

CHAPTER VI

Suprasegmentals: Stress, Pitch, and Intonation

INTRODUCTION

A **suprasegmental**, or **prosodic feature**, is a vocal effect that extends over more than one sound segment (vowel or consonant) in an utterance, such as stress, pitch, intonation, or juncture pattern.

Stress is the emphasis or loudness with which syllables are produced and **pitch** is the high or low quality of the voice caused by the rate of vibration of the vocal cords. The pitch of the voice rises and falls during an utterance, creating a melody or **intonation** contour. **Juncture** is the transition or mode of transition from one sound to another in speech. In phonetics, juncture is the set of features in speech that enable a hearer to detect a word or phrase boundary (e.g. distinguishing *I scream* from *ice cream*).

STRESS: BASIC PATTERNS

Stress. In English or Spanish words of more than one syllable said in isolation, the vowels (nuclei of syllables) vary in prominence; one syllable is more noticeable than the others. Others are less prominent and, in English, some are very weak and difficult to hear. These differences in prominence are due to differences in the stress with which syllables are spoken. Stress is produced by pushing more air out of the lungs. In addition, a stressed syllable is usually louder than an unstressed one. It is also often accompanied by a higher pitch.

Fixed and Free Stress Languages. Traditionally, languages have been classified on the basis of whether they have fixed or free stress. In **fixed-stress** languages, like French, strongest stress always falls on a predictable syllable in polysyllabic words. In **free-stress** languages, like English or Spanish, the primary stress may appear on any syllable of a word, the first syllable, a medial syllable, or the last syllable.

Syllable-timed and Stress-timed Languages. When we speak normally in complete utterances, our speech has rhythm. The rhythm of speech, as with music, is created by the regular recurrence of something. The rhythm of language is determined primarily by the regular recurrence of syllables or of stress. The rhythm of French and Italian is created largely by the regular recurrence of syllables, and they are often called **syllable timed languages**; the rhythm of English, German and Russian is determined primarily by the regular recurrence of stress; they are called **stress-timed languages**.

In a **syllable-timed language**, every syllable is perceived as taking up roughly the same amount of time, though the absolute length of time depends on the prosody. Syllable-timed languages tend to give syllables approximately equal stress and generally lack reduced vowels.

French, Italian and Spanish are commonly quoted as examples of syllable-timed languages. This type of rhythm was originally metaphorically referred to as “**machine-gun rhythm**” because each underlying rhythmical unit is of the same duration, similar to the transient bullet noise of a machine-gun.

In a **stress-timed language**, syllables may last different amounts of time, but there is perceived to be a fairly constant amount of time (on average) between consecutive stressed syllables. Stress-timing is sometimes called **Morse-code rhythm**. Stress-timing is strongly related to vowel reduction processes. English, German, and Portuguese are typical stress-timed languages, as are some southern dialects of Italian.

The duration of an English utterance depends on the number of stressed syllables it has; it takes approximately the same length of time to say each of the following sentences because each has three stressed syllables.

- / / /
1. John bought milk.
- / / /
2. John has to buy milk.
- / / /
3. John has to buy a little milk.

Stress Patterns in English Words

Stress Diacritics. Three different levels of stress are heard in English words when they are said in citation form. A complete phonetic transcription of a word, whether broad or narrow, will include the stress given to each syllable. The three levels of stress are marked with the following diacritics:

Stress Diacritics

- Primary stress (strongest): / ' /
- Secondary stress (next strongest): / ` /
- Unstressed/Weak stress (least strong): / ˘ / or not marked

The most prominent syllable in an English word is called the **primary (or tonic) syllable** and is marked with the diacritic [']. In citation form, all monosyllabic words have primary stress. Therefore, linguists do not mark primary stress on monosyllabic words. In words of more than one syllable, the next strongest syllables are called **secondary syllables** and are marked with the [`]. Syllables with primary or secondary stress are **stressed syllables**. All other syllables are **unstressed syllables**; they can be marked with [˘] or left unmarked. Stressed syllables (those with primary and secondary stress) contain all the vowels and diphthongs except [ə]. Unstressed syllables commonly contain the vowels [ə], [I], and [U] and [ɪ] a high, central, lax, unrounded vowel represented by [ɪ], called **barred I**. Barred I is heard when speakers say “Just a minute” very informally [dʒɪst ˈmɪnɪt]. Vowel reduction occurs in unstressed syllables, which may also contain syllabic consonants.

