetic properties. What other views are there among classical phonemicists?

Notes on the Self-Assessment Questions (SAQs) for Study Session 3

SAQ 3.1 It is indispensable to the devising of writing systems for previously unwritten languages.

SAQ 3.2 Minimal pairs, minimal sets and complementary distribution

SAQ 3.3 Some view the phoneme from the perspective of **function,** believing that distinct phonemes function in languages to distinguish meaning. E.g *pan* and *pen* have the sounds / æ / and /e / distinguishing the meanings of the two words. Others view the phoneme as a **psychological reality,** believing it to be a mental concept which the native speaker conceives in his head and which may not be what is uttered in reality.

Phonological Theories (II)

Introduction

In the previous lecture we discussed what phonological theory is and specifically focused on classical phonemics. In this study session, we shall discuss generative phonology which is a major departure from classical phonemics in terms of the perception of the phoneme (which was central to classical phonemics) as well as other areas.

Learning Outcomes for Study Session 4

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Discuss the concerns of generative phonology
- Identify the differences between classical phonemics and generative phonology
- Discuss the underlying (phonemic) and surface (phonetic) levels of representation
- Differentiate between dictionary transcriptions and real rule affected pronunciation.

4.1 Generative Phonology

Previously, we were made to know that phonological theories (as with theories in other fields of study) have some relationships. Most times, a latter theory is a reaction to a previous one. It could be agreeing with the ideas but adding new opinions or totally disagreeing with the previous theory. For instance, generative phonology, though recognising the phoneme, disagrees with viewing the phoneme as an irreducible entity (the view of classical phonemics). To the generative phonologist, the phoneme is a bundle of phonetic features and in consequence reducible to its phonetic features. Despite the fact that classical phonemics span over a period of time, generative phonology affected its basic tenets such that views changed in relation to the study of human sound patterning till today.

The term ‘generative’ was first introduced into Linguistics from Mathematics by Noam Chomsky in 1957, and later in 1965. The concept ‘generative’ from the verb ‘to generate’ is used to describe a specific group of grammars which aims, by a set of finite rules, to describe and ‘generate’ all possible grammatical sentences of a language. A central belief of generative grammarians is that humans have a finite set of linguistic resources which makes it possible for them to produce and understand an infinite number of utterances. We can then define generative phonology as a component of generative grammar that assigns the correct phonetic representations to utterances in such a way as to reflect a native speaker’s internalized grammar.

This major change in the theory of phonology came about in the 1960s due to the fact that many people became convinced that important facts about the sound systems of languages were being missed by phonologists because they concentrated mainly on the identification of phonemes and the analysis of relationships between them. Generative phonologists such as Morris Halle, later joined by Noam Chomsky, were able to substantiate their claims that there were many sound processes which, observable in the phonology, are actually regulated by grammar and morphology. This is a major deviation from classical phonemics because any relationship outside phonemes and their phonetic family (i.e. allophones of the phoneme) was not given attention by classical phonemicists. However, generative phonologists discovered that some sounds which do not share phonetic relationships ‘relate’ in other contexts. Let us look at the following examples:

/aɪ/ and /ɪ/ as in divine dɪvaɪn and divinity/dɪvɪnətɪ/

/i: / and /e / as in serene /səri:n/ and / sərenətɪ/

This set of pure vowel and diphthongs had previously not received any attention as related. However, a pattern has been seen in word-pairs such as ‘divine’ and ‘divinity’, ‘serene’ and ‘serenity’ ‘profane’ and ‘profanity’. It has been observed that there are “alternations” that form part of what English native speakers know about their language. This requires, according to generative phonologists, explanations that may not be coming from phonology but from grammar and morphology.

Also, classical phonemic theory would see no phonetic relationship between the / **k /** and /s / phonemes, yet a regular pattern referred to as 'alternation' has been observed between the two phonemes in word-pairs such as the following:

'electric' ilektrik – 'electricity' ilektrisəti

'toxic' t□ksik – 'toxicity' t□ksisəti

Since the pattern is regular and phonology is about patterns in languages, explanations should be made for such alternations. Since the explanation cannot be found in phonology due to the two sounds not been phonetically related, generative phonologists will seek explanations in grammar and morphology.

Generative phonology therefore recorgnises two levels for sounds. There is a more abstract, unobservable "underlying" phonological form (where phonemes are located) and the physically observable ("surface") string of sounds that we hear (these are phones; real sounds).

Furthermore, if such alternations as it affects /aɪ/ and / i:/ in the words 'divine' and 'divinity' are accepted as a proper part of phonology, then it becomes essential to write rules that state how the alternations work. This will lead us to rules (i.e phonological rules) which are basic concerns of generative phonology. To generative phonologists, these rules must regulate such changes as substitutions, deletions and insertions of sounds in specific contexts. Therefore rules are recognised required explanations for regular phonological processes such as deletion, insertion, substitution in particular languages. We shall discuss these rules fully later. It is just good to mention them here.

Furthermore, generative phonologists did not stop at defining/stating the rules but also evolved an elaborate method of writing these rules in an algebra-like manner. This is called formalisation of rules. For example, a rule of b-deletion in certain English words when /b/ occurs after /m/ is stated as: delete /b/ when it occurs after the voiceless nasal /m/. This rule can be formalised as:

b/ → ∅ /m/ —#

→ means 'changes to'

∅ means 'null' (i.e. nothing)

/ means 'in the environment of'

— stands for the position of the sound that is undergoing the process, /b/.

stands for 'word boundary'.

When we get to the lecture on formalisation of rules, you will understand the symbols and what they mean better.

Please note that one of the best known generative phonological treatments of English is the book *The Sound Pattern of English* written by Chomsky and Halle in 1968. It is also good to always remember that the generative approach to phonology made an impact on the general view on phonology because it made phonology to become more technical. With the development of Generative phonology, mathematical concepts become very vital to a discussion of phonology.

Let's talk briefly about the crucial components of generative phonology. These are the levels of phonological representation, phonological rules, derivations and distinctive features. Generative phonology posits two levels of phonological representation which are: (1) Underlying (phonemic) level of representation
(2) Surface (phonetic) level of representation
The underlying phonemic level of representation is the most basic form of a word before the application of phonological rules. This level shows what a native speaker knows about the abstract underlying phonology of his

form of the word, they realise the real word. P-Rules delete, insert, or change segments, or change the features of segments. Distinctive features make it possible to capture the generalities of phonological rules. We shall talk about distinctive features very soon.

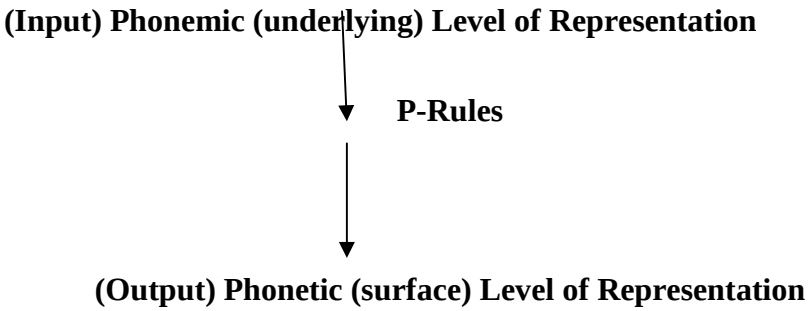
However, generative phonology has now been largely succeeded by newer approaches to phonology, many of which, despite rejecting or amending the theory of the *Sound Pattern of English*, are still viewed as deriving from it. This is because they are based on the principle of an abstract, underlying phonological representation of speech which needs rules to convert it into phonetic realisations. This is the tenet of generative phonology.

4.2 Levels of Representation

Generative phonology recognizes two levels of representation in languages. These are the phonemic (underlying) level of representation and the phonetic (surface) level of representation. Between these two levels are the phonological rules (P-Rules) of a language which serves as interface between the two levels. However, it is good to mention at this juncture that some linguists believe that this two-level model does not account for the intuition of a native speaker about the pronunciation of the words of his or her language. The belief is that the underlying representation appears to be too abstract, while the surface representation seems to be too detailed. This level is recognised in Lexical Phonology and referred to as Lexical representation, However, considering your present level and the nature of our discussion, we shall restrict ourselves to the two levels recorgnised in Chomsky and Halle's generative phonology - Phonemic (underlying) level of representation and the Phonetic (surface) level of representation.

The units of phonemic descriptions are phonemes while the units of phonetic descriptions are phones. The phonemic units are transcribed between slashes while the phonetic are transcribed between square boxes. At the phonemic (underlying) level, we deal with sequences of phonemes while we deal with phones and their details at the phonetic (surface) level. Phonemes are mental concepts of speakers while phones are real sounds that must have been affected by rules governing appropriate pronunciation in a language. /pɪn/ is phonemic while [p^hɪn] is phonetic.

At the phonemic level we deal with distinctive sounds which may affect the meaning of the words if removed while at the phonetic level, the meaning of the word may not be affected, though the pronunciation may be inappropriate. Therefore, redundant phonetic information such as aspiration, nasalization, lateralization etc are part of the phonetic system of English. Please note that phonetic information is said to be redundant because they are rule governed and they form part of the unconscious knowledge of a first language speakers.



The Underlying level of Representation (UR) is the phonemic level which is the dictionary representation of words in a sentence while the Phonetic level is the actual level at which real sounds are produced. This implies that at the UR, the word *pin* will be transcribed as /pɪn/ between slashes. This word *pin* will be converted to its phonetic representation [p^hɪn] at the phonetic level.

P-Rules- Aspiration Rule

(Output) Phonetic (surface) Level of Representation – [p^hɪn]

If you look up the pronunciation of a word in a dictionary, you will find it is normally given in **phonemic transcription**. In this type of transcription, an English word like *pin* is transcribed [pɪn], not [p^hɪn], This is because the segment [p^h] is an allophonic variant of the phoneme /p/, and as such has no place in a phonemic transcription.

- ITQ What results when (a) a phoneme is substituted for another (b) a phone is substituted for another?
- ITA (a) The meaning changes (b) the pronunciation changes, but the meaning remains

You must have noticed that there are phonological rules between the two levels of representation. We can then ask the question: Why do we need rules? We need rules to link the two levels of representation: Phonemic Underlying level and Phonetic Surface level. We also need the rules to show when a particular allophone should show up at the surface.

Hint: The Underlying (phonemic) level of Representation consists of sounds as we know them (as they abstractly are in our mind); the surface (phonetic) Level of Representation consists of sounds as we speak and hear them.

Summary of Study Session 4

In this lecture we have learned that the term 'generative' was first introduced into Linguistics from Mathematics by Noam Chomsky in 1957, and later in 1965 and that generative phonology is a reaction to classical phonemics. We also discussed that though generative phonology recognises the phoneme, it disagrees with viewing the phoneme as an irreducible entity and rather sees the phoneme as a bundle of phonetic features and in consequence reducible to its phonetic features.

We have discussed generative phonology as a component of generative grammar that assigns the correct phonetic representations to utterances in such a way as to reflect a native speaker's internalized grammar. We also got to know of generative phonologists such as Morris Halle and Noam Chomsky who were able to substantiate their claims that there were many sound processes which, observable in the phonology, are actually regulated by grammar and morphology rather than phonology. This, we learned, was because some sounds which do not share phonetic relationships 'relate' in other contexts as in the example of /aɪ/ and /ɪ/ in *divine* /dɪvaɪn/ and divinity/dɪvɪnətɪ/.

In addition, we discussed that generative phonology recognises two levels for sounds which are the "underlying" phonological form (where phonemes are located) and the physically observable ("surface") string of sounds that we hear (these are phones; real sounds). We substantiated our discussion by noting that one of the best known generative phonological treatments of English is the book *The Sound Pattern of English* written by Chomsky and Halle in 1968.

We went further to note that the generative approach to phonology made an impact on the general view on phonology because it made phonology to become more technical. We identified the crucial components of generative phonology as the levels of phonological representation, phonological rules, derivations and distinctive features. Some of the characteristics of P-rules is that they delete, insert, or change segments, or change the features of segments. We must not forget that distinctive features

allophone should show up at the surface.

Self-Assessment Questions (SAQs) for Study Session 4

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 4.1 (tests Learning Outcome 4.1) this is an example of the self-assessment question and the learning outcome that will be tested.

(a) Many people became convinced that important facts about the sound systems of languages were being missed by phonologists because they concentrated mainly on the identification of phonemes and the analysis of relationships between them. Give at least one example of such important facts.

(b) While classical phonemicists views the phoneme as an irreducible entity, generative phonologist hold what divergent view?

SAQ 4.2 (tests Learning Outcome 4.2) this is an example of the self-assessment question and the learning outcome that will be tested.

(a)The units of phonemic descriptions are phonemes while the units of phonetic descriptions are phones. Give further facts on the underlying (phonemic) and surface (phonetic) levels of representation.
(b) Differentiate between dictionary transcriptions and real rule affected pronunciation.

Notes on the Self-Assessment Questions (SAQs) for Study Session 4

SAQ 4.1 (a)Relationship between some diphthongs and pure vowels, eg. /eə/ as in *prepare* /prIpeə/ and /ə/ as in *preparation* /prepərei∫n/.

(b)That the phoneme is a bundle of phonetic features and in consequence reducible to its phonetic features.

