CHAPTER II

THEORETICAL FRAMEWORK

2.1. Phonology : The Sound Patterns of Language

Phonology is the study of the sound patterns of human-language : it is also the kind of knowledge that speakers have about the sound patterns of their particular language (Fromkin and Rodman,1988:69). It is true that the phonologies of the world's languages are variable, but their similarities are greater than their differences. Speech sounds as physical entities may be infinitely varied, but when they function as elements in a language, as phonological units, they are highly constrained.

Linguists are interested how sound systems may vary and in how they are similar in the phonetic and phonological universals found in all languages. The same relatively small set of phonetic properties or features characterizes all human speech sounds; the same class of these sounds are utilized in languages spoken from the Arctic Circle to the cape of Good Hope; and the same kinds of regular patterns of speech sounds occur all over the world. Victoria Fromkin said that when we learn a

language, we learn which speech sounds occur in the language and how they pattern according to regular rules.

Phonology is concerned with this kind of lingustic knowledge. Phonetics provides the means for describing speech sounds; Phonology studies the ways in which speech sounds form systems and patterns in human language. The phonology of a language, then, is the system and pattern of the speech sounds.

2.2. Phonemes : The Phonological Units of Language

Phonological knowledge goes beyond the ability to produce all the phonetically different sounds of a language. A native speaker English can produce the sound [θ] and knows that this sound occurs in English, in words like 'thin' [θin], 'ether' [i: θe:], or 'bath' [bʌθ].

Knowing the sounds (the phonetic units) of a language is only a small part of phonological knowledge.

Knowing a language implies knowing the set of words that comprise the vocabulary, or lexicon, of that language. Knowing a word means knowing both its form (the sounds that represent it) and its meaning. Each word differs from other words in both form and meaning. When two different forms are identical in every way except for

one sound segment that occurs in the same place in the string, the two words are called minimal pairs. The different sounds are called phonemes.

2.3. Distinctive features

A change in the phonetic form produce a different word. When such a change is the result of the substitution of just one sound segment, the two different sound segments must represent different phonemes. What distinguishes the two sounds is the phonetic feature. When a feature distinguishes one phoneme from another, it is a distinctive feature (or a phonemic feature). When two words are exactly alike phonetically except for one feature, the phonetic difference is distinctive, since this difference alone accounts for the contrast or difference in meaning. A single feature has two values, + and - : [± nasal], [± voiced], , and so forth. A phonetic feature is distinctive when the value '+' of that feature found in certain words contrast with the '-' value of that feature in other words. Yet, not all sounds that occur phonetically in a language represent phonemes, for instance if an oral vowel is substituted for the nasal vowel, i.e. in English, the

meanings of the two words would not be changed. Therefore, the feature [± nasal] is not a distinctive feature for English vowels.

2.4. Phonetic Features

The science of speech sounds is called Phonetics. It studies a set of features, or properties, that can describe all the sounds used in human language.

All human speech sounds fall into classes according to their phonetic features or properties - that is, according to how they are produced. It concerns with articulatory phonetics, the study of how the vocal tract produces the sounds of language.

Because each phonetic segment is composed of a bundle of features, it may be more adequately represented as a matrix of binary phonetic features, each is marked + or -. All sounds marked by the same value for a feature belong to that class. For example, a sound marked [+ voiced] belongs to the class containing all voiced segments. By means of phonetic features we can describe all speech sounds.

2.5. Articulatory Phonetics

All human speech sounds fall into classes according to their phonetic features or properties - that is, according to how they are produced. Articulatory phonetics is the study of how the vocal tract produces the sounds of language.

2.5.1. Place of Articulation

In order to form consonants, the air stream through the vocal tract must be obstructed in some way. Consonants can therefore be classified according to the place and manner of this obstruction. The principal terms for these particular types of obstruction, all of which are required in the description of English, are as follows :

2.5.1.1. Labials

By moving the tongue and lips we are able to change the shape of the oral cavity and produce different sounds. When we produce [p], [b], or [m] we articulate by bringing both lips together. These sounds are therefore called bilabials.

We also use our lips to form [f] and [v]. To produce these sounds we articulate by touching the bottom lip to

the upper teeth, which is why these sounds are called labiodental, labio referring to lips and dental to teeth.

The class of labial sounds in English consists of three bilabials [b], [p], and [m], and the two labiodentals [f] and [v]. Using the feature [± labial], all these sounds can be specified as [+ labial] and all other sounds as [- labial].

