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Reading Report on Phonology

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Abstract: When we speak, we use sounds. Through these sounds, we are able to understand each other. This is because there are different types of relationships that exist between the sounds that we use in speech acts. This is the principal objective of Phonology: to study the relationships between speech sounds within a language system. Bearing in mind the aforementioned, a brief report is given on one chapter from Davenport and Hannahs’ (1998) book, shedding light on the importance of Phonology in the study of language. This paper discusses what generative grammar is about, and how phonology fits into this grammar. Attention is paid to the similarities and differences between phonetics and phonology and their relevance to language study, providing relevant examples to substantiate certain claims. Concluding remarks are given, based on the information presented.

Resumen: Cuando hablamos, utilizamos sonidos. A través de estos sonidos, podemos entendernos. Esto se debe a los distintos tipos de relación que existen entre los sonidos que producimos en actos de habla. Este es el objetivo principal de la fonología: estudiar las relaciones entre sonidos de habla (fonos) dentro de un sistema lingüístico. De acuerdo con lo anterior, se presenta un breve reporte de un capítulo del libro de Davenport y Hannahs (1998), haciendo hincapié en la importancia de la fonología en el estudio del lenguaje. Este informe discute sobre la gramática generativa y cómo la fonología forma parte de dicha gramática. Se presta atención a las semejanzas y diferencias entre la fonética y la fonología, y su relevancia para el estudio del lenguaje, proporcionado ejemplos para sustanciar ciertas reivindicaciones. Se dan algunos comentarios finales, en función de la información presentada.

Keywords: phonology, phonetics, sound, speech sound, phoneme, language, communication, generative grammar.

Palabras clave: fonología, fonética, sonido, sonido de habla, fonema, lenguaje, comunicación, gramática generativa.
1. Introduction

Language is an integral part of the social life of a human being. It is probably the most important instrument of socialisation that transcends cultures and societies. Language allows human beings to communicate in a very peculiar way. Studies are being conducted to understand the processes involved in communication through language. ‘Linguistics’ is the scientific study of human language which seeks to look at language form, language meaning, and language in context. In other words, it studies all aspects of language which include Phonetics, Phonology, Morphology, Syntax, Semantics and Pragmatics.

Phonology is a branch of Linguistics which studies the function, behaviour and systematic organisation of sounds in languages. As noted by Clark, Yallop and Fletcher (2007), it is the systematic use of sound to encode meaning in any spoken human language, or the field of linguistics that is studying its use. Phonology is the basis for further work in morphology, syntax, and discourse, among others (Hale & Reiss, 2008).


This chapter highlights a number of important issues in, and related to, Phonology. Davenport and Hannahs (1998) start off by saying that as speakers of a language, we basically “know” about phonetics and phonology, since it is our language, and we use it all the time. Additionally, we can even tell when second language (L2) speakers of that language are making linguistic errors. Phonology has its roots in the generative enterprise.

2.1 The Generative Enterprise

Of extreme importance to Linguistics is the theory known as Generative Grammar. This theory is particularly associated with the work of American Linguist Chomsky (1955, 1956, 1957). A generative grammar of any language is an attempt at providing a set of fully explicit and formal statements of the rules governing the construction of the language. In other words, the rules of the grammar must tell us exactly what is counted as grammatical and what is counted as ungrammatical. In Chomsky’s view, the aim of a generative grammar is to represent formally the tacit knowledge that native speakers have of their language. This tacit knowledge is a
cognitive, mental knowledge, known as *internal language*, an implicit knowledge of language. It is biological and innate. This kind of knowledge is also referred to by Chomsky (1956) as *native speaker competence*.

A good way of trying to understand Chomsky’s point is to think of generative grammar as essentially a definition of competence: a set of criteria that linguistic structures must meet to be deemed as acceptable. As noted by (Parker & Riley, 2009), a generative grammar is a theory of competence, a model of the psychological system of unconscious knowledge that underlies a speaker’s ability to produce and interpret utterances in a language. Competence is differentiated from *performance*, the actual use of the language. This actual use of language is not of particular interest to generative linguists, since all kinds of external non-linguistic factors (tiredness, soberness, audience, location of speech act, objective of the speech act, among others) take centre stage when language is actually used, and these affect the way that speakers use language.