SAQ 4.2

(a)The phonemic units are transcribed between slashes while the phonetic are transcribed between square boxes. At the phonemic (underlying) level, we deal with sequences of phonemes while we deal with phones and their details at the phonetic (surface) level. Phonemes are mental concepts of speakers while phones are real sounds that must have been affected by rules governing appropriate pronunciation in a language. /pɪn/ is phonemic while [p^hɪn] is phonetic.

(b) The dictionary uses phonemes but real rule affected pronunciation uses phones.

Study Session 5

(ATTENTION EDITOR: ASK DR. AKINJOBI TO TAKE ANOTTHER LOOK AT THE SECOND PARAGRAPH OF 5.1. I SUSPECT MINOR ERRORS. FOR EXAMPLE. IS /b/ A VOICELESS PLOSIVE?)

Phonological Theories (III)

Introduction

In the previous study session, we discussed the tenets of generative phonology and its departure from classical phonemics. We also discussed phonological rules and the levels of representation. In this study session, you will learn about another concept that is relevant to generative phonology which is distinctive features.

Learning Outcomes for Study Session 5

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Discuss the advantages of distinctive features and the parameters that are used to label the classes of English sounds.
- Demonstrate knowledge of distinctive features.

5.1 Distinctive Features

Distinctive features theory is one of the crucial concepts in generative phonology. Remember, earlier in this discussion we learned that one of the issues generative phonology raised against classical phonemics is that the phoneme is not indivisible but that a phoneme is a bundle of distinctive features. Distinctive features is a model of phonological features developed by Jakobson of the Prague School of Linguistics and further elaborated by Chomsky and Halle in The *Sound Pattern of English.*

Why do we need distinctive features? Let us look at the following points:

1) Distinctive features help to express linguistic contrasts. E.g. to know why /p/ is different from /b/ despite their phonetic similarities.

2) They enable us to describe 'natural classes' of sounds. The less the number of distinctive features, the more natural a class of sounds is. The sounds /p, b, t/ are all differentiated by place of articulation. They all share the same manner and voice. So they belong to a natural class of voiceless plosives. However, /v, z, m/ need more features to differentiate them, hence they do not belong to a natural class of sounds. Always remember that sound groupings are defined on the basis of their shared features and relatively small number of contrasts hold in groups of sounds.

3) They help to easily formalise phonological processes (distinctive features are used to describe forms undergoing processes and environments controlling the processes). E.g.

$$p \rightarrow ph \;/\; \_\_ \begin{bmatrix} +\text{stress} \\ +\text{syllabic} \end{bmatrix}$$

The rule above states that the sound /p/ changes to $[p^{h]}$ when it occurs as the first sound of a stressed syllable.

The proponents of the generative phonology theory believe that phonemes are stored in the brain as "bundles of features". They are termed "distinctive" because they allow us to distinguish among phonemes. However, in the distinctive feature theory, the basic unit is the feature (not the phoneme). Some of the characteristics of features is that they can't be broken into smaller units. They are binary i.e. all phonemes either have [+] or don't have [-] a particular feature. For instance, /p/ is [- voice] while /b/ is [+ voice]. The belief of these theorists is that two phones are different phonemes if at least one of their features is different. Let's look at the following:

/ p / = [+ consonantal, + anterior, - voice]

/ b / = [+ consonantal, + anterior, + voice]

Also, consider the following minimal pairs:

pin – gin

The sounds that contrast the meaning of these words differ on varying numbers of features:

pin – bin (voicing).

pin – sin (place, manner).

pin – gin (place, manner & voicing).

Note: Distinctive feature is a cardinal concept of generative phonology, not a departure from it and not another, rival, theory.

As earlier mentioned, do not forget that generative phonologists do not agree with phonemicists that the phoneme is indivisible unit. They believe the phoneme is further divisible into its distinctive features. Chomsky and Halle (196 evolve a number of parameters that label the various classes of sound. For vowel sounds, they evolved the labels "hig "mid" and "low", for the relative position of the tongue in the process of sound production. Also, the part of the tong that is involved in the production of the vowel sounds is also indicated, using the labels [front] and [back]. In addition, shape of the lip features [+ rounded] and [+unrounded] or [+spread] are adopted for labelling the distinctive features vowel sounds.

- ITQ In classical pnonemics, the basic unit is the phoneme, what is the basic unit in distinctive feature theor
- ITA Feature

They suggest that, it is not always practical to employ all the distinctive features of speech sounds, except when describi them in isolation. Therefore, in isolation, /p/ will be described as:

/ p/

+labial
-voice
+plosive

+labial
+voice
+plosive.

However, when done together, the features they share will not be added so as to avoid redundancy. They will be identif by the features that differentiate them:

p	b
[-voice]	[+voice]

All other features are significant only in relation to other vowel sounds or consonant sounds. In a situation like this, usi current sample sounds, the rest of the features are called redundant features. We shall discuss feature redundancy v soon. Just note what it means as explained here.

These are the classification of distinctive features by Chomsky and Halle:

1. Major class features:

a) sonorant/nonsonorant (obstruent)

b) vocalic/nonvocalic

c) consonantal/non-consonantal

2. Cavity features:

a) coronal/noncoronal

b) anterior/nonanterior

c) body of the tongue features:

- i) high/nonhigh
- ii) low/nonlow
- iii) back/nonback

d) rounded/nonrounded

e) distributed/nondistributed

f) covered/noncovered

g) glottal constrictions

h) secondary apertures:

- i) nasal/nonnasal
- ii) lateral/nonlateral

3. Manner of articulation features:

a) continuant/noncontinuant (stop)

b) instantaneous/delayed release

c) supplementary movements

- i) suction
- ii) pressure

d) tense/nontense (lax)

4. Source features:

a) heightened subglottal pressure

b) voiced/nonvoiced

c) strident/nonstrident

5. Prosodic features: a) stress

b) pitch

c) length

their production. The nature of the radical obstruction that occurs when consonant sounds are produced differ from class class. This has to do with the degree of contact between the organs involved in the articulation of the sounds. Let us st the discussion of the consonant feature classifications from the manner of articulation features. Some consonant are call obstruents (stops, fricatives, affricatives, etc), while others are classified as sonorants (nasals, liquids, laterals, rolls a semi-vowels). Obstruents are produced with the manner of articulation in which there is either a partial or to obstruction to the airstream while sonorants have musical quality derived from the airstream passing freely withe obstruction. If we try them out, we will discover that vowel sounds, semi-vowels and the lateral sound /l/ are produc with this musical quality. While there is total closure (occlusion) in the case of the nasal sounds in English, the manner release shows there is no obstruction to the airstream being released through the nostrils. You can verify this by produci the sound /n/.

We have leaned earlier on that in generative phonology, classes of sounds are differentiated by using the + and - notatio (i.e. binary forms) such that plus [+] means 'has the feature' and minus [-] means 'does not have the feature'. Obstru sounds are [-sonorant] while sonorant sounds (liquids, semi-vowels and nasals) are [+sonorant]. All stop sounds (plosives and nasals); fricatives, affricatives, liquids are [+consonantal]. This is to say that, in their production, there i "narrowed constriction" in the oral cavity. All other consonant sounds (semi-vowels) are [-consonantal] because th behave like vowel sounds. Other features used for identifying some consonant sounds include [+continuants], [+delay release], [+strident]. [+/- delayed release] Also, the features [+nasal] and [+lateral] distinguish nasals from liqu respectively. Strident sounds are defined in terms of articulation and acoustics as those sounds produced by a relative complex stricture, and marked by relatively high frequency and loudness, as in [f], [s] and [ʃ].When a sound is produc with a relative degree of clash, it is said to be [+strident]. Sounds that are not produced in this manner are [-strident].

Now let us discuss the place of articulation features. These are determined by the places where particular sounds articulated. These may take place at the lips, the teeth, the palato-alveolar region, the alveolar region or the velar regi The class of sounds that are articulated in the front part of the mouth are called anterior. They are distinguished fr those produced towards the back of the mouth. Therefore all sounds forward of palato-alveolar are classed as [+anteri while those produced towards the back are [-anterior]. Other consonants produced at the velum are called posterior. Th they are labelled [+posterior]. Sounds that are between both, such as those produced at the palate-alveolar region of mouth, are labelled as follows:

- anterior
- posterior

Another consideration with regard to place of articulation is whether the blade of the tongue is involved in the producti of the particular sound. When it is, the sound is [+coronal] but when it is not, the sound will have the feature [-corona For instance, all alveolar, palato-alveolar, and velar sounds are [+coronal] because the blade of the tongue is raised in process of their production.

In summary, the distinctive features of consonant sounds are sonorant, consonantal, continuant, delayed release, strider nasal, lateral, anterior, posterior, coronal. For instance, the sound /s/ can be presented as follows:

/s/ →

+ consonantal
- posterior
+ strident
+ coronal

The following is a summary of the features for us:

Consonantal	+	-	-	+	+
Vocalic	-	+	-	-	-
Sonorants	-	+	+	+	+
Examples	[p b z θ]	[ɪ e]	[jw]	[lr]	[mn]

Place Features

	Labials	**Dentals/Alveolas**	**Alveopalatals**	**Palatals/Velars**
Anterior	+	+	-	-
Coronal	-	+	-	-
Examples	[p b m]	[t d s z n l r]	[ʃ, tʃ]	[k g]

Manner features

- [+/- continuant] - Free or nearly free airflow through the oral cavity:
  - Vowels
  - Fricatives
  - Glides
  - liquids.
- [+/- nasal]: any sound made with the velum lowered
- [+/- lateral] All and only varieties of [l] are [+lateral]
- [+/- delayed release] This feature distinguishes stops from affricates. Affricate are designated [+delayed release].

Table 2: The Distinctive Feature Composition of Some English Segments

	i	u	e	ɑ	ɪ	w	r	l	p	t	d	θ	ð	n	s	z	ʃ	k	h
Syllabic	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−
Consonantal	−	−	−	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	−
High	+	+	−	−	+	+	−	−	−	−	−	−	−	−	−	−	+	+	−
Back	−	+	−	+	−	+	−	−	−	−	−	−	−	−	−	−	−	+	−
Low	−	−	−	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+
Anterior	−	−	−	−	−	−	−	+	+	+	+	+	+	+	+	+	−	−	−
Coronal	−	−	−	−	−	−	+	+	−	+	+	+	+	+	+	+	+	−	−
Round	−	+	−	−	−	+													
Tense	+	+	+	+	−	−													
Voice							+	+	−	−	+	−	+	+	−	+	−	−	−
Continuant							+	+	−	−	−	+	+	−	+	+	+	−	+
Nasal							−	−	−	−	−	−	−	+	−	−	−	−	−
Strident							−	−	−	−	−	−	−	−	+	+	+	−	−
Lateral							−	+	−	−	−	−	−	−	−	−	−	−	−

Source: Wu Heping

http://wuhpnet.googlepages.com/linguistics

Summary of Study Session 1

In the foregoing lecture, we have discussed distinctive feature theory as one of the crucial concepts in generative phonology which was developed by Jakobson of the Prague School of Linguistics and further elaborated by Chomsky and Halle in The *Sound Pattern of English.* We identified the advantages of distinctive feature as (i) helping to express linguistic contrasts, (ii) enabling us to describe 'natural classes' of sounds (iii) and helping to easily formalise phonological processes.

We have also been able to learn that in the distinctive feature theory, the basic unit is the feature (not the phoneme) and that they (features) are treated in binary forms using + and - notations.

We also discussed a number of parameters that label the various classes of sound such as major class features, cav features, manner of articulation features, source features and prosodic features. We must also not forget that the featu that sounds in a class share should not be added to their description when they are together so as to avoid redundan Sounds in a class should be listed by the features that differentiate them.

Self-Assessment Questions (SAQs) for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 5.1 (tests Learning Outcome 5.1) this is an example of the self-assessment question and the learning outcome that will be tested.

Distinctive features help to express linguistic contrasts, e.g. to know why /p/ is different from /b/ despite their phonetic similarities. Give one other reason why we need distinctive features?

SAQ 5.2 (tests Learning Outcome 5.2) this is an example of the self-assessment question and the learning outcome that will be tested.

(a) The distinctive features of consonant sounds are sonorant, consonantal, and what other ones?

(b) Group the following sounds into two natural classes, using distinctive features: / p, t, m, n, k/. Start by addi all redundant features. After, remove the redundant features leaving only the distinctive features. Explain why t features removed are redundant.

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 5.1

They help to easily formalise phonological processes (distinctive features are used to describe forms undergoing processes and environments controlling the processes). E.g.

$$p \rightarrow ph \;/\; \_\_ \begin{bmatrix} +\text{stress} \\ +\text{syllabic} \end{bmatrix}$$

The rule above states that the sound /p/ changes to [p^h] when it occurs as the first sound of a stressed syllable.

SAQ 5.2

(a)Continuant, delayed release, stridents, nasal, lateral, anterior, posterior, coronal.

Study Session 6

Phonological Theory (IV)

Introduction

In the previous study session, we discussed distinctive feature theory, a major addition of generative theory to phonology. You should not forget that generative phonology is a reaction to classical phonemics in terms of the perception of the phoneme as well as the explanations of phonological processes. In this study session, you will learn about another theory that is a reaction to generative phonology called metrical phonology. However, note that metrical theory, though a reaction to generative phonology, does not totally depart from it but claims to adjust some of the tenets (beliefs).