2.5.1.2. Interdentals

To produce the sounds [θ] and [ð] represented by the 'th' beginning the word 'thin' and 'then', the tip of the tongue is inserted between the upper and lower teeth. These sounds are interdental (between the teeth). In the English spelling system, the same sequence of letters, 'th', is used to represent the voiceless interdental [θ] in 'thin' and 'ether' and the voiced interdental [ð] in 'then' and 'either'.

Labial and interdental sounds are all articulated at the front of the oral cavity. Together they form a class of sounds which can be specified as [± front]. The technical term for the phonetic feature to distinguish this class is [± anterior]. Labial sounds are therefore [+ anterior, + labial] and interdental sounds are

[+ anterior, - labial].

2.5.1.3. Alveolars

To articulate [d], [n], [t], [s], or [z], the tip of the tongue is raised to the bony tooth ridge, called the alveolar ridge. Sounds produced by raising the front part of the tongue to the alveolar ridge are thus called alveolar sounds. The [t] and [s] are voiceless alveolar sounds, and the [d], [z], and [n] are voiced. Only [n] is nasal.

Alveolar sounds like labials and interdentals, are articulated at or in front of the alveolar ridge and therefore also specified as [+ anterior].

2.5.1.4. Velars

Another class of sounds is produoed by raising the tip of the tongue to the soft palate or velum. The initial and final sounds of the words 'kick', 'gig', and the final sounds of the words 'back', 'bag', and 'bang' are produced in this way and are called velar sounds. The [k] is the voiceless velar; the [g] is a voiced velar, and the [ŋ] (which never occur at the beginning of words in English) is a voiced nasal velar. Because the back of the tongue

is the articulator, then, these sounds are obviously [- anterior]. Velars are also [+ back] or [+ posterior] because they are articulated by raising the back part of the tongue to the velum, which is the back part of the roof of the mouth.

2.5.1.5. Alveopalatals

To produce the sounds [ʃ] and [ʒ], the front part of the tongue is raised to a point on the hard palate just behind the alveolar ridge. The voiceless sound [ʃ] in 'mesher' and the voiced [ʒ] in 'measure' are alveopalatal sounds. In English the voiced alveopalatal sound never begins words. The voicelesss sound begins the words 'shoe', 'sure', 'shut', and 'sugar' and ends the words 'rush', 'push', and 'lush'. These sounds are articulated neither at the front nor at the back of the mouth and are therefore in the class of sounds specified as [- anterior,- back].

2.5.2. Manner of Articulation

Some of the features discussed below do not reflect the movement of the tongue, teeth or lips, which the main articulator changing the shape or geometry of the vocal

tract. Rather they reflect the way the airstream is effected as it travels from the lungs up and out of the mouth and nose. Such feature or phonetics propeties have traditionally been referred to as manners of articulation.

2.5.2.1. Stops and continuants

Once the airstream enters the vocal cavity, it may be stopped, it may be partially obstructed or it may flow freely out of the mouth. Sounds that are stopped completely in the oral cavity for a brief period are, not surprisingly, called stops. They can be distinguished from all other speech sounds which are called continuants because the stream of air continues without complete interruption to the mouth opening.

[p], [b], [m], [t], [d], [n], [k], [g], and [ŋ] are stops that occur in English.

In the production of the nasal stops [n], [m], and [ŋ] the air does continue to escape through the nose during the blockage of the air flow, in the mouth, nevertheless they are classified as noncontinuant stops because the feature [± continuant] refers to the passage of air through the mouth.

The nonnasal or oral stops are also called plosive,

because the air that is blocked in the mouth explodes when the closure is released. This explotion does not occur during the production of the nasal stops, because the air has an escape route through the nose.

[p], [b], and [m] are bilabial stops, with the air-stream stopped at the mouth by the complete closure of the lips.

[t], [d], and [n] are alveolar stops, the airstream is stopped by the tongue making a complete closure at the alveolar ridge.

[k], [g], and [ŋ] are velar stops, with the complete closure at the velum.

All sounds fall into one of the two classes (which of course intersect with other classes) distinguished by the feature [± continuant]. Stops belong to the class of [- continuant] sounds, and nonstops to the class of [+ continuant] sounds.

2.5.2.2. Fricatives

In the production of some sounds, the airstream is not completely stopped but is obstructed from flowing freely. The passage in the mouth through which the air must pass is narrow, causing friction or turbulance. The

air particles are pushed against one another, producing noise because of the friction. Such sounds are called fricatives.