What are we supposed to know about our language? What is generative grammar to account for? What is known for sure is that every language has a structure. Language use involves more than randomly combining bits of language. If, for example, we are to use the English words ‘the’, ‘a’, ‘dog’, ‘cat’, and ‘chased’, native speakers know which combinations are permissible (grammatical), and those which are not (ungrammatical). Therefore, ‘The cat chased a dog’, or ‘The dog chased a cat’ are grammatical, but ‘*the cat dog a chased*’ or even ‘*a chased dog cat the*’ are deemed ungrammatical. This therefore indicates that native speakers do know how to combine words together to form larger constructions like sentences. This kind of knowledge of the relationships between words in a sentence is known as *syntactic knowledge*. The part of grammar that studies this type of knowledge is *Syntax*.

Native speakers also possess knowledge of the internal make-up of words. The meaning of a word like ‘happy’ in English can be changed simply by adding the prefix expressing negation {un-}, making it ‘unhappy’. Its function in the sentence can change by adding the adverbia[sl suffix {-ly}, making it ‘happily’. Native speakers can differentiate these grammatical forms from ‘*lyhappyun*’, or even ‘*happyunly*. Similarly, native speakers also know that the plural marker {-s} must be added to the
end of the word, to make it plural, as in {dog} - {dogs}, {cat}- {cats}, and not at the beginning. This kind of knowledge about the formation of words is known as morphological knowledge, and the part of grammar studying it is Morphology.

So sounds combine to form words. Words are organised in a sentence. Words undergo internal changes. But what do they mean? Are they supposed to make sense? The famous example used by Chomsky is “Colourless green ideas sleep furiously”. Syntactically, the sentence is perfect. Semantically, it is not, and is therefore ungrammatical, since it cannot be accepted by the native speaker. In other words, grammar must account for our knowledge about the meanings of words, how these meanings are related, and how they can be combined to allow for sentence interpretation. This kind of knowledge about the meanings of words in utterances is known as semantic knowledge, and the part of grammar studying it is Semantics.

Native speakers possess knowledge about the sounds of their language and how they are organised in a system. They also are aware of rules governing the pronunciation of these sounds, for example the consonant ‘c’ when appearing before the vowels ‘e’ and ‘i’ are pronounced like ‘s’ (voiceless predorsosvelar fricative), and in all other contexts it is articulated as ‘k’ (voiceless postdorsovelar stop). This kind of knowledge about the presentation of sounds in an organised system is known as phonological knowledge, and the part of grammar studying it is Phonology.

Taking into consideration the afore-mentioned, a full generative grammar must account for all areas of native speaker knowledge (syntactic, morphological, semantic, and phonological). With specific reference to Phonology, the concern of this report, the rule components of this kind of generative grammar serve to mediate between, or link, the two levels of structure: (1) the underlying, mental elements of the language (linguistic structures in the speaker’s mind of which he is not aware), and (2) the surface, physical realisations of these elements (the actual sounds made by a speaker when uttering a word).

2.2 Phonetics and Phonology
According to Davenport and Hannahs (1998), Phonetics studies the characteristics of human speech sounds or phones in general. Phonetics is divided into three kinds,
known as *articulatory phonetics* (how sounds are made), *acoustic phonetics* (how sounds are transmitted), and *auditory/perceptive phonetics* (how sounds are perceived). *Phonology*, on the other hand, is the functional classification of sounds of a particular language. It is the systematic organisation of sounds, paying special attention to (1) determining which phonetic sounds are significant, (2) explaining how these sounds are interpreted by the native speaker, and (3) establishing how these sounds are combined, the relationship between them, and how they affect each other. In other words, it is the system of sounds by means of which meaning is differentiated in a language, and which serve as building blocks for the higher linguistic levels like morphology, syntax, semantics, and the like.