Learning Outcomes for Study Session 6

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**. (SAQs 1.1, 1.2 and 1.4)

- Locate an area where metrical phonology departs from generative phonology
- Discuss the tenets of metrical phonology

6.1 Metrical phonology

Metrical phonology is an offshoot of generative phonology, the theory we discussed in the previous two lectures. Earlier than now, we were made to know that most theories are reactions to previous theories. We were even made to know specifically that metrical phonology is a reaction to the claims of generative phonology. However, many linguists consider it an offshoot of generative phonology because it builds on the tenets of the theory by suggesting a new approach to the treatment of stress in generative phonology. Metrical phonologists believe that stress descriptions in generative phonology, especially in Chomsky and Halle's *Sound Pattern of English*, was not properly explained. Therefore, Liberman and Prince (1977) initiated metrical phonology as an alternative approach to stress description due to this dissatisfaction.

Note: Metrical phonology furthers the tenets of generative phonology. As such it cannot totally be said to be a rival or a reaction to the latter.

As discussed earlier, generative phonology is characterised by feature description. This means that in generative phonology, stress is considered a feature and vowels are said to be [+stress] or [-stress], using the binary approach [±]. In this case, a vowel that is stressed is [+stress] while an unstressed vowel is [-stress]. Metrical theory disagrees with this approach.

Let us now discuss the tenets of metrical theory. It holds that unlike other phonological properties, stress is not a feature but rather the hierarchical rhythmic organization of utterances. You must be wondering what this rhythmical organisation of utterances refer to. Take note of the following explanation, if you want an answer to your querry: In English for instance, syllables are not uttered in flat forms. They are uttered at different levels of pitch, which alternate. Strong syllables are strong while unstressed syllables are weak. Stress therefore accounts for this alternating rhythm of stressed and unstressed syllables (i.e. strong and weak syllables: stressed syllables are strong; unstressed syllables are weak).

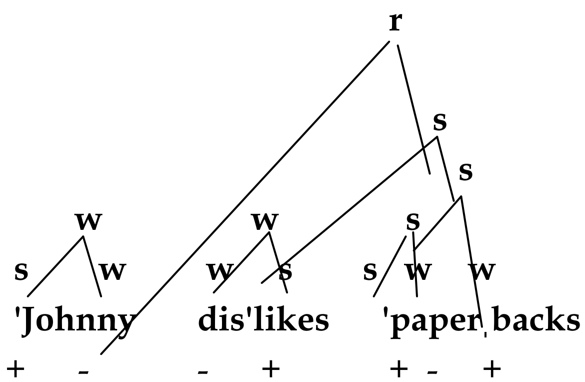
- ITQ While generative phonologists assign stress at the level of vowels (segments), metrical phonologists assign it at the level of what?

- ITA At the level of syllable.

6.2 Metrical Stress Rules

Our explanations are getting more technical and there is a need to follow things closely. Generative phonology which we discussed earlier sees stress as a feature from the binary perspective of [+ stress] or [-stress]. However, metrical phonology does not see stress as a feature. Rather, it views stress as the hierarchical rhythmic organization of utterances. It proposes that utterances are organized. Segments are organised into syllables and

or W S . S stands for stronger than Weak and W stands for weaker than Strong. No other labelling or branching is permissible. Therefore, branching such as S S or W W are not allowed. This does not only apply at word level but also at sentence level. Do not forget that no English word or sentence with more than one syllable is uttered on the same level of pitch. There will be an alternation of S(trong) and W(eak) syllables. The metrical structure of an utterance is usually diagrammed in the form of a tree (metrical trees). Let us look at the following example:



Crutenden (1986)

Note: Metrical phonology's main tenet implies that stress exists independent of segments and does not operate at the level of segments

There is also the term, metrical grid which is used to describe the grid that is constructed based on the different level relations of stress in an utterance. They are more compact than trees. Let's look at the example below:

The Metrical grid for the sentence is as follows:

11

8 9 10

1 2 3 4 5 6 7

'Johnny dis'likes 'paper backs

Crutenden (1986)

Hint: Metrical phonology uses two tools: (i) metrical trees whose nodes divide binarily into Strong (S) and Weak (W) (ii) metrical grid

Summary of Study Session 1

We have discussed in the foregoing study sesssion that metrical phonology, a theory developed by Liberman and Prince (1977), is an offshoot of generative phonology because it builds on its tenets by suggesting a new approach to the treatment of stress. We have also learned the tenets of metrical theory which holds that unlike other phonological properties, stress is not a feature but rather the hierarchical rhythmic organization of utterances. The study session also covers metrical trees whose nodes divide binarily into Strong (S) and Weak (W) based on the strong and weak relations of English syllables. We discussed further about metrical grid which shows the relationship between the syllables in a clearer manner than the trees.

Self-Assessment Questions (SAQs) for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 6.1 (tests Learning Outcome 6.1) this is an example of the self-assessment question and the learning outcome that will be tested.

Locate an area where metrical phonology departs from generative phonology

What is the dominant tenet of metrical phonology?

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 6.1 It is in the area of the status of stress. While generative phonology sees stress as a feature,

metrical phonology sees stress not as a feature but as a tool for organising utterances; as something superimposed on features, on utterances.

SAQ 6.2 Stress is not a feature but rather the hierarchical rhythmic organization of utterances.

English Phonological Rules (I)

ATTENTION EDITOR: TELL DR AKINJOBI TO SCRUTINISE 7.3. FOR EXAMPLE, WHERE DOES [ŋ] COME IN? ALSO, 7.5: WHAT OF PAST TENSE MORPHEME?

Introduction

While discussing generative phonology, we discussed the phonemic (underlying) and phonetic (surface) levels representation. We also learned that between these two levels are the phonological rules (P-Rules) of a language, specifically English in this case. In this study session, you will learn about some of the phonological rules of English which serve as interface between the levels of representation.

Learning Outcomes for Study Session 7

When you have studied this session, you should be able to:

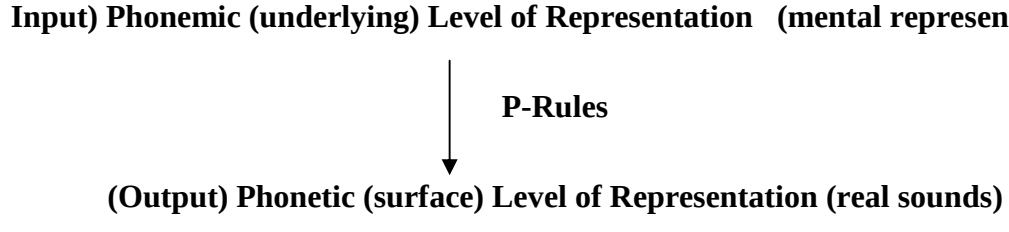
Define and use correctly all of the key words printed in **bold**.

- Discuss the functions of phonological rules
- Exemplify cases of vowel nasalisation rule
- Exemplify cases of homorganic nasal rule,
- Exemplify cases of lateralisation rule
- Exemplify cases of English morphophonemic
- Exemplify cases of vowel reduction rule

7.1 The Nature of Phonological Rules

Rules are instructions indicating how a thing should be done. They explain regularity in language. When a language phenomena is recurrent i.e. having the same pattern, it has a tendency to be guided by a rule or a set of rules. Phonological rules are between the two levels of representations in languages. Do not forget we are dealing specifically with English phonology here. Hence, we can say, phonological rules are between the phonemic and phonetic levels of English.

Let us take another look at the diagram we saw while discussing generative phonology theory:



At the phonemic level is the phoneme, which is the dictionary form of the sound. The transcription at the phonemic level is the abstract type found in the dictionary. It is the mental representation of the sound. Let's look at the word "man". The phonemic form is / m æ n/. However, a phoneme occurring in a particular context has a tendency to be affected by a particular P-rule which processes it and comes out with the output. The output is the phonetic sound which is the actual sound produced by the speaker (at the phonetic level). In this case, the phonemes, / m/, / æ / and / n / have the tendency to be affected by certain phonological rules of English. There is the vowel nasalisation rule which states that any vowel occurring before a nasal sound should be nasalised. Therefore the rule will apply on / æ / in this context and convert it to the nasalised [æ̃] which is the actual sound. So, though the speaker mentally conceives / æ /, the environment of the sound has changed it to the nasalised [æ̃].

Hint: Sounds originate at the phonemic (mental/abstract) level, are processed (being at that level like raw materials)
by phonological rules and emerge (spoken and heard) as phones—real sounds.

Do not forget that phonology is about how sounds pattern in a particular language. In this case we are dealing with how sounds pattern in the English language. Do note that there is hardly any rule of language without an

Let's take a look at the characteristics of Phonological rules:

- P-rules often specify two things. These are (i) the class of the sound affected by the rule and (ii) the context or environment where the rule applies. e.g. Aspiration rule affects voiceless plosives and the context is "when they occur as first sounds of a stressed syllable".

- Most P-rules apply to classes of phonetically related segments, not to classes of unrelated segments. For instance, the homorganic nasal rule affects the natural class NASALS / m, n, ŋ /, not to the unnatural class /m, n, k/.

- P-rules transform the phonemic level to the phonetic. They often state what class of sound is affected by the rule and the context in which this takes place. e.g. the nasal rule transforms /mæn/ which is phonemic to [mæ̃n] which is phonetic. English oral vowels change to English nasalised vowels when they occur before nasal sounds. Please note that English has only oral vowels at the phonemic level. That is why no nasal vowels will be listed among English phonemes.

Note: Phonological rules sometimes have exceptions, but negligibly few.

Now let us discuss some other vital issues. One of them is that sounds tend to be modified by the environments in which they occur. The phonetic environment before or after a sound may influence how the sound is pronounced. This is why a sound in isolation may sound different from the same sound in a context. This may confuse a non-native speaker of English who may be rather sensitive to such deviations from the expected pronunciation. The example of *man* above illustrates it. The nasal sound /n/ following the vowel / æ / has a tendency to "colour" it with nasality. The explanation for this is that, while pronouncing [æ], English speakers get ready for the following sounds, e.g. [n] and [m]. In doing so, the velum (the soft palate) is lowered in anticipation of the following nasal, so the air escapes through the nose. (We must not forget that nasals are characterized by complete closure of the airstream in the mouth and release of the air through the nostrils). In consequence, the /æ/ sound gets produced as [æ̃] Therefore, all vowels occurring before nasal sounds change to nasalised vowels in that context/environment.

Since phonology is about how sounds form systems or pattern in a particular language, we need to understand the systematic relationship between sounds. The relationship between / æ / and /n/ in the word *man* as analysed above is one of such. Any time [æ] comes before a nasal, [æ] becomes itself nasalized. This rule affects all English nasals, not [æ] alone! So vowels like /ɪ / and /u: / will be affected by this rule in the words *pin* and *broom*. The vowel nasalisation rule is therefore a phonological rule because it describes the systematic relationship between sounds of English.

For second language speakers like us, we need to know that the pronunciation changes that are caused by phonological rules often account for pronunciation characteristics that we perceive as native-like or standard. Please note that your understanding of English phonological rules will provide for you the tools for practicing more native-like pronunciation. As non-native students of English, you should have a good grasp of the phonological rules of English and apply them in your English pronunciation. The level of competence achieved would determine how much you approximate to standard pronunciation.

Hint: For non-native speakers: learn, and, most importantly, practice and use the rules

Before we go on to discuss the phonological rules of English. Let us briefly touch on the functions of phonological rules:

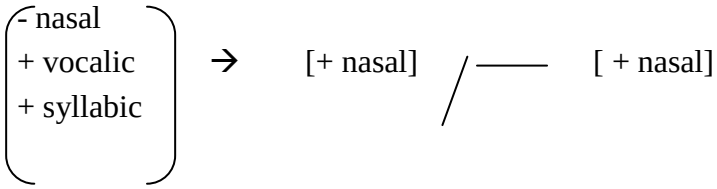
1. They may change feature values e.g. vowel nasalisation and vowel weakening rules;
2. They may add features. e.g. aspiration rule;
3. They may delete whole segments e.g. b-deletion and g-deletion rules;
4. They may add whole segments e.g. ə or ɪ-insertion in English plural and past tense morpheme pronunciation.

As we go on with the explanation, these various functions will be getting clearer to you.

All the languages of the world have their shares of phonological rules. We shall go on to discuss some phonological rules of English. There are assimilation rules, feature changing rules, dissimilation rules, feature addition rules, segment deletion and insertion rules and movement (metathesis) rules. However, the more relevant rules to the English language are assimilation rules, feature changing rules, dissimilation rules, feature addition rules, segment deletion and insertion rules. Metathesis rules are not very relevant in present discussion because they are only found occurring in some dialects of English.

example of assimilation rule is nasalization. When nasalization happens, a vowel before a nasal consonant becomes more similar by obtaining nasalisation. In other words, it takes on the feature *nasal*. Assimilation has been confirmed as common in world languages.

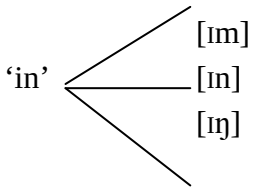
Nasal assimilation rule states 'nasalize any English vowel that occurs before a nasal consonant'. English vowels are all oral at the phonemic level of representation. However, when this rule applies to them they change to nasalized vowels. Therefore, among the phonemes of English, there will be no nasal vowel but among the phones of English and specifically the allophones of English vowels, there will be nasalized vowels.