In the production of the labiodental fricatives , [f] and [v], the friction is created at the lips, where a narrow passage permits the air to escape.

[s] and [z] are alveolar fricatives, with the friction created at the alveolar ridge produced with friction created as the air passes through the narrow opening behind the alveolar ridge.

In the production of the interdental fricatives, represented by 'th' in 'thin' and 'then', the friction occurs at the opening between the tongue and teeth.

All fricatives are [+ continuant] sounds; although the airstream is obstructed as it passes through the oral cavity, it is not completely stopped.

2.5.2.3. Affricates

Some sounds are produced by a stop closure followed immediately by a slow release of the closure characteristic of a fricative. These sounds are called affricates. The sounds [tʃ] and [dʒ] that begin and end the words 'church' and 'judge' are voiceless and voiced

affricates, respectively. Phonetically, an affricate is a sequence of a stop plus a fricative. Because the air is stopped completely during the initial articulation of an affricate, these sounds are [- continuant].

2.5.2.4. Sibilants

The friction created in the production of the fricatives in the words 'sit', 'zip', 'shoe', 'leisure', and 'measure' and the affricates in the words 'church' and 'judge' cause a "hissing" sound. These sounds are often classed as sibilants. In the production of sibilants and also labiodentals, the airstream coming against the teeth or the alveolar ridge produces even more noise or stridency than is produced during the articulation of the interdental fricatives. Therefore sibilants and labiodental fricatives are specified as [+ strident] fricatives, to distinguish them from the less noisy sounds.

2.5.2.5. Liquids

There is some obstruction of the airstream in the mouth, but not enough to cause any real constriction or friction. These sounds are called liquids.

[l] is a lateral sound. The tongue is raised to the alveolar ridge, but the sides of the tongue are down, permitting the air to escape laterally over the sides of the tongue.

The sound [r] is produced in various ways. Many English speakers produce [r] by curling the tip of the tongue back behind the alveolar ridge. Such sounds are called retroflex sound.

In English, [l] and [r] are regularly voiced. When they follow voiceless sounds, as in 'please' and 'price, they may be automatically devoiced. English speakers find it difficult to produce a voiceless [l] when it occurs initially and usually substitute the voiced [l].

2.5.2.6. Glides

The sounds [j] and [w] are produced with little or no obstruction of the airstream in the mouth. In articulating [j] and [w] the tongue moves rapidly in gliding fashion either toward or away from a neighboring vowel; hence the term glide. Glides are transition sounds that are sometimes called semivowels.

[j] is a palatal glide; the blade of the tongue is raised toward the hard palate in a position almost

identical to that in producing the vowel sound in the word 'beat'. The glide [w] is produced by both raising the back of the tongue toward the velum and simultaneously rounding the lips. It is therefore a labiovelar glide, or a rounded velar glide.

The [h] is also a glide. The glottis is open as in the production of voiceless sounds. The [h] differs from 'true consonants' in that there is no obstruction in the oral cavity. It also differs from vowels, which are articulated by moving the tongue. When it is both preceded and followed by a vowel in English, it is often voiced, as in 'ahead' and 'cohabit'.

2.5.3. Voiced and voiceless sounds

The airstream from the lungs move up through the trachea, or windpipe, and through the opening between the vocal cords, which is called glottis.

If the vocal cords are apart, the airstream is not obstructed at the glottis, and it passes freely into the supraglottal cavities (the parts of the vocal tract above the glottis). The sounds produced in this way are voiceless sounds. The sounds represented by [p], [t], [k], and [s] in English.

If the vocal cords are together, the airstream forces its way through and causes them to vibrate. Such sounds are called voiced sounds and are illustrated by the sounds [b], [d], [g], and [z]. The voiced/voiceless distinction is important in English. It is this phonetic feature or property that distinguishes between word pairs like pit/bit, fine/vine, tin/din, seal/zeal.

The state of the vocal cords during speech thus permit us to classify speech sounds into two large classes, voiced and voiceless. We can specify each voiced sound as [+ voiced] and each voiceless sound as [- voiced]. Thus one feature with two values [± voiced] divides the set of all sounds into two classes.

2.5.4. Nasal and oral sounds

The roof of the mouth is divided into the hard palate and the soft palate or velum. The hard palate is the bony structure at the front of the mouth. Velum is behind it. It is soft and movable. Hanging down from the end of the soft palate or velum is the uvula. When the velum is raised all the way to touch the back of the throat, the passage through the nose is cut off. When the nasal passage is blocked in this way, the air can escape only

through the mouth. Sounds produced this way are called oral sounds. [p] and [b] are oral sounds. When the velum is lowered, air escapes through the nose as well as the mouth. Sounds produced in this way are called nasal sounds. [m], [n], and [ŋ] are the nasal consonants of English.