Important to note is that these authors affirm that there is a very close relation between Phonetics and Phonology, because they both deal with the speech sounds of human language. Even though they share a relationship, Davenport and Hannahs (1998) warn that one should be careful with this, since not all languages use voice and the vocal cords for communicative purposes. One such language is *Sign Language*, which relies on manual gestures. Davenport and Hannahs (1998) contend that since Sign Language uses modalities other than speaking and hearing, with a view to encoding and decoding human language, Phonetics (the surface manifestation of spoken language) should be kept separately from Phonology (the abstract system organising the surface sounds and gestures). Said differently, given that Sign Language is not a ‘spoken language’, there needs to be a careful and systematic distinction between what Phonetics is, as against what Phonology is. Other authors (Gussenhoven & Jacobs, 2005; Odden, 2005; Clark et al., 2007; Hale & Reiss, 2008) also endorse these views.

Another interesting example given by Davenport and Hannahs (1998), in support of making a distinction between Phonetics and Phonology, is the use of the consonant cluster ‘tl’ in initial position of the word ‘tlip’. Speakers of English know immediately that this is not a word in the language, since English does not accept the cluster ‘tl’ in initial word position. It may even be viewed to be phonetic, because of its ‘difficulty to pronounce’. If no human language existed with such a combination, then it would have been just to say that such is impossible. However, in Tlingit, spoken in Alaska, and Navajo, spoken in the Southwestern USA, this cluster ‘tl’ is found in initial word
position. Given that this is phonetically possible, why isn’t it accepted in English? The reason is definitely not phonetic; bearing that in mind, it must therefore be a consequence of the sounds which are organised in English, not permitting ‘tl’ in initial word position. Interestingly enough, the ‘tl’ cluster does appear in English, as in ‘atlas’, ‘mantle’, ‘gentle’, and the like. The reason for English not having ‘tl’ in initial word position is not phonetic, since it is perfectly possible for a human being (English speaker, for example) to articulate it. It therefore follows that the reason must clearly be due to the systematic organisation of speech sounds (phonology) in English.

Davenport and Hannahs (1998) ask a very important question. If native speakers of English, for example, were asked to decipher the number of vowels in the language, they would probably say five (a, e, i, o, u). This could also mean that these individuals have not studied either phonetics or phonology. Additionally, they are confusing orthography (spelling and writing rules) with the sounds of the language, which are different things altogether. The alphabet of a language depicts those symbols and letters to be used to produce language, and does not necessarily say how many sounds the language possesses. In English, for example, the articulation of the vowel ‘a’ in ‘hat’ [hæt], ‘hate’ [heɪt], and ‘hart’ [haːt] produce different sounds for each of them, even though it involves the vowel letter ‘a’. English is noted for having about 20 vowel sounds, solidifying the point that the five vowel letters in the English alphabet (a, e, i, o, u) are not indicative of all the vowel sounds of that language.

Davenport and Hannahs (1998) go on to make mention of ‘tuck’, ‘stuck’, ‘cut’, and ‘duck’, four examples from English. If asked about the articulation of the consonant ‘t’, in the first three examples, speakers of this language would say that they are the same, and that there is no differentiation. A closer examination of the phonetic realisations of [t] would show that that is not necessarily so. For ‘tuck’ [θʌk], this speech sound, [t], is aspirated. In other words, there is a puff of air upon pronouncing it. For ‘cut’ [kʌt], the same speech sound suffers an obstruction or stoppage to the air passage. For ‘stuck’ [stʌk], the very phone suffers a mild obstruction upon articulation (Davenport & Hannahs, 1998). For the word ‘duck’ [dʌk], comparing the phone [d] to [t], it can be said that both are produced in a similar way through obstruction of the air passage. As such, the mode of articulation of the phones [t] and
[d] are considered obstruents or occlusives or stops. Additionally, their place of articulation is similar, as they are both *apicodental*. Thus, we can say that [t] and [d] are *apicodental stops*.