Hint: Nasal assimilation rule: 'nasalize any English vowel that occurs before a nasal consonant'.

7.3 Homorganic Nasal Rule

Homorganic nasal rule is another assimilation rule. When we want to change to the opposite in English we often add the prefix in-. This ‘in-’ when pronounced is realized in three forms which are [in-], [im] and [iŋ]depending on the succeeding sound. It is realized as ‘im’ when it occurs before a bilabial sound as in *impossible*, before a velar sound as in *incorrigible*, and remains as ‘in’ before alveolar sounds as in *indiscriminate* and in all other context such as before a vowel in the word *inordinate*.



Hint: Homorganic Nasal Rule: the prefix ‘in-’ changes to [im] before bilabials and [iŋ] before velar sounds.

7.4 Lateralization Rule

[l□] is a lateral sound that could function as the peak of an unstressed syllable in English. Let us look at the following examples:

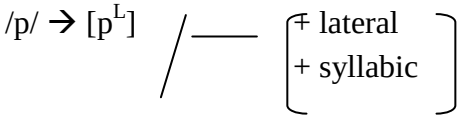
rebel /rebl□/

hospital /h□spɪtl□/

little /lɪtl□/

/ sizzle /sizl□/

When an English consonant occurs before a syllabic lateral sound in English, it should be laterally released. Therefore, /b/, /t/ and /z/ in the example above should be laterally released. The words therefore become [reb^{L}l□], [h□spɪt^{L}l□], [lɪt^{L}l□] and [siz^{L}l□] in their detailed phonetic forms. The context for this rule is before a syllabic lateral sound. This has a natural phonological explanation because sounds tend to be modified by the environment in which they occur.



Hint: Lateralization Rule: When an English consonant occurs before a syllabic lateral sound in English, it should be laterally released.

7.5 English Morphophonemic Rules for the Plural and Past tense Morphemes

The plural morpheme -s is expected to be pronounced as /-z/. However it changes to /s/ when it is added to a noun that ends with a voiceless sound. For instance, though bag+s is pronounced as / bægz/, bat+s is pronounced as /bæts/. In *bats*, the sound /z/ which is a voiced sound assimilates to the preceeding voiceless sound and becomes its voiceless counterpart /s/.

[+voice] → [-voice] / [-voice] _____

This helps the sound to blend better with the environment (voiced changes to voiceless after a voiceless sound!).

Hint: English Morphophonemic Rules for the Plural: The plural morpheme /-z/ changes to /s/ when it follows a voiceless sound.

7.6 Vowel Reduction Rule

The vowel weakening rule of English is a feature changing rule that states that vowels that occur in unstressed syllable should change to the weak vowel schwa /ə/. This implies that vowels that were initially strong will become weak in an unstressed context. E.g.

/æ/ → /ə/ / _____ [- stress]

This rule is fundamental to an understanding of the English rhythm and its appropriate use.

Hint: Vowel Reduction Rule: vowels that occur in unstressed syllable should change to the weak vowel schwa /ə/.

Summary of Study Session 1

We have discussed in the foregoing study session that phonological rules are between the two levels of representations in languages. We also discussed the characteristics of phonological rules: they specify the class of the sound affected by the rule and the context or environment where the rule applies; apply to classes of phonetically related segments and transform the phonemic level to the phonetic. We have also learned that sounds tend to be modified by the environment in which they occur. In addition, the functions of phonological rules which may change feature values; add features; delete whole segments or add whole segments were also covered. Finally, we discussed vowel nasalisation, homorganic nasal, lateralisation, English morphophonemic and vowel reduction rules.

Self-Assessment Questions (SAQs) for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 7.1 (tests Learning Outcome 7.1) this is an example of the self-assessment question and the learning outcome that will be tested.

Phonological rules may change feature values e.g. vowel nasalisation and vowel weakening rules. What other functions do they perform?

SAQ 7.2 (tests Learning Outcome 7.2) this is an example of the self-assessment question and the learning outcome that will be tested.

What happens to / □ / when it finds itself in John?

homorganic nasal, lateralisation, English morphophonemic and vowel reduction rules

SAQ 7.3 (tests Learning Outcome 7.3) this is an example of the self-assessment question and the learning outcome that will be tested.

What does the prefix ‘in-’ becomes when it comes before (i) bilabials (ii) alveolar (iii) vowels? Give examples.

SAQ 7.4 (tests Learning Outcome 7.4) this is an example of the self-assessment question and the learning outcome that will be tested.

What happens to /d/ when it finds itself in the middle of *middle*, /v/ in the midst of *travel*?

outcome that will be tested.

What has happened to the plural morpheme /z/ in *tests*?

SAQ 7.6 (tests Learning Outcome 7.6) this is an example of the self-assessment question and the learning outcome that will be tested.

In the verb *defame*, the second syllable is stressed and the vowel in it is /eI/. In the nominal form of the word, *defamation*, the second syllable is no longer stressed. What then happens to the vowel in the second syllable?

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 7.1

They may add features. e.g. aspiration rule.
They may delete whole segments e.g. b-deletion and g-deletion rules.
They may add whole segments e.g. ə or ɪ-insertion in English plural and past tense morpheme pronunciation.

SAQ 7.2 It becomes nasalised.

SAQ 7.3

(i) before bilabials it is realised as 'im' as in imbibe

(ii)before alveolar it remains 'in' as in 'indict'

(iii)before vowels it remains 'in' as in 'inadequate'

SAQ 7.4

Both are laterally released.

SAQ 7.5

The *t* ending the word, being voiceless, changes it to /s/

SAQ 7.6

It changes to the weak vowel schwa /ə/: /defƏmeIʃn/

Study Session 8

English Phonological Rules (II)

Introduction

In the previous study session, we discussed the characteristics of phonological rules and the functions they perform as the interface between the two levels of representation: Phonemic and phonetic. We also discussed some phonological rules. In this study session, you will learn about some other phonological rules of English.

Learning Outcomes for Study Session 8

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Give examples for fricative dissimilation rule
- Give examples for aspiration rule
- Give examples for b-deletion rule
- Give examples for g-deletion rule

8.1 Fricative Dissimilation Rule

We discussed earlier that sounds tend to be modified by the environment in which they occur. There is also the tendency for a sound to acquire a quality because a neighbouring sound has it. Assimilation rules make sounds conform to the characteristics of their environment. We know this already, right?

However, there are also instances where sounds become dissimilar, that is "no longer similar to" a neighbouring sound! An example is the rule of fricative dissimilation in English*. It is difficult to pronounce two fricatives following each other in quick succession as found in the words *fifth* and *sixth*. Such sound sequences present challenges for many native speakers, they therefore make one of the two sounds different from the other. As a result, *fifth* is pronounce as [fɪft] rather that [fɪf□] while sixth is produced as [sɪkst] rather than [siks□]. The second fricative becomes a stop, which makes it more dissimilar and easier to pronounce.

Hint: Fricative dissimilation rule: when two fricatives follow each other, the second becomes a stop.

8.2 Aspiration

The English aspiration rule is a feature adding rule. It states that any voiceless plosive that occurs in stressed syllable initial position before a vowel should be aspirated. This means, when a voiceless plosive /p, t, k/ occurs as the first sound of a stressed syllable and it is followed immediately by a vowel (e.g. *a'ppear, pink, 'kinship, a'ttend*), it should be produced with aspiration. This rule applies only to voiceless plosives and only when they occur in the stated environment (as the first sound of a stressed syllable followed by a vowel), which is the context for the rule. This is a feature adding rule because an additional feature aspiration has been added to the sound.

Hint: Aspiration rule: any voiceless plosive that occurs in stressed syllable initial position before a vowel should be aspirated.

$$/p/ \rightarrow [p^h] \quad / \_\_\_\_ \begin{pmatrix} + \text{stress} \\ + \text{syllabic} \\ + \text{vocalic} \end{pmatrix}$$

8.3 b-deletion rule

The deletion rules are segment deleting rule because they delete whole segment, not features of a segment. The b-deletion rule states that /b/ should be deleted when it occurs after /m/, a bilabial nasal sound, at word boundary. In this case the segment that is deleted is /b/ and the context is after the bilabial nasal sound. This affects words such as *comb, plumb, iamb, lamb.* With these words the last consonant should be deleted.

$$b \rightarrow \oslash \; / \; \_\_\_\_ \left\{ \begin{matrix} + \text{bilabial} \\ + \text{nasal} \end{matrix} \right\}$$

Applying this rule, the 'b' in the words above will be silent such that *comb plumb* and *lamb* will be / kə□m/, /pl□lm/ and / læm / respectively.

Hint: b-deletion rule: /b/ should be deleted when it occurs after /m/ at word boundary.

8.4 g-deletion rule

This rule states that the /g/ segment should be deleted when it occurs before a bilabial or alveola nasal sound at word boundary. This rule affects words such as *sign, align, malign* etc. The segment affected by this rule is /g/ and the context is before a bilabial or alveola nasal at word boundary.

$g \rightarrow \oslash \; [+ \text{nasal}] \; \#$

Do note that the /g/ is retained at morpheme boundary in words like signature, alignment, assignment etc.

Reflection: Many English phonological rules present challenges to non-native such as Nigerians. They may also make a difference in whether someone's speech sounds more native-like than others'. Therefore, understanding the application of phonological rules of the kind discussed above helps to make a non-native speaker approximate better to standard pronunciation.

8.5 Formalisation of Rules

So far all the phonological rules discussed have been stated in words using informal expressions. There are special formal notations which can be used to summarise each rule to make it more apt and easier to comprehend. These notations are however mathematical in look and they constitute part of the theory of phonology. They abbreviate long statements by economising words. For instance the aspiration rule states "aspirate a voiceless plosive when it occurs as the first sound of a stressed syllable or word". That is a long statement. It can be made shorter and easier to understand by the use of formal notations.

8.5.1 Elements in formal rule representations

In a formal rule representation:

1. Segments expressed in distinctive features to the left of the right arrow is the underlying representation.
2. The arrow expresses the direction of the change.
3. The segments expressed in features to the right of the arrow is the change or the surface realization.
4. The diagonal bar/slash separates the environment from the rest of the rule.
5. The dash after or before the conditioning factor expresses the point or position in which the change took place.
6. The feature specifications before or after the dash line indicates the conditioning environment.

Let us take a quick look at some of the notations used in rule formalisation:

8.5.2 Subscript- number C_0 = means none or more consonants

#	=	word boundary
||	=	phrase boundary/pause
+	=	morpheme boundary
Ø	=	can be used for insertion or deletion
α	=	expresses the notion "has the same value or agrees in value with"
β	=	express additional agreement in additional value

8.5.3 Brace notation = used to collapse two rules whose conditioning environments are similar. Used to express alternate phonological conditions

$$V \rightarrow [+\text{nasal}] \; / \; \underline{\quad} \; \begin{pmatrix} C \\ +\text{nasal} \end{pmatrix} \; \begin{Bmatrix} C \\ \# \end{Bmatrix}$$

8.5.4 Parenthesis notation = used for collapsing two similar rules when one contains a specification lacking in the other

$$V \rightarrow [+\text{stress}] \; / \; \underline{\quad} \; C_0 \; \begin{pmatrix} V \\ -\text{tense} \end{pmatrix} \; \#$$

Summary of Study Session 8

We started the foregoing study session by pointing out the difference between rules that assimilate and dissimilate (those that assimilate make sounds similar while those that dissimilate make sounds dissimilar). We have also discussed the fricative dissimilation rule as found in words like *fifth* and *sixth* which converts the fricative /□/ to /t/ for ease of production. We have also discussed aspiration, b-deletion, g-deletion rules. Aspiration adds another

Self-Assessment Questions (SAQs) for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 8.1 (tests Learning Outcome 8.1) this is an example of the self-assessment question and the learning outcome that will be tested.

According to the fricative dissimilation rule, what must of necessity happen to the /□/ in fifth?

SAQ 8.2 (tests Learning Outcome 8.2) this is an example of the self-assessment question and the learning outcome that will be tested.

Give examples of words containing voiceless plosives that occur in stressed syllable initial position before a vowel, which, the aspiration rule says, should be aspirated.

SAQ 8.3 (tests Learning Outcome 8.3) this is an example of the self-assessment question and the learning outcome that will be tested.

Give examples of words containing /b/ occurring after /m/ at word boundary, which

the b-deletion rule states should be deleted.

SAQ 8.4 (tests Learning Outcome 8.4) this is an example of the self-assessment question and the learning outcome that will be tested.

Give examples of words containing /g/ before bilabial or alveola nasal sounds at word boundary, which according to the g-deletion rule should be deleted.

SAQ 8.5(tests Learning Outcome 8.5) this is an example of the self-assessment question and the learning outcome that will be tested.

Formalise at least one of the rules above.

Notes on the Self-Assessment Questions (SAQs) for Study Session 8

SAQ 8.1 It must change to /t/

SAQ 8.2 tarnish, carpenter, encourage, etc.

SAQ 8.3 climb, plumb, etc.

SAQ 8.4 deign, feign, etc.