Stress Patterns for Two-syllable Words. Two syllable words have one primary stressed syllable combined with either a secondary stressed syllable or an unstressed syllable. Two stressed syllables, almost always primary – secondary [' `] is the stress pattern of the vast majority of English compound words. A few compound words follow the pattern secondary – primary [` '] .

Stress Patterns for Words of More than Two Syllables. There are numerous different stress patterns for English words of three or more syllables. Although adjacent stressed syllables do occur in two-syllable words, in words of three or more syllables the preference in English is to alternate stressed and unstressed syllables or to pronounce two unstressed syllables in a row.

In three-syllable words), it is common for all syllables to be unstressed except for the required primary syllable. However, three-syllable words can have a secondary stress.

Words of four or more syllables usually have a secondary stress on at least one syllable. A common place for the secondary stress is on a meaningful prefix, as in *underachievement* and *uninhabited*, which can also be pronounced with two secondary stresses in careful speech.

Stress is Phonemic in English and Spanish. A difference in the stress pattern on words can change meaning (and/or grammatical function) in both English and Spanish. Therefore, stress is phonemic in these languages, just as the contrast between /p/ and /b/ is phonemic. Take for example, certain English noun and verb pairs and English phrasal verbs with their related compound nouns (*digest*, *insult*, *conduct*, *progress*, *address*).

English: Noun/Verb Pairs. There are pairs of words with the same sounds where primary stress on the first syllable marks the noun and primary stress on the second syllable marks the verb. These pairs are minimal pairs for stress. Examples 3) and 4), however, show that sometimes the shift in stress is accompanied by a change in the pronunciation of a vowel when it is no longer stressed.

Similar changes occur in English when two-word verb phrases like *print out* form a compound noun, *printout*. (see also: *left over/leftover*, *check in/check-in*, *break down/breakdown*)

Distinguishing Phrases from Compounds. The stress pattern for most compound nouns such as *baseball*, *pitfall*, and *sailboat* is primary - secondary or the stronger stress (primary) followed by a somewhat weaker stress (secondary). This difference in stress pattern for compound words (stronger / weaker) and phrases (weaker / stronger) is the primary distinguishing feature between the compound words and phrases.

Word Stress (compound noun) stronger/ weaker	Phrase Stress weaker/stronger
1. a hotdog 2. a greenhouse	modifier + noun head (NP) 1. a hot dog 2. a green house
3. Did you feel the earthquake? 4. They're washing machines.	verb + noun object (VP) 3. Did you feel the earth quake? 4. They're washing machines.
occupational modifier (compound word stress) 5. a flying instructor (teaches flying) 6. a Spanish teacher (teaches Spanish)	nationality/descriptive modifier (phrase stress) 5. a flying instructor (one who is flying) 6. a Spanish teacher (nationality)

Pitch and Intonation

In analyzing English, linguists find four relative pitch levels. Pitch level /4/ is commonly used for shouting or screaming. Only pitches /3/, /2/, and /1/ are used in normal speech.

Extra high (screaming)	/4/
High	/3/
Normal	/2/
Low	/1/

Whether we are saying one or many words, the pitch of the voice rises and falls. Words in isolation are not common in normal speech, but they are useful to practice listening to and marking pitch changes. Two systems of recording pitch are illustrated below, one using numbers

and the other a line, called a pitch or intonation contour. When words are said in isolation, the pitch rises on the strongest syllable and then falls.

Numbers	Pitch Contour
1) ³ book ¹	book
2) ³ practice ¹	practice
3) ² Ja ³ pan ¹	Japan
4) ² pho ³ tography ¹	photography
5) ² photo ³ graphic ¹	photographic

Pitch Variation in Phrases and Sentences

The intonation patterns for phrases and sentences are recorded in the same way as for words in isolation, using either numbers or an intonation contour. Falling [231], rising [233], and sustained patterns that end [22] or [33] are heard. In a simplified form of notation, falling, rising, and sustained intonation patterns can be indicated by an arrow at the end of a sentence or part of as sentence: falling intonation / ↓ /, rising intonation / ↑ /, and sustained intonation / → /.