Another important classification of these sounds is with the vibration of the vocal cords. Consequently, sounds can either be *voiced* (when the vocal cord vibrates upon articulation) or *voiceless* (when the vocal cord remains motionless). It can thus be said that [t] is a *voiceless apicodental stop*, while its counterpart [d] is a *voiced apicodental stop*. The phonemes /t/ and /d/ are *homorganic phonemes*, because they both possess the same point/place of articulation.

From a *phonetic* standpoint, based on the above, and in agreement with Davenport and Hannahs (1998), it can be said that there are four closely related but slightly different sounds: three phonetic realisations of the same phone [t] and one realisation of the phone [d]). As far as a native speaker is concerned, from a *phonological* standpoint, there are only two sounds: /t/ and /d/, or better known as *phonemes*. There is *phonetic contrast* between the three realisations of the phone [t], but there is no phonemic contrast, since they are *allophones* (phonetic variations of the same phoneme). There is *phonemic contrast*, however, between the phonemes /t/ and /d/, as in the pair ‘tuck’ /tʌk/ and ‘duck’ /dʌk/. These are clearly two different sounds; in addition, they are known as *minimal pairs*, where there is just a difference of one phoneme in the word. Other examples of minimal pairs in English are ‘they’ /ðeI/ and day /deI/, ‘hat’ /hat/ and ‘hit’ /hIt/, and the like.

Speakers of a language are able to differentiate between phonemes and phones because *phonemes* (1) are obligatory, (2) are context independent, (3) have opposing meaning (phonemic opposition), and (4) are discriminated by the native language hearers. It follows that *phones* (1) are facultative, (2) are context dependent, (3) do not have opposing meaning (phonetic opposition), and (4) they are not normally discriminated by the native language hearers.

By way of further examples of phonemic and phonetic contrast, the *voiceless predorsoalveolar fricative* /s/, in Portuguese, has four allophones –[s], [z], [ʃ], [ʒ] – as in ‘saco’ [sáku], ‘mesmo’ [mézmu], ‘livros’ [lívruʃ], and ‘livros baratos’ [lívruʒ βáratuʃ].
In the final example, the phoneme /s/ becomes [ʒ] through assimilation. These allophones all represent phonetic contrast only. The phoneme /s/, however, can be phonemically contrasted to, for example, the phoneme /p/, for example, as in ‘solo’ /sólo/ and ‘pólo’ /pólo/, ‘sapa’ /sápa/, ‘papa’ /pápa/, and the like, making these minimal pairs.

In Spanish, for example, the phoneme /b/ has three allophones - [b], [β] and [p] - as in ‘boca’ [bóka], ‘silaba’ [silaβa], and ‘absoluto’ [apsolúto], the final case being assimilation. These three allophones have phonetic contrast, but not phonemic. The phoneme /b/ can be phonemically contrasted to /p/, for example, as in ‘bar’ /bár/ and ‘par’ /pár/, which would be minimal pairs.

3. Concluding Remarks
This report set out to shed light on the importance of Phonology to the study of language. It has looked at the generative experience, briefly discussing what generative grammar is about, and how phonology fits into this grammar. Attention has also been paid to the similarities and differences between phonetics and phonology and their relevance to language study, providing relevant examples to substantiate claims made.

An important feature of the structure of a word is how it is pronounced (its sound structure) (Odden, 2005). Said differently, the pronunciation of a given word is also a fundamental part of its structure. Consequently, the principles of pronunciation in a language are subject to change over time. Thus, the study of phonology eventually touches on other domains of linguistics (morphology, syntax, semantics, and the like).

Phonological awareness is important in language because it helps speakers of the language to identify sounds in a systematic way. Phonological awareness (1) is necessary for learning and using the alphabetic code, (2) predicts later outcomes in the development of linguistic skills, and (3) interacts with and facilitates the development of vocabulary and word consciousness (Moats & Tolman, 2009). This identification of sounds paves the way for complete development in the language skills (speaking, reading, writing and listening).
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