It is easy to determine the different classes of speech sounds. All sounds marked [+ voiced] are in the class of voiceless sounds; all sounds marked [+ nasal] are in the class of nasal sounds, and those marked [- nasal] are in the class of oral sounds. Thus, the two features, [± voiced] and [± nasal], classify all speech sounds into four sets: [+ voiced, + nasal], [+ voiced, - nasal], [- voiced, + nasal], [- voiced, -nasal].

From the explanation above, the classification of sounds produced by the kindergarten students can be done based on the phonetic features shared by the sounds.

2.6. Stages in language acquisition

In learning language, a child will pass some certain stages (Fromkin and Rodman,1988:368). In the early stages of language development, the child's speech is not simply a poor copy of adult speech; rather, it is complex and

governed by rules. By about the age of 5, the child will be using a language that in many ways is almost as sophisticated as that of an adult.

Linguistic knowledge develops by stages, and, it is suggested, each succesive stage more closely approximates the grammar of the adult language. Observations of children in different language areas of the world reveal that stages last for a short time; others remain longer. Some stages may overlap for a short period, though the transition between stages is often sudden.

2.6.1. The first sounds

During the earliest period, the noises produced by infants in all language communities sound the same. Children who are born deaf also produce these same sounds, even though they receive no auditory stimuli.

The sounds of language do not simply burst forth when a one-year-old child utters its "first word". As any parent can attest, there is ample phonetic activity long before the first discernible word. This activity involves considerably more than the cries of the child to express certain basic biological needs. Not only do babies produce a range of sounds during this stage, they also can make

certain discrimination among the sounds that surround them.

2.6.2. Babbling

In the first few months, usually around the sixth months, the infant begins to bable. The sounds produced in this period seem to include a large variety of sounds, many of which do not occur in the language of the household. Deaf children also babble, and their babbling, like their earliest cries and coos, seems similar to that of normal children. Hearing children born of nonspeaking deaf parents also babble. Thus, babbling does not depend on the presence of acoustic, auditory input.

One view suggests that it is during this period that children are learning to distinguish between the sounds of their language and the sounds that are not part of the language. During the babbling period children learn to maintain the "right" sounds and suppress the "wrong" ones.

Babbling does not seem to be a prerequisite for language acquisition. Infants who are unable to produce any sounds at this early stage due to physical motor problems begin to talk properly once the disability has been corrected. This fact supports the idea that the

babbling is a prelinguistic stage.

2.6.3. First words

Sometime after one year (it varies from child to child and has nothing to do with how intelligent the child is), children begin to use the same string of sounds repeatedly to *mean* the same thing. They have learned that sounds are related to meanings, and they are producing their first *word*. Most children seem to go through *the one word = one entence stage*. These one-word *sentence* are called *holophrastic sentence*. For instance, a child says "Mom", it means that she wants her mommy or she tries to show her mommy to someone else.

According to some child-language researchers, the words in the holopharstic stage serve three major functions: they either are linked with a child's own action or desire for action, or are used to convey emotion, or serve a naming function (Fromkin and Rodman,1988:371).

Phonologically, like the words of most children at this stage of learning English and other languages, were generally monosyllabic with a CV (consonant-vowel) form; the vowel part may be diphtongal, depending on the

language being acquired. His phonemic or phonetic inventory (at this stage they are equivalent) is much smaller than is found in the adult language. It was suggested by the linguist Roman Jakobson (in Fromkin and Rodman,1988) that children first will acquire the sounds found in all language of the world, no matter what language they are exposed to, and in later stages will acquire the more difficult sounds. For example, most languages have the sounds [p] and [s], but [θ] is a rare sound. Their phonological inventory at an early stage includes the consonants [b], [m], [d], [k], which are frequently occuring sounds in the world language.

2.6.4. The two-word stage

Children begin to produce two-word utterances around the time of their second birthday. At first these utterances appear to be strings of two of the child's earlier holophrastic utterances, each word with its own single-pitch contour. Soon after this juxtaposition, children begin to form actual two-word sentences with clear syntactic and semantic relations. The intonation contour of the two words extends over the whole utterance rather than being separated by a pause between the two

words.