Falling Intonation /2, 3, 1/ or / ↓ /

An intonation pattern that begins at /2/, rises to /3/ at the primary sentence stress, and falls at the end of the utterance to /1/, a falling intonation pattern, conveys the meaning of completeness. English speakers use it for statements and information questions beginning with question words such as *what, where, when, how, and how long*.

1) ² I love ba ³ nanas ¹	I love bananas.
2) ² He's looking ³ out for them ¹ .	He's looking out for them.
3) ² Where are you ³ going ¹ ?	Where are you going?

Rising Intonation /2, 3/ or ↑

An intonation pattern that begins at /2/, rises to /3/ at the primary sentence stress, and stays there to the end of the utterance is a rising intonation pattern. English speakers use it for yes-no questions beginning with auxiliary or helping verbs (for example *Does, Did, Can, Will, Should, Are, Was, Have* and *Has*) where a *yes* or *no* answer is expected. In English rising intonation also converts declarative statements to questions expressing surprise or doubt. In Spanish it is used for all yes-no questions; no surprise or doubt is implied.

1) ²Are you ready³?

Are you ready?

2) ²Did you see him³?

Did you see him?

3) ²Can you play the piano?³

Can you play the piano?

4) ²He got the job³?

He got the job?

I didn't think we was qualified! (surprise)

Mary said he was unemployed. (doubt)

Sustained Intonation / 2, 2/ or →

The rising and falling intonation patterns go up and down across the utterance and end either higher or lower than they began. A third ending for an intonation pattern is heard in which the pitch is **sustained**, or continued, at the end; it neither rises nor falls. Sustained intonation conveys incompleteness. It is heard when speakers have not finished speaking; perhaps they have stopped to think before continuing. If one speaker has been monopolizing a conversation, others may listen for the sustained intonation accompanied by a slight pause to take their turn in the conversation. It is also used when people want to indicate they have more to say but prefer not to comment. In this case, it is like an unspoken *but*. Sustained intonation can also be used to distinguish between restrictive and non-restrictive relative clauses,

Intonation Pattern for a Series. The two common intonation patterns given to a series of items illustrate that there can be more than one possible intonation pattern for a sentence. Perhaps the basic pattern is one that rises on all elements in the series and then falls on the final item. For example,

1) ¹one², ¹two², ¹three², ³four¹

one, two, three, four

2) ²I'd like some ²apples³, ²bananas³, ²and ³pears¹

I'd like some apples, bananas, and pears

However, the series above can also be said

3) ²one¹, ²two¹, ²three¹, ²four¹

one, two, three, four

4) ²I'd like some ³apples¹, ²ba³nanas¹, ²and ³pears¹

I'd like some apples, bananas, and pears

Phonemic Status of Intonation. Intonation, like stress, is phonemic. Changing the intonation pattern on an utterance can change the meaning, but doesn't have to as illustrated with the series above. For example, rising intonation can change a statement to a question of doubt or surprise.

1) ²John won the e³lection¹.

2) ²John won the election³?

Juncture

The transition or mode of transition from one sound to another in speech.

Phonetics the set of features in speech that enable a hearer to detect a word or phrase boundary (e.g. distinguishing *I scream* from *ice cream*).

It is often necessary in describing pronunciation to specify how closely attached one sound is to its neighbors: for example, k and t are more closely linked in the word ‘acting’ than in ‘black tie’, and t and r are more closely linked in ‘nitrate’ than in ‘night rate’. Sometimes there are clearly observable phonetic differences in such examples: in comparing ‘cart rack’ with ‘car track’ we notice that the vowel in ‘cart’ is short (being shortened by the t that follows it) while the same phoneme in ‘car’ is longer, and the r in ‘track’ is devoiced (because it closely follows t) while r in ‘rack’ is voiced.

Since the position of juncture (or word boundary) can cause a perceptual difference, and therefore potential misunderstanding, it is usually recommended that learners of English should practice making and recognizing such differences, using pairs like ‘pea stalks/peace talks’ and ‘great ape/grey tape’.

Juncture errors can be classified into three main types:

- a. transfer of segment from word1 to word2
- b. transfer of segment from word2 to word1
- c. transfer of segment between syllables