SAQ 8.5

b-deletion rule:

$$b \rightarrow \varnothing \; / \; \_\_\_\_\_ \left\{ \begin{array}{l} + \text{bilabial} \\ + \text{nasal} \end{array} \right\}$$

ATTENTION EDITOR: TELL DR AKINJOBI TO LOOK AT THE SECOND PARAGRAPH IN THE SUMMARY

Naturalness and Redundancy in Phonology

Introduction

In previous study sessions, we have discussed phonological theories. We have focused on some concepts of generative phonology such as distinctive features, phonological rules and how to formalise them. While discussing the foregoing, we mentioned the importance of naturalness and redundancy in phonology. In this study session, we shall discuss the two concepts fully.

Learning Outcomes for Study Session 9

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Discuss the concept of naturalness and give examples from English
- Discuss the concept of redundancy and give examples from English
- Relate the two concepts.

9.1 Naturalness

A **natural class** is a group of language sounds that share some phonetic features. The articulatory and acoustic properties of the sounds of a language determine their natural classes. These properties are named using features like [labial], [voiced], [high], [strident] etc. The sound system of every language includes several natural classes, each distinguished from other classes by certain features. A given natural class is described using the minimum number of features needed to include all sounds within the class and exclude all sounds outside the class.

How can we know sounds that fall into a natural class? Sound that fall into natural classes tend to behave in similar ways, participating in the same phonological rules. All the members of a natural class are affected in the same way by the same rules in the same environment/ context. Similarly, all members of a natural class have the same effect on other sounds that occur in their environment.

Some natural classes in a language are larger and include several other natural classes within them, while some may be small with fewer speech sounds. For instance, consonants and vowels constitute large natural classes and within each class are other smaller classes such as sonorants, stridents, nasals, laterals, etc. However, note that the fewer the number of distinctive features needed to distinguish sounds in a natural class, the more natural the class. It can then be said that the class "nasal" is more natural than the class "consonantal". For the first, you need just one feature to distinguish them : /n/ is alveola, /m/ is bilabial while / ŋ / is velar. All other features are redundant. For consonants, you will need to list many features to distinguish the sounds.

- ITQ: Into what two broad natural classes could all other natural classes fit?
- ITA ‘consonantal’ and ‘vowel’

Chomsky and Halle (1968) formulated the standard theoretical account of this natural class generalization within a rule-based framework. The natural class generalization is accounted for by constraining rules to refer only to natural classes of sounds. That is, the set of sounds that undergo the rule which are specified to the left of the arrow, must be a natural class. Any sets of sounds referred to in the environment of the rule must be natural classes. Therefore aspiration rule affects only voiceless plosives. Vowel nasalisation affects only vowels (a natural class) in the environment of nasals (another natural class).

9.2 Redundancy

Phonemes, which used to be described as indivisible, have been argued by generative phonologists as a bundle of features such that we can say /p/ is voiceless [-voice], bilabial [+labial] and plosive [+plosive]. Of course there are other features of this sound as consonant [+ consonantal] etc. Redundancy in phonology simply refers to what could be assumed to be there which we may not need to mention.

already exists. It is a term applied to the analysis of the range of features used in making linguistic contrasts. It is an important aspect of phonology which is captured by the use of distinctive features. Remember we discussed distinctive features in the previous lecture? A feature is said to be redundant if its presence is unnecessary in order to identify a linguistic unit. For example, the contrast between the /p/ and /b/ phonemes of English, as in *pin /bin*, can be defined in terms of voicing and aspiration. However, only voicing is distinctive because it is the only feature that affects the meanings of the words in which the sounds are used. Therefore, voicing is distinctive while aspiration is redundant in English. However, in a language like Thai where the meaning of a word is affected by aspiration, aspiration is not redundant but distinctive.

Let's look at another example. All English segments which are [+nasal] are also [+voice]. There is therefore no reason to describe an English nasal sound ([m] and [n], [ŋ]) as [+nasal, +voice]. Inherent in the description [+nasal] is the quality [+voice]. Adding such information for nasal sounds is to fail to capture this redundancy. Why? The main distinctive feature here is the nasality - the voicing is secondary and entirely predictable: all nasal consonants are voiced.

One of the principles of our phonology is to capture all the segmental contrasts in world languages. We can capture these segmental contrasts and show where there is no contrast with the knowledge of redundancy in phonological description. Where there is redundancy, there will be no contrast, nor possibility of contrast. For instance, if nasals are always voiced, then there cannot exist a contrast with voiceless nasals. Therefore while identifying the distinctive features of a language, we need to present only those feature markings which contribute to the contrasts in that language.

The only time we may need to capture redundancies in language is when there is a need to show that speakers of a language know about the redundancy. Let's look at another example: there are three nasals in English, the nasal alveolar stop [n], the bilabial nasal stop [m] and the velar nasal [ŋ]. If we ask an English speaker to 'invent' a new nasal - say, a palatal nasal, he or she will also automatically make it [+voice]. His intuition makes him know that an English nasal sound must be voiced.

Though they are often assumed to be there but not significantly paid attention to like distinctive features, these redundancy rules, 'segment structure rules' contrast with another type, 'sequence structure rules'. The latter capture a speaker's knowledge of redundancy in the phonotactics of his language. For instance, in English, a syllable may start with the pattern CCCV... However, the first C must be [s] - a completely redundant situation since no other consonant would function in that position. There are heavy constraints also, on the remaining two consonants since the second one has to be a plosive and the third, a liquid or a semi-vowel. Some phonologists have claimed that the onset of a syllable strings consonants together with increasing sonority until you get to the vowel nucleus (the supreme sonorous segment), followed by a coda of consonants of decreasing sonority. We discussed this under English phonotactics in study session two. You may read that portion again to have a clearer picture of phonotactics and redundancy.

Summary of Study Session 9

We have discussed in the foregoing study session that a natural class is a group of language sounds that share some phonetic features. We must not forget that the sound system of every language includes several natural classes, each distinguished from other classes by certain features. Sound that fall into natural classes tend to behave in similar ways, participating in the same phonological rules; they are affected in the same way by the same rules in the same environment/ context and they have the same effect on other sounds that occur in their environment.

In addition, we discussed that a redundant feature is one that is easily predictable about a sound. We learned that a feature is said to be redundant if its presence is unnecessary in order to identify a linguistic unit and that e can capture segmental contrasts and show where there is no contrast with the knowledge of redundancy in phonological description.

Self-Assessment Questions (SAQs) for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your

SAQ 9.1 (tests Learning Outcome 9.1) this is an example of the self-assessment question and the learning outcome that will be tested.

A natural class is a group of language sounds that share some phonetic features. A natural class may encapsulate some other natural classes, meaning a sound may fit into more than one natural class. Exemplify this with English sounds.

SAQ 9.2 (tests Learning Outcome 9.2) this is an example of the self-assessment question and the learning outcome that will be tested.

A feature is said to be redundant if its presence is unnecessary in order to identify a linguistic unit. How does this affect the description of vowels?

SAQ 9.3 (tests Learning Outcome 9.2) this is an example of the self-assessment question and the learning outcome that will be tested.

How do the concepts of naturalness and redundancy relate?

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 9.1 [ʃ] falls into the class ‘consonantal’; at the same time, it falls into the class ‘strident’; but the class ‘strident’ is more natural to it than ‘consonantal’; same goes for /s/.

SAQ 9.2 Since all vowels are voiced, adding [+voice] to the description of a vowel would be a redundancy.

SAQ 9.3 Redundancy applies to features common to sounds in the same natural class.

English Stress

Introduction

The basic English suprasegmentals are stress, intonation and rhythm. We had an introductory discussion of these features in ENG 202, Introductory Phonetics and phonology. In this study session we shall discuss further on English stress.

Learning Outcomes for Study Session 1 (Heading 2)

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Explain with examples the concept of stress
- Identify levels of word stress
- Explain the concepts of free and fixed stress
- Distinguish between compound and phrasal stress
- Demonstrate knowledge of sentence stress
- Identify strong and weak forms of grammatical words

10.1 What is Stress?

Stress is the prominence given to a particular syllable of a word or group of word. When it affects a word, we are dealing with word stress but when it affects a group of words, we are dealing with phrasal stress and sentence stress. When an English word is pronounced, a particular syllable of the word is made more prominent than the other syllables in the same word. In the English language, two syllables or more cannot enjoy equal prominence in a word. One must be more prominent than the other or others. This is not the case with majority of our local languages. This makes stress challenging for most Nigerian speakers of English.

The syllable is the pronounceable unit of the sounds of a language. It is used to refer to the portion of a word you could produce within a breath effort. The English word ‘pretend’ has two syllables. These are ‘pre’ and ‘tend’. A monosyllabic word (a word of one syllable) often takes the stress on the only syllable it is made of. 'Man' /'mæn/ is an example of a monosyllabic word where the only syllable available, /mæn/, is assigned the stress. A disyllabic word is made of two syllables while a polysyllabic word is made of many syllables. ‘People’ is an example of a disyllabic word while ‘eradi□cation’ and ‘edu`cation where /-kei-/ takes the primary stress, are examples of polysyllabic words.

Hint: monosyllabic—one syllable
Disyllabic—two syllables
Multisyllabic—three or more syllables
Stress— degree of prominence [length, duration, loudness, etc.] which a syllable has more than other syllables in a word.

Now, let us look at the characteristic activities that accompany a stressed syllable. These are called phonetic cues of stress. It simply means what a listener would perceive to know that a speaker has stressed a syllable of an English word. The pitch of the syllable must be made prominent, different from other syllables. This is called pitch prominence. Another cue is that a stressed syllable must be longer than all other syllables in the word. This is called duration. Another cue is loudness. A stressed syllable should be louder than any other syllable in the word. This is called intensity. Also some consonants are usually dropped off, that is elided or removed, while some vowels are reduced in quality to the ***/*** ə ***/*** **sound** when a syllable is not stressed. For instance, ‘have’ is produced as /hæv/ when stressed but when unstressed, it loses the /h/ sound and becomes / əv/. Vowels have a tendency to get reduced to the vowel / ə / or to have syllabic consonants as their peak. E.g. `conduct (noun) and con`duct (verb). The noun form has stress on the first syllable which retains its strong /□ / but the first syllable of the verb form contains the vowel / ə / because stress is assigned to its second syllable.
Conduct (noun) □k□nd□kt Conduct (verb) kən□d□kt

It is very important to point out the fact that English stress is very complex when compared to other stress systems in other world languages. This accounts for some of the difficulties encountered by second language learners and users of English language. It is good to note that every word in English has a tendency to be learnt with its peculiar stress pattern.

10.2 Levels of Stress

English word stress and sentence stress come in levels. There is the primary stress which is the most important stress in a word. It is assigned to the more or most prominent of the syllables of a word. The next level of stress is the secondary stress which is assigned to the syllable that is next in prominence to the primarily stressed syllable. There is another level which is the unstressed. This affects all unstressed syllables which are produced with the least prominence. Let's look at the following example:
Education – polysyllabic word □e du □ca tion (4 syllables) / □edj□□ke□.□n /
The primary stress is assigned to /-ke□-/, the secondary stress to / e-/ while /-dju-/ and -ʃn / are unstressed.

Hint: primary stress—most prominent
Secondary stress—next in prominence
The unstressed—weakest syllables

- ITQ Exemplify the above with the word, *in·de·fat·i·ga·ble*
- ITA /□□nd□□fæt□gəbl/ There are six syllables here, of which /-fæ-/, the third, bears the primary stress, /□n-/, the first, bears the secondary stress and /-d□-/, /-t□-/, /-gə-/ and /-bl/ are unstressed.

While dealing with English sentences, however, three levels are also recognized. These are nuclear stress, tertiary stress and unstressed. The nuclear stress is assigned to the last stressed syllable in a sentence while all the other syllables that are supposed to take stress will have all their stresses reduced to tertiary. All unstressed syllables will remain unstressed in the sentence. We should note at this juncture that all monosyllabic words that perform grammatical functions in the sentence are not stressed. These grammatical words are prepositions, auxiliary verbs, articles and pronouns. Examples are 'is, are, will, can, you, me , his , her, the, a, an,in, on, by' etc. Let us look at the following sentence together:
The man returned from Lagos yesterday.
The content words are 'man, returned, Lagos, yesterday'.
The grammatical words are 'the, from'.
The content words would have the appropriate syllable assigned the stress while the grammatical words would be unstressed and uttered very weakly. Among the content words, the last stressed syllable of the sentence, which will be the 'yes-'of 'yesterday' will have the nuclear stress which will be the most prominent in the sentence. Now let us assign stresses to the sentence above:
The `man re`turned from `Lagos `yesterday.
Yesterday will bear the nuclear stress on 'yes-' while the stresses on 'man' and '-turn' of 'return' will become tertiary. The nuclear stress on the 'yes-' of 'yesterday' will make it the most prominent syllable in the whole sentence. Do not forget that grammatical words such as 'the, and, you, a, an, them, have, had, is, (etc), belonging to the word classes prepositions, articles, pronouns and auxiliary verbs should be uttered without stress. They are usually very weakly uttered and quickly run over to get to the next stressed syllable.