During the two-word utterance stage, there are no syntactic or morphological markers - that is, no inflections for number, person, tense, and so on. Pronouns are rare, although many children use *me* to refer themselves,and some children use other pronouns as well.

2.6.5. From telegraph to infinity

The first utterance of children longer than two words have a special characteristic. The small function words such as prepositions are missing; only the words that carry the main message - the content words - occur, which is why such utterances are sometimes called telegraphic speech.

Apart from lacking grammatical morphemes, these utterances appear to be sentence-like; they have hierarchical, constituent struotures similar to the syntactic structures found in the sentences produced by the adult grammar.

2.7. Indonesian phonological system

Learning to speak a foreign language involves learning another phonological system. While this

acquisition may be considered similar in some respects to learning phonology in the native language, there are some obvious and important differences, for instance the phoetical inventory, phonological rules and so forth (Komshian, Kavanagh and Ferguson, 1980:187).

Children, learning a foreign language, will find some of the differences stated stated above, but they may be unconscious of their mistakes, for example in pronouncing the foreign words, they may substitute some sound segments of the foreign language with their own native sounds.

In this study, the writer intends to observe the difficult sounds of English and the sounds they produce to substitute the difficult sounds.

The reason why a certain sound is substituted by another sound is not discussed here. The writer only give a basic reason why the segmental substitution occurs. Below is the table ofIndonesian phonological system (Parera,1986:82).

2.7.1. Table of Indonesian Phonological System

Phoneme	Graphem	Phone	Example
/b/	b,B	[b] [b^h] [^{m}b]	baju, bangkai, besar, bentuk. bagus, bendungan, betul (Java) Bantul, Banyuwangi, Bali (Java)

Phoneme	Graphem	Phone	Example
		[p]	Sabtu, adab, wajib.
/c/	c,C	[c]	cinta, cangkul, cipta, cubit.
		[s]	TBC, TC, cm.
		[k]	OPEC.
/d/	d,D	[d]	datang, duka, dinding, dungu.
		[t]	ustad, maksud, murtad.
/f/	f,F	[f]	profil, figur, fantasi.
		[p]	maaf, sifat, paraf (Java).
		[p]	fakultas, farmasi (Betawi).
/g/	g,G	[g]	gempa, gudang, gandum, gigi.
		[j]	energi, dirigen.
		[x]	fragmen, segmental, diafragma.
		[k]	Bulog, dialog.
/h/	h,H	[h]	hampir, hiasan, handuk, lahan.
		[?]	hapus, haus.
		[0]	lihat, pahit, mudah (Betawi)
/j/	j,J	[j]	jalan, jangkung, janggal, jam.
/k/	k,K	[k]	kaku, paku, kaki, keranjang.
		[?]	adik, bapak, tidak, becak.
/l/	l,L	[l]	lampu, luas, langsung, lemari.
		[r]	lupa (Japan).
/m/	m,M	[m]	makan, minum, umum, musnah.
/n/	n,N	[n]	nanti, nasi, enau, daun.
		[ŋ]	bank, sanksi, tank.
		[ñ]	menjadi, menjaring, mencari.
/n/	ng,Ng	[ŋ]	angklung, angsa, angin, angka.
/ñ/	ny,Ny	[ñ]	nyonya, nyiur, nyanyi, nyamuk.
/p/	p,P	[p]	pisau, piring, panci, paksa.
/k/	q,Q	[k]	Quran, furqan, qori.
/r/	r,R	[r]	rimbun, rambut, rias, raih.
		[l]	lari, liur, rampas (cadel).
/s/	s,S	[s]	sedang, sampai, sengsara.
/s/	sy,Sy	[sy]	isyarat, masyarakat, syarat.
/t/	t,T	[t]	tanpa, tekanan, tiba, tugas.
/v/	v,V	[f]	variabel, variasi, vokal.
		[p]	vas, vital.
/w/	w,W	[w]	wacana, sewa, waspada, warta.
/s/	x,X	[s]	xenon, xerox.
/ks/	ks	[k^s]	taksi, saksi.
		[k^h]	xilofon.
/y/	y,Y	[y]	sayu, yakin, sayang, bayu.
		[i]	Leny, Henny.

Phoneme	Graphem	Phone	Example
/z/	z,Z	[j]	izin, zat, zaman.
		[s]	ijazah, bazar.
		[z]	zakat, azab.
/x/	kh	[x]	khawatir, makhluk, akhlak.
		[k]	khatulistiwa, akhir.