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Speaking: A Review

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Abstract

We are usually not aware of the process of speaking, as we are unconscious of our breathing in oxygen and breathing out carbon dioxide; as if they are automatic and effortless. We become conscious of our breathing only when we gasp for a little air and likewise, fumbling for the right word very often makes us aware of our speaking. Surprising facts about speaking are there. A chain of subtle and intricate activities takes place within moments. The starting is in our brain where the message is conceptualized, and then at the physiological level, the message travels through the nervous system, and finally, at the physical level, the message is passed to the articulatory speech organs to produce sounds. In this writing, we shall see how the messages are formed and monitored in a preverbal state and how those messages receive phonological and grammatical encoding following some phonetic plan. Various stages and features of speaking and the role of long and short-term memory are also dealt with here. This writing will hopefully facilitate interested learners of phonetics and psycholinguistics.

Keywords: speaking, the intricate and voluntary process of speech, the location of speech in the human brain, conceptualizer, formulator, articulators, grammatical and phonological encoding of speech, self-correction, pause and other features of speech.

Introduction:

The rare blessing of speaking has secured human being a unique position in the world amidst numberless species and all our thoughts and dreams, prayers and meditations, relation and communication dwell within our speech. This act of speaking is of immense importance in psycholinguistics, though we are rarely aware of this act while we talk, as if, this is an involuntary and natural flow of passing information. But this is not so. The act of speaking is a very intricate and complex one. Firstly, the message is formed in the brain then it, in a preverbal state, receives phonetic and grammatical coloring and then it goes through a speech plan and finally it is passed to the articulatory organs for the articulation of the sounds. While speaking the messages in the verbal form follows a definite pattern concerning choosing phonological, morphological and syntactic aspects. And the various features of speaking are also very interesting to know.

What is speaking?

It is not very easy to delimit speaking under some definition. Speaking is said to be a voluntary act of a speaker to influence the listener in a desired way. It concerns an alteration in the state of knowledge. A speaker may state, enquire, promise, bet, warn, and exclaim, order and so on. Clark and Clark (1977) put it in the following manner:

> Speaking is fundamentally an instrumental act. Speakers talk in order to have some effect on their listeners. They assert things to change their state of knowledge. They request things to do things for them. And they promise, bet, warn, and exclaim to affect them in still other ways. The nature of the speech act should, therefore, play a central role in the process of speech production. Speakers begin with the intention of affecting their listeners in a particular way, and they select and utter a sentence they believe will bring about just this effect.

The act of speaking is not mere opening and closing the mouth. It roughly comprises three stages. They are - psychological, physiological and physical. Initially, an idea is formulated in the speaker's brain and secondly, the human nervous system transmits this linguistic message to the organs of speech, and thirdly, the organs of speech are activated and they create certain sounds. Those three stages are reversed on the part of a listener. At the physical level, the message is received as a linguistic code, at the physiological level, the linguistic code is passed to the brain and finally, in the psychological stage, the code is deciphered or interpreted. Surprisingly enough, all these chains of actions take place within moments or fractions of moments.

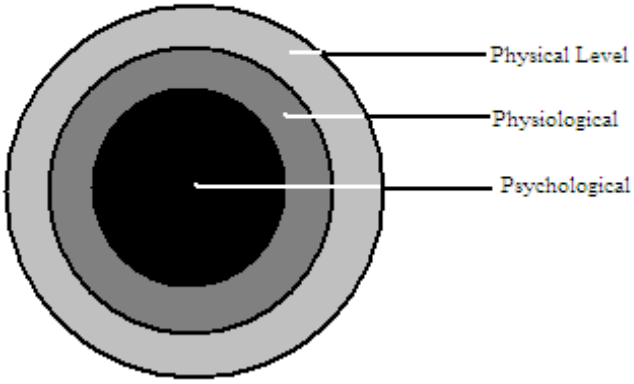
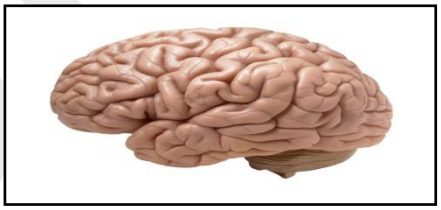


Figure 1: Layers of speaking

We speak with our left hemisphere:

Let's have a brief look at the language location in human physic. The origin is in the brain. The human brain is just like a CPU of a computer for a human being. There are two halves or hemispheres in the human brain. The right hemisphere minds the jobs of the left side of the body and the left hemisphere is entitled to the functioning of the right side of the body. Language is located on the left one. To zoom in, we find the areas responsible for language production are Broca's area, Wernicke's area, Motor Cortex and Arcuate Fasciculus.



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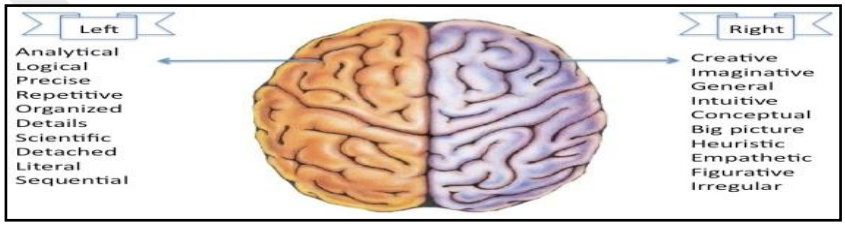

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