10.3 Free Versus Fixed Stress

It is good to note at this juncture that English is not the only language that employs stress. Many other world languages also use stress but not in the same way that English does. For some languages, stress is easy to learn because a learner could be given a simple rule to guide him or her in placing stress on the words of that language. For these languages, stress is predictable, so it is fixed. In Hungarian, the first syllable of a word is usually assigned the primary stress. Therefore, a stress rule in Hungarian will state: Assign stress to the first syllable of every Hungarian word. In Polish, the penultimate syllable, that is the syllable occurring immediately before the last syllable, takes the stress. Therefore, there should be a stress rule in Polish stating thus: Assign stress to the antepenultimate

On the contrary, English stress does not have such simple rules that would state ‘assign stress to the first, second or third syllable’. Assigning stress to English words is too complex to be captured in a simple rule as this. This is because stress in the English language is unpredictable, so it is said to be free. The prominence associated with stress is assigned on different syllables of different words, depending on the nature of each word. Therefore, in English, stress acquires a lexical function since it has to be marked on lexical items. This means, each lexical item should be checked properly for the right placement of stress.

Do note, however, that there are some peculiar cases of some disyllabic noun/Verb and adjective/verb pairs in English, where the first syllable is assigned the primary stress in the noun or adjective form and the second syllable in the verb form. In these limited instances, English stress becomes predictable. Do not forget that these words form a close system in English because they are limited in number. Let us look at these pairs together:

Nouns	**Adjectives /Verbs**
EXport	exPORT
CONduct	conDUCT
PERfect	perFECT
REcord	reCORD

Though, English stress is predictable in the noun/adjective and verb forms in the group, it does not imply that English has a predictable stress pattern. This is because they form a close set since not so many words are involved. Therefore, there is no basis for such generalization.

Therefore, as learners of English, we must have a pronunciation dictionary, especially the 'talking' type, and when we check the meaning of English words in any good dictionary, we must endeavour to check the pronunciation of its sounds as well as stress pattern.

Hint: A language has fixed stress when its stress patterns are predictable and has free stress when they are unpredictable.

10.4 English Compound and Phrasal Stress

10.4.1 Compound Words and Noun Phrases

It is important for us to take a look at stress placement on words that are used together as compounds or groups. We will now discuss English compounds and phrasal verbs because they are easy to confuse in terms of stress placement. Compound words are two words that are used as one word. More technically, a **compound** is a word composed of more than one free morpheme. It functions as a noun, that is, it gives a name to a person, an object, a place etc. Examples of compound nouns are, ***headmaster, grandfather, black board, blackbird.*** Phrase, however, refers to a group of words (note that a phrase functions as a group of words, not as a word like a compound).

Therefore, stress patterns may distinguish a compound word from a noun phrase consisting of the same words. We can change the meaning of the words that combine to form compound words that give names to people, objects and places by changing the place of the stress. For example, ***`black □bird*** with the primary stress on the first word 'black----' and the secondary stress on the second word '----bird' is "the name of a particular kind of bird". But ***□black `bird*** with the primary stress on the second word '-----bird' and the secondary stress on the first word 'black----' means "any bird that is black in colour". This means that when such words give names to people, objects, places (as nouns), you should put the major stress on the first word. But when they have other meanings, you should stress the second word.
Let us take a look at the following table:

As nouns naming people, places and objects (compounds)	`black¸bird (the name of a particular bird)	`grand¸father your parent's father	`ligh¸tship a ship made like a light house
As a group of words with other meanings (phrases)	,black `bird (a bird that is black)	,grand `father (a father that is grand)	light` ship (a ship that is light)

We should note however that there are exceptions to this rule. There are some compound words with the primary stress on the second word rather than the first. Examples of such words are, □down`stairs, □mince-`pie, □full-`grown.

- ITQ Cite other examples of the exception shown above.
- ITA head-`master, head-`quarters

10.4.2 Phrasal Verbs

Phrasal verbs refer to verbs that have two parts or are composed of two elements that can each function as a word if uttered alone. However, when put together as a phrasal verb, both function as a single word. These types of words are often made up of a verb and preposition.

Stress assignment to phrasal verbs is also very important, especially for phrasal verbs that have compound noun counterparts. In this context, when the phrase is produced as a verb, it has the primary stress assigned to the second element (which is the preposition) while the compound noun counterpart has the primary stress assigned to

first element because it is a compound noun.

Phrasal Verb	**Compound Noun**
Stress the second element	**Stress the first element**
let `down	`letdown
print `out	`printout
turn `off	`turnoff
set `up	`setup
take `over	`takeover

Hints on English Stress Assignment:

As earlier discussed, there are no fast rules regarding the syllable to be stressed in an English word. A learner of English has to learn the stress pattern alongside the meaning of the words. However, some hints may assist. Please note the following and adhere to them while placing stress on English words.

1. Prefixes and suffixes are not usually stressed e.g. –ian, -ed, -s, -al, -ic, -less, in-, pre-, etc.

2. Words that end with –ial, -ian, -ic, -ion, often take their stress marks on the penultimate syllable (i.e the syllable preceeding the last syllable) e.g. co`lonian, ci`vilian, eco`nomic and edu`cation.

3. Words ending with the suffix -ity take their stress on the antepenultimate syllable e.g. inferi`ority, `unity, cap`tivity.

We have discussed word stress up to this point. We now know that one cannot predict where stress will be on an English words with a single simple rule. We also know already that each word has its stress pattern that remains valid. However, it is very important to note that when English words occur in sentences, that is, when they occur as part of a sentence, the stress assigned to the words become gradable. All the stressed syllables of words of an English sentence are not produced with equal prominence.

Some one-syllable words that are usually stressed when they occur in isolation become unstressed when they occur as part of a sentence. Which words are to be stressed and which are to be left unstressed in an English sentence? All lexical items of the open classes (such as nouns, adjectives, adverbs and verbs) should be stressed while those of the close classes (such as pronouns, conjunctions, determiners, prepositions, and auxiliary verbs) are often unstressed. Let's look at this sentence together:

Emmanuel is a very handsome man.

In the sentence, *Emmanuel, handsome* and *man* will be assigned stress while *is* and *a* will be left unstressed. In addition to this, the stress to be assigned to the three content words will be graded such that *man,* the last stressed syllable in the group, will be assigned the nuclear stress which is the most prominent stress while *Emmanuel* and *handsome* will be assigned tertiary stress, a prominence that is not as outstanding as that of *man*.

Hint: nuclear stress: most prominent and assigned to the last stressed syllable in the utterance
tertiary stress: of lesser prominence, assigned to other stressed syllables before the nuclear
unstressed: grammatical (often one-syllable) words (belonging to the close class)

The one-syllable words of English (referred to here as grammatical words), have more than one pronunciation – one strong and the other weak. The following are the grammatical words of English in their strong and weak instances of pronunciation and the environments in which each variant occurs. Please note that the table below is made available for you to study at all times so as to master how they should be produced and in consequence improve your communication skills. It is not to be learned by rote towards your examination. It is meant to be understood and put into practical use all the time until you must have relatively mastered the contents.

10.6 The Strong and Weak Forms of Standard English Grammatical Words

Words	Stressed Strong Forms	Unstressed Weak Forms	Contexts of weak variants
Determiners			
'a' (used only before a consonant sound)	/eɪ/	/ ə /	All weak contexts
'an' (before vowels)	/ æn /	/ ən/ / n /	Every weak context except after /t/ or /d/
'the'	/ ði:/	/ ðə /	Before consonants
		/ ðɪ/	Before vowels
'some'	/ s□m /	/ səm /	All weak contexts
Conjunction s			
'and'	/ ænd/	/m/	After labials e.g. /get □p m gƟʊ /

		/ŋ/	After velars e.g. /bæg ŋ bægId□ /
		/ənd, ən/	Other weak contexts
‘that’	/ ðæt/	/ ðət/	All weak contexts
‘but’	/b□t/	/ bət/	All weak contexts
‘or’	/ □:/	/ ə /	All weak contexts
Prepositions			
‘to’	/tu: /	/ tə /	Before consonants
		/ t□ /	Before vowels
‘for’	/ f□:/	/ fə /	Before consonants
		/ fər /	Before vowels
‘from’	/fr□m/	/ frəm /	All weak contexts
‘of’	/ □v /	/f/	Before voiceless consonants
		/ əv /	All other weak contexts
‘by’	/ baɪ /	/bə/	All weak contexts
‘at’	/ æt /	/ ət /	All weak contexts
Pronouns			
I	/ aɪ /	/ ə /	All weak contexts
‘me’	/ mi: /	/ mə /	All weak contexts
‘my’	/maɪ /	/ mə /	All weak contexts
‘you’	/ ju: /	/j□/	Before vowels
		/jə /	Before consonants
‘he’	/hi:/	/ ɪ /	All weak contexts except at the beginning of a word group where /hi: / is used.
‘his’	/ hɪz /	/ ɪz /	All weak contexts except at the beginning of a word group where /hIz/ is used.
‘her’	/ hɜ:/	/ ə /	All weak contexts except at the beginning of a word group where /hɜ:/ is used.

‘their’	/ ðeə /	/ ðə/	All weak contexts
‘them’	/ ðem/	/ ðəm/	All weak contexts
‘us’	/ □s/	/ əs/	All weak contexts
Auxiliary Verbs			
‘shall’	/ ʃæl /	/ ʃəl, ʃl /	All weak contexts
‘should’	/ ʃ□d /	/ ʃəd /	All weak contexts
‘would’	/ w□d /	/ d /	After I, he, she, we. you, they
		/wəd/	Every other weak context
‘will’	/wɪl/	/ əl /	After vowels and /l/
		/ l /	After I, he, she, we, you, they
		/ l /	After consonants except /l/
‘must’	/m□st/	/ məst /	All weak contexts
‘are’	/ a: /	/ ə /	Before consonants
		/ ər /	Before vowels
‘were’	/ wɜ:/	/ wə /	All weak contexts
‘was’	/ w□z /	/ wəz /	All weak contexts
‘is’	/ ɪz /	/ s /	After /p, t, k, f, θ/
		/ z /	After vowels and voiced consonants except /z,□,d /
		/ ɪz /	Used after / s, z, ʃ,□ , □, □ /
‘do’	/du:/	/ d□ /	Before vowels

‘does’	/d□z/	/dəz/	All weak contexts
‘am’	/æm/	/ m /	After I
		/ əm /	All other weak contexts
‘has’	/hæz/	/ əz /	After / s, z, ʃ,□ , □ □ /
		/ s /	After /p, t, k, f, θ, /
		/ z /	All other weak contexts except at the beginning of a word group where /hæz/ is used.
‘have’	/hæv/	/ v /	After I, we, you, they
		/ əv /	All other contexts except at the beginning of a word where /hæv/is used.
‘be’	/bi:/	/ bɪ /	All weak contexts
‘had’	/hæd/	/ d / / əd /	After I, he, she, we, they, you
		/ əd /	Every other context except at the beginning of a word group where /hæd/ is used.
‘can’	/kæn/	/kən, kn̩/	All weak contexts

It should be noted however that though the weak forms are used when these words occur in a group, the strong forms are used in the following circumstances:

- When that word is emphasized in the utterance e.g. Mary gave it to *her* (not *him*).

- Whenever the grammatical word occurs as the last word in the group e.g. ‘John will’. *Him, his, her, us,* are exceptions to this because they weaken in word final positions.

Except when used contrastively, the words illustrated above are usually unstressed when they occur in sentences. However, when they constitute the focus of information they get stressed e.g. I 'put this

information in sentences does not deal with only grammatical words. Content words may also receive stress contrastively as in the sentence 'KATE borrowed my car' implying that 'Kate', not 'Mary' or any other person, borrowed the car. If the contrastive stress shifts to 'borrowed' as in 'Kate 'BORROWED my car', the implication will be that Kate did not STEAL the car.

Summary of Study Session 10

In the foregoing, we have to discussed the levels of stress which are 'primary' 'secondary' and 'unstressed'. Primary stress is assigned to the most important syllable, secondary to the next in prominence and unstressed to all other syllables of lower prominence. We have also discussed what fixed and free stress means by differentiating fixed stress as stress systems with predictable stress and free stress as stress systems with unpredictable stress. Languages with fixed stress have a simple stress rule among their phonological rules to guide the speakers while those with free stress have very complex rules with lots of exceptions. We have also learned that English is a free stress system. Explanations have been offered on why English stress system is complex. We have also identified some phonetic cues to stress such as pitch prominence, duration, intensity and segmental quality Compound and phrasal stress have been discussed and differentiated while hints have been given on instances where stress could be predicted in the English language.

We have discussed sentence stress, differentiating it from word stress, pointing out the hierarchical nature of English stress which makes it important to re-assign stress when words occur together in a word group. We have learned how to differentiate stressing of content words from grammatical words. We have also addressed the strong and weak forms of English grammatical words and the various contexts for the variants of the weak forms.

Self-Assessment Questions (SAQs) for Study Session 10

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 10.1 (tests Learning Outcome 10.1) this is an example of the self-assessment question and the learning outcome that will be tested.

Stress is applied to syllables. For example, the first syllable of *terrible* and the second of *important* are stressed. What in them do we describe as stress?

SAQ 10.2 (tests Learning Outcome 10.2) this is an example of the self-assessment question and the learning outcome that will be tested.

Identify levels of stress in the following words: (1) operational, (ii) international

SAQ 10.3 (tests Learning Outcome 10.3) this is an example of the self-assessment question and the learning outcome that will be tested.

Hungarian stress rule states: Assign stress to the first syllable of every word. What form of stress system is this and what is its opposite?

SAQ 10.4 (tests Learning Outcome 10.4) this is an example of the self-assessment question and the learning outcome that will be tested.

Using compound and phrasal stress, identify the following pairs of words as (i) compound words and (ii) noun phrases

i)broad, band

ii)grand, son

SAQ 10.5 (tests Learning Outcome 10.5) this is an example of the self-assessment question and the learning outcome that will be tested.

SAQ 10.6 (tests Learning Outcome 10.6) this is an example of the self-assessment question and the learning outcome that will be tested.

The strong form of 'have' is /hæv/; its weak form is / əv / or / v /. Give the strong form and the weak form(s) of 'does' and 'am'.

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 10.1 The pitch prominence, length and loudness that they possess more than other syllables.

SAQ 10. 2 (i) /□□pə□re□□ənl / The third syllable /-re□-/ bears primary stress, the first, /□-/ bears secondary stress. All the rest are unstressed.

(ii) /□□ntə□næ□nəl / The third syllable /-næ-/ bears primary stress, the first, /□n-/ bears secondary stress. All the rest are unstressed.

SAQ 10. 3 That is fixed stress system. Its opposite is the free stress system where there are no specific and infallible rules on stress. The free stress system is used in English; the stress pattern for each word is learnt independently.

SAQ 10.4 As compound words: (i) `broadband (ii) `grandson
As noun phrases (i) broad `band (ii) grand `son

SAQ 10.5 Instead of primary stress, secondary stress and the unstressed, the new levels will be nuclear stress, tertiary stress and the unstressed. So in the sentence: The book is on the table in the sitting room, the nuclear stress will be assigned to the *sit* of sitting room, being the last stressed syllable; *book* and the first syllable in *table* will receive tertiary stress while all other words will be unstressed.

SAQ 10.6
Strong form: /d□z/, /æm/

Weak form: /dəz/, / əm / and / m /.

Study Session 11

English Intonation

Introduction

It is good for a learner of the English suprasegmentals to know that the three English suprasegmentals (i.e. stress intonation and rhythm) function together and not as distinct units as we learn them. The three English suprasegmentals of pitch are interrelated. Though we study language in portions for ease of learning, it does not mean that when stress is applied, intonation is not, or rhythm is ignored. They all function together. Earlier, we discussed stress. Now we shall discuss intonation. Do not forget that even in our study of intonation, we need our knowledge of stress because intonation relies heavily on stress to perform its functions in the English language.

Learning Outcomes for Study Session 11

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Explain the concept of intonation
- Exemplify components of tone group

11.1 What is Intonation?

A very vital characteristic of spoken language is the musical pitch of the voice. When English sentences are made, they are characteristically uttered with variation in in pitch (which may either rise or fall). This is referred to as **intonation**. It is important that we understand fairly well the intonation system of English because it can lead to misunderstanding if misperceived. When someone says, "it is not what he said that angered me but HOW he said it", the issue is usually an intonation misperception or undertone.

We need to realize at this point that Intonation is often an area of difficulty for second language users of English whose mother tongues are tonal. We therefore have to work hard at understanding the basic English intonation tunes, since English intonation is also as challenging to learn as the stress we earlier discussed. Do note that English intonation is more complex than what the textbooks could document. However, knowing the basic tunes and their characteristics and components would go a long way in helping a non-native user cope with English intonation.

- ITQ Why is intonation an area of difficulty for second language users of English whose mother tongues are tonal?
- ITA In tonal languages, intonation functions on individual words, that is, it contrasts meaning of individual words (e.g. Yoruba: oòrùn [sun], òórùn [stench], oorun [sleep]); in intonational languages, it functions on a tone group.

English intonation affects grammatical units such as phrases, clauses and sentences. However, do not forget that there are instances where a single word could be functioning as a complete meaningful unit. In this instance, the word will be taken as a tone group. *Yes* as a response to the question 'Are you travelling tomorrow?' is a complete thought. It is therefore considered an intonation group.

- ITQ Urhobo is an intonational language. Give three Asian and two African languages that are tonal.
- ITA Asian: Mandarin (with 870 million speakers—spoken by more people than any other language in the world), Japanese, Burmese.
  African: Esan, Isoko

Consequently, the pitch pattern of an English sentence will be referred to as its intonation. Intonation patterns carry different information about sentences, depending on whether the utterance is a question or a statement, whether or not there is an important word to be emphasized in the utterance, and the attitude of the speaker towards what is being said or the hearer. For instance, 'yes' with a falling tune is emphatic while 'yes' with a rising tune is either doubtful or a question. Before looking at the various functions of intonation tunes, let us take a quick look at the components of a tone group.

A tone group is the domain of intonation. It may be a lone word utterance, a phrase a clause or a sentence. Earlier, you came across the example of the word *yes*. *Yes,* when uttered alone could constitute a TG. Other grammatical constituents that usually coincide with a TG are phrases, clauses and sentences. The TG has four components which are the (optional) pre-head, head, (obligatory) tonic syllable and (optional) tail.

The **pre-head** is constituted by all the unstressed syllables before the first stressed syllable in the group. The **head** is consists of all syllables from the first stressed syllable to the last syllable before the tonic syllable. The **tonic syllable or nucleus** is the last stressed syllable in the group. As the term suggests, it is the only obligatory part of the tone group. Though other parts are optional (not present in all tone groups), the tonic syllable is obligatory and indispensable. It is the tonic syllable that is assigned the pitch direction. If the pitch should fall, it does on the tonic syllable. If it should rise, it does on the tonic syllable. This makes the tonic syllable a very important part of the tone group. Let us look at this sentence:

The `man re`turned `yesterday.

"The" is the pre-head, "`man re`turned" is the head. The tonic syllable of the sentence above is the 'yes-' of 'yesterday', being the last stressed syllable in the tone group. "-terday" will constitute the tail, being all unstressed syllables after the tonic syllable/nucleus. The tune will fall on the tonic syllable since the sentence is a statement. If you want to utter the syllable as a Yes/No question, the tune will have to rise on that syllable. Always make your tune rise or fall on the tonic syllables of your utterances. The tonic syllables are the last stressed syllables of your tone groups. Let us look at the following sentence:

If you love her, marry her.

There are two tone groups in this sentence. These are, 'If you love her' and 'marry her'. The tune will rise on the syllable 'love' (being the last stressed syllable in the first tone group) and fall on the syllable 'ma-' of 'marry' (being the last stressed syllable of the second tone group).

Hint: pre-head—all unstressed syllables before the first stressed syllable (optional)
head—from the first stressed syllable to the last stressed syllable before the tonic syllable (optional)
nucleus—the last stressed syllable (obligatory)
tail—every unstressed syllable after the nucleus (optional)

11.3 Intonational Tunes

We will now discuss the intonation tunes and their functions. Though many linguists have proposed different numbers of intonation tunes for English, we will make this easier by proposing that there are basically two intonational tunes used in the English language. These are the rise tune and the fall tune. The difference in the numbers of tunes proposed has to do with the combination of these tunes to perform different functions. The tone groups may be uttered at various pitch levels or combined in various ways to achieve different meanings. Therefore we could have high-fall, low-fall, high rise, low rise, rise-fall, fall- rise, etc.

Now, let us discuss the various functions these intonation tunes can perform when we produce English utterances. They may perform grammatical functions such as differentiating between types of sentences. Sentences may be statements, wh- questions (which are questions beginning with when, where, what, why, how, etc.), yes/ no questions (technically called polar questions, which require the respondents to either answer 'yes or 'no'), commands and exclamations. Also, they may be used to depict warnings, requests and greetings.

Now that we know there are basically two tunes and that they may be presented or combined in various ways, let us take a look at the functions of the various tunes, starting from the fall tune.

11.3.1 Fall Tune

You may use the fall tune to show finality. This implies that there is no other information expected in that utterance. We use the falling tune for the following:

(i) **Simple statements**

Statements often give the impression of finality. There is often no additional information expected.

Many of them will return after the holiday.

She's a good presenter on tele vision.

(ii) **Simple commands**

A command is an order that must be obeyed. This is usually uttered by a superior to someone under his control.

Get your bag.

Show me your a ssignments.

Return my books as early as possible.

(iii) Wh-questions

Wh-questions are questions that start with words such as *what, who, whom, why, where, how* etc. For this type of question, the tune should fall on the last stressed syllable.

What are the names of your friends?

Who's hosting the next meeting?

Where is the blue pen I gave to Mary?

An exclamation is something you say suddenly and loudly because you are surprised, excited or angry.

Ridiculous!

Impressive!

Amazing!

Simple statements	Simple commands	Wh-questions	Exclamations
He married a white lady. Many of them will return after the holiday. She's a good presenter on tele vision.	Get your bag. Show me your a ssignments. Return my books as early as possible.	What are the names of your friends? Who's hosting the next meeting? Where is the blue pen I gave to Mary?	Ri diculous! Im pressive! A mazing!

11.3.2 Rising Tune

The rising tune is used for polar questions (yes/no), polite requests and changing statements to questions. Let's start with polar questions.

(i) **Polar Questions**

These are questions that require either a yes or no response. Let us look at the following:

Are the women in the country all educated?

Will the people agree with the president on fuel subsidy re moval?

Do you know the danger in smoking marijuana as a youth?

(ii) Polite Requests

Most of us do not know how to politely or formally ask for something without offending the person we need to address. We use the rising tune to state polite request. We need to know that when we assign the falling tune to what we intend to state as a polite request, we will utter a command! Therefore, to utter the following as polite requests, use the rising tune.

Please call the vendor.

Could you get me a pair of socks?

Pass the water, please.

(iii) Changing statements to questions

You can use the rising tune to change sentences that have the structure of statements to questions. Let us look at the following pairs:

Statement: You like the de sign.

Question: You like the de sign?

Statement: Mary bought a new car.

Question: Mary bought a new car?

The statements are uttered with the falling tune while the questions (still maintaining the same structure) are uttered with the rising tune.

These are uttered with the RISE tune.

Are the women in the country all educated? Will the people agree with the president on fuel subsidy re moval? Do you know the danger in smoking marijuana as a youth?	Please call the vendor. Could you get me a pair of socks? Pass the water, please.	Statement: You like the de sign. Question: You like the de sign? Statement: Mary bought a new car. Question: Mary bought a new car?

11.3.3 Combination of the Fall and RiseTune (fall/rise, rise/fall).

Earlier, we discussed how the falling and rising tunes are used for different utterances. Now, we shall discuss how to combine the two tunes for various expressions with different meanings. We shall start with the rise and fall tune.

A. Combination of the Rise/fall Tunes

1)To separate clauses: The rise and fall tunes are used when there are two or more than two clauses in a sentence. The incomplete part is said with a rising tune while the clause that completes it is said with a falling tune. Let us look at the following complex sentences:

Wherever you go, be a good boy.

As soon as she ar rived, I told her to take her baby and leave.

Before he left for Abuja, he sent me a text message.

2)Listing Items: The combination of the rise and fall tunes is also used when listing items. The rise tune is used on each item until we get to the last item which takes the fall tune.

Mary , John, Peter and Grace.

He bought a pair of shoes, clothes and ties.

She got some pencils, e rasers and biros.

To separate clauses	Listing items
Wherever you go, be a good boy. As soon as she arrived, I told her to take her baby and leave. Before he left for Abuja, he sent me a text message.	Mary , John, Peter and Grace. He bought a pair of shoes, some clothes and ties. She got some pencils, erasers and biros.

B. Combination of the Fall /Rise Tunes

The falling and rising tunes may be combined in certain utterances. Let us look at them below:

Tag Questions

Tag questions are question that are formed by adding tags such as 'can't we?', 'wouldn't he?', or 'is it?' to a sentence. When we produce utterances that end with question tags, we use the combined fall/rise tune. The falling tune will be on the statement part while the rising tune will be assigned to the question tag, which sounds like a yes/no question. Do you remember that yes/no questions take the rising tune? Do not forget! Let us look at the following:

Statement: He is very attractive. Fall tune

Question tag (Yes/No question): isn't he? Rise tune

These two have to be combined such that the first part will take a fall tune as statements do and the tag will take the rise tune as yes/no questions do.

He is attractive, isn't he?

They will pay the match, won't they?

Simon can play the guitar, can't he?

These utterances are uttered with the Falling and Rising Tunes Combined.
He is attractive, isn't he? They will pay the match, won't they? Simon can play the guitar, can't he?

11.3.4 Attitudinal function of Intonation

Sometimes, someone talks to us and we get offended. When we look at the utterance, the combination of words may not be offensive but the way it is said may be the cause of the anger we feel. The problem is often with the intonation. 'Sorry' may be said in a way that angers the person it is said to. Said with another tune, it may make the person forgive easily. Therefore, it is good to note that we can use intonation to show our attitude towards the

speaker as well as what is being said.

A. Indifference

To show we are indifferent to what is being said, we may use the low rise tune. Let us look at the sentences below:

I ↘ a gree.

You may ↘ go.

John could drive the ↘ car.

B. Surprise

To express surprise, it is good to use the high rising tune. Let us look at the following:

You're ↗ married.

The students are on ↗ rampage.

The principal beat a ↗ teacher.

C. Uncertainty and doubt

Also, to show uncertainty and doubt, we use the rising tune.

She will bring her child for ↗ treatment.

Dave may choose to ↗ help.

Mariam may love the ↗ meal.

D. Warm Greeting

The tune we assign to our greetings determine the reactions we get from the people they are meant for. For warm greetings, always use a high fall tune. The tune will fall but it will be high. Let's look at the following:

Good ↘ morning.

Good after ↘ noon.

Good ↘ evening.

Good ↘ day.

Nice ↘ weather.

E. Routine greeting

For routine (not warm) greetings, we use the low rise tune.

Good ↘ morning

Good after ↘ noon

Good ↘ evening

Good ↘ day

Nice ↘ weather

Indifference – Low Rise tune	**Surprise – Rise tune**	**Uncertainty and doubt – Rise tune**

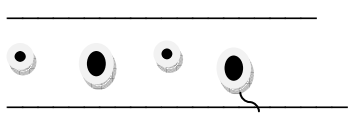
You may go. John could drive the car.	The students are on rampage. The principal beat a teacher.	for treatment. Dave may choose to help. Mariam may love the meal.

Warm Greeting – High- Fall tune	**Routine greeting (not warm) – low rise tune**
Good morning. Good after noon. Good evening. Good day. Nice weather.	Good morning. Good after noon. Good evening. Good day. Nice weather.

F. Emphasis

We can also use intonation to make a word more important than others in a sentence. For instance in the sentence 'He bought a car', we can make 'BOUGHT' very important by making it more prominent and assigning the right tune to it. This will be done when we mean ' He did not STEAL a car. Let us look at this diagram to make this clearer:

He 'bought a 'car.



Ordinarily, 'car' being the last stressed syllable of this sentence should be assigned the falling tune, the sentence being a statement. However, if 'BOUGHT;' is to be made prominent, (usually for contrastive purposes, as implying that he did not 'STEAL' a car) then 'bought' automatically takes on the falling tune.

He 'bought a 'car

*KEY

means unstressed

means stressed but not the important (tonic) syllable to be assigned the tune

means important (tonic) syllable to be assigned the tune

Intonation also performs a discourse function on utterances. For example, in context such as in the sentence 'I am taking my children to school, 'children' is more likely to be assigned the tune because it is predictable that 'take my children' often collocates with 'school'. If a speaker says "I'm taking my children…', before he mentions 'school', the listener must have mentally supplied the word. Therefore 'children' will be assigned the tune. However, in the case of the sentence 'I am taking my children to Lagos', the tune will be assigned to Lagos because it is not often that children are taken to Lagos. This is because though 'children and 'Lagos' collocate, the occurrence is not as predictable as 'children' and 'school' since taking children to Lagos is not an everyday affair.

Summary of Study Session 11

In the foregoing study session, we have learned the definition of intonation as the variation of pitch of utterances. We have also highlighted the components of intonation as (optional) pre-head, head, (obligatory) tonic syllable and

In addition, we have discussed the basic intonation tunes and the various functions they perform such as grammatical, accentual, attitudinal functions. The basic intonation tunes are the rise and the fall tune which have variations such as fall, high-fall, low-fall, high rise, low rise, rise-fall, fall rise, etc. We have learned that the falling tune is used for simple statements, simple commands, wh-questions and exclamation. The rising tune is used for polar questions, polite statements and changing statements to questions. We also learned that the rise /fall tune is combined to separate clauses and list items while the fall/rise is used for tag questions.

The attitudinal functions of intonation have also been discussed. The rise tune is used for indifference, surprise, uncertainty and doubt, and routine greeting while the high/fall is used for warm greeting. We also discussed the discourse function of intonation.

Self-Assessment Questions (SAQs) for Study Session 1

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 11.1 (tests Learning Outcome 11.1) this is an example of the self-assessment question and the learning outcome that will be tested.

(a)Define intonation.

(b)How is English intonation different from that of many Nigerian languages?

(c) English intonation patterns carry what information with them?

SAQ 11.2 (tests Learning Outcome 11.2) this is an example of the self-assessment question and the learning outcome that will be tested.

Identify the prehead, the head, the nucleus and the tail of the following utterance: Some of their undergraduates are insolent.

SAQ 11.3 (tests Learning Outcome 11.3) this is an example of the self-assessment question and the learning outcome that will be tested.

Form two sentences that go with fall tune and another two that go with rise tune.

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 11.1 (a) Variation (rising or falling) of pitch during speech, which affects the meaning of utterances made

(b)In Nigerian languages such as Igbo, it contrasts the meaning of individual words; but in English, it works at the level of phrases, clauses and sentences.

(c)They carry with them information on whether the utterance is a question or a statement, whether or not there is an important word to be emphasized in the utterance, and the attitude of the speaker towards what is being said or the hearer.

SAQ 11.2

Some of their under	graduates are	in	solent
Pre-head	head	nucleus	tail

SAQ 11.3

Fall tune: (i) Who is Jehovah? (ii) None else is as powerful as him.

Rise tune: Can you hear me? (ii) You have fourteen children from just one woman. (surprise)

English Rhythm

Introduction

Rhythm is a regular repeated pattern of sounds or movements. The languages of the world have different kinds of rhythm determined by features such as stress and tone. However, our main concern is the English language. We shall be discussing, in this study session, the rhythm of English. However, we will refer to the rhythm of some of our tonal Nigerian languages from time to time so we could appreciate the difference in rhythm and understand the possible causes of the deviational use of English rhythm in Nigeria.

Learning Outcomes for Study Session 12

When you have studied this session, you should be able to:

Define and use correctly all of the key words printed in **bold**.

- Differentiate the rhythm of English and the tonal Nigerian languages
- Demonstrate ability to break utterances into rhythm groups

12.1 What is Rhythm?

As pointed out in the introduction to this lecture, **rhythm** is the recurrent movement of speech. It has a regular pattern that is usually determined by stress or tone, depending on the characteristics of the language involved. The recurrent patterned movement is often referred to in the literatures as **timing**. The idea is that the timing of the regular movements is determined by stress for some languages and tone for others. There are, therefore, stress-timed languages and syllable-timed languages.

While the rhythm of a Nigerian language like Yoruba is known as a syllable-timed, English has been viewed by many as a stress-timed language. This implies that the periodic recurrence of movement is supplied by the stress pulses. This results in the stressed syllables occurring at regular intervals of time. The succession of stressed and unstressed syllables or words in the stream of English speech produces a natural, even fairly regular, rhythm (Wales, 1989). Consequently, the natural rhythm of English is seen as providing roughly equal intervals of time between the stresses when unaffected by factors such as hesitation (which may slow down the speaker) or excitement (which may speed him up). In more technical terms, English is described as a stress-timed language because English rhythm has an isochrony based on stress.

Hint: The rhythm of most Nigerian languages are syllable-timed while that of English is stress-timed

12.2 Rhythm Group or Unit

The stretch of utterances from one stressed syllable to the last unstressed syllable before the next stressed syllable is referred to as a rhythm group or unit in English. Let us look at the following English sentence to buttress the point. All utterances written together belong to the same rhythm group. Do note the position of the stresses because they determine what words or syllables are 'packed' together to get the typical rhythm of English which is based on stresses. It is equally good to remember what we learned under sentence stress about stressing content words and unstressing grammatical words in English word groups. That will help in knowing why some words are stressed while others are not stressed.

`Mary and `John are to `dance at the `show.

`Maryand `Johnareto `danceatthe `show

1 2 3 4

Based on the stresses, there are four rhythm groups or units in this sentence. You must have noticed that the number of the syllables that make up the rhythm units vary – one has one, another one has two, two have three each. Therefore, in an English rhythm group, all syllables are not equal. A stressed syllable is generally longer than an unstressed one, especially if the unstressed syllable has a reduced vowel.

Now we know some languages (such as Yoruba) are termed syllable-timed while others (such as English) are termed stress-timed. However, the dichotomous classification of languages into syllable-timed and stress-timed has been argued against by some linguists. Crutenden (1986) upholds the theory of stress isochrony in English

called syllable-timed languages, the classification is not so sharp. This is because all evidence suggests that both stresses and the number of syllables influence rhythm in all languages but particular languages have a tendency to give greater or lesser weight to the stress factor.

Viewing English rhythm in terms of isochrony has been argued as a misinterpretation of rhythm by some linguists. This is because the intervals between accented syllables are 'more equivalent than equal' and isochrony is rarely produced in natural conversational English. Therefore, it is good to note at this juncture that saying all syllables in a rhythm group will be produced within the same time limit as the next irrespective of the number of syllables in each rhythm group is not realistic. We can only take the timing as fairly regular, not exact. Stress-timing is more valid as a perception phenomenon than it is in precise physical terms in speech production.

There have been arguments against the dichotomous classification of languages into syllable-timed and stress-timed. It has been viewed as misleading since some languages of the world have shown the signs of being both syllable-timed and stress-timed e.g. Spanish. English rhythm is however more stress-timed than syllable-timed.

A different approach to the description of English rhythm was proposed by Bolinger (1981). Rather than view English rhythm as a result of stress timing, he views it in terms of the patterns made in any section of continuous speech by a mixture of syllables containing full vowels with syllables containing reduced vowels. What this means is that, stress will not determine the boundaries of rhythm groups but full vowels.

Note: Bolinger argues that English rhythm is full vowel-timed, not stress-timed.

With Bolinger's theory, the basic unit of rhythm is a full 'vowelled' syllable together with any reduced 'vowelled' syllables that follow it. Each rhythm unit must therefore contain only one full 'vowelled' syllable. However, this theory is not as widely accepted as the stress-timing theory, which is still used by most linguists as a description for Standard English till now.

It therefore becomes important to note at this juncture that whatever form of description is employed for Standard English rhythm, the rhythm effect has a lot to do with stressing and unstressing. This is because all stressed syllable contain full vowels. The majority of the unstressed syllables contain reduced (weak) vowels. Though some full vowels occur in unstressed syllables, they are not so many. A major characteristic of the spoken English language is to have strong full vowels in stressed syllables and weak reduced vowels in unstressed syllables.

It is also good to note that when we speak English, some syllables are said longer and louder than others. These are the strong syllables. The ones that are not as long and loud are weak syllables. English combines the strong and weak syllables to have a particular melody. This is called its rhythm. Weak syllables often contain the sound / Ə / or / I/. / Ə / is the weakest sound in English. It is a sound that is not in many Nigerian languages. So it is often difficult for Nigerians to produce.

Let us take a look at the following sentences and their division into rhythm units or groups.

Sentence:	The `man is un`fortunate.
Rhythm groups:	The `manisun `fortunate
Sentence:	`Mary is a `beautiful `girl.
Rhythm groups:	`Maryisa `beautiful `girl.
Sentence:	`What are the `ladies `doing?
Rhythm groups:	`Whatarethe `ladies ` doing?
Sentence:	`See `what I `bought for you.
Rhythm groups:	See `whatI `boughtforyou.

The words typed together should be read together to achieve the isocrony of English rhythm which is based on stresses. Each group should be produced equal or almost equal in timing to the others not minding the number of words it contains.

examination.

(a)`Peterisa `fraidofexami `nation (b) Peter is afraid of examination (c) Pe `teris `afraidof `examination (d) Peter `isa `fraidofe `xami `nation

- Option A is the answer.

Summary of Study Session 12

In this study session, we have highlighted what rhythm is and established the difference between the rhythm of English and the tonal Nigerian languages and why they are different. We discussed syllable –timing as well as stress-timing and emphasized that stress-timing affects English rhythm while syllable-timing affects tonal languages. This led to the explanation of Nigerian English as a having syllable-timed rhythm due to the influence from the Nigerian mother tongues and Nigerian English not reducing vowels where necessary.

We also learned the rhythm unit or word. In the English language, the rhythm unit will be a stressed syllable taken along with all the unstressed syllables after it. It is assumed that no matter the number of syllables in a rhythm unit, it should be produced within the same time range as the others. We emphasized that this timing is more perceptual than physical.

Self-Assessment Questions (SAQs) for Study Session 12

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 12.1 (tests Learning Outcome 12.1) this is an example of the self-assessment question and the learning outcome that will be tested.

While English is stress-timed, Yoruba is syllable-timed. What does this mean?

SAQ 12.2 (tests Learning Outcome 12.2) this is an example of the self-assessment question and the learning outcome that will be tested.

Break the following utterances into rhythm groups

(i) With God nothing is impossible.
(ii) Many are the problems of the country.
(iii) Nobody can deliver her.
(iv) Whoever is muscular but has no wisdom
(v) That person is the chief of the lazy.

Notes on the Self-Assessment Questions (SAQs) for Study Session 1

SAQ 12.1 In a Standard English utterance, some syllables are stressed and some are unstressed and weakened. The latter are in the majority and the former are in the minority. The speaker rushes through the weakened majority and emphasizes only the few stressed ones. This regular occurrence of stressed and unstressed syllables forms a rhythm. Yoruba, (and many other Nigerian languages) however, has no weakened syllables: all syllables have an equal degree of prominence. So there is no alternation of stressed and unstressed syllables which creates a rising-falling rhythm in Standard English.

SAQ 12.2

(i) With `God `nothingisim `possible.
(ii) `Manyarethe `problemsofthe `country.

(v) The `personisthe `chiefofthe `lazy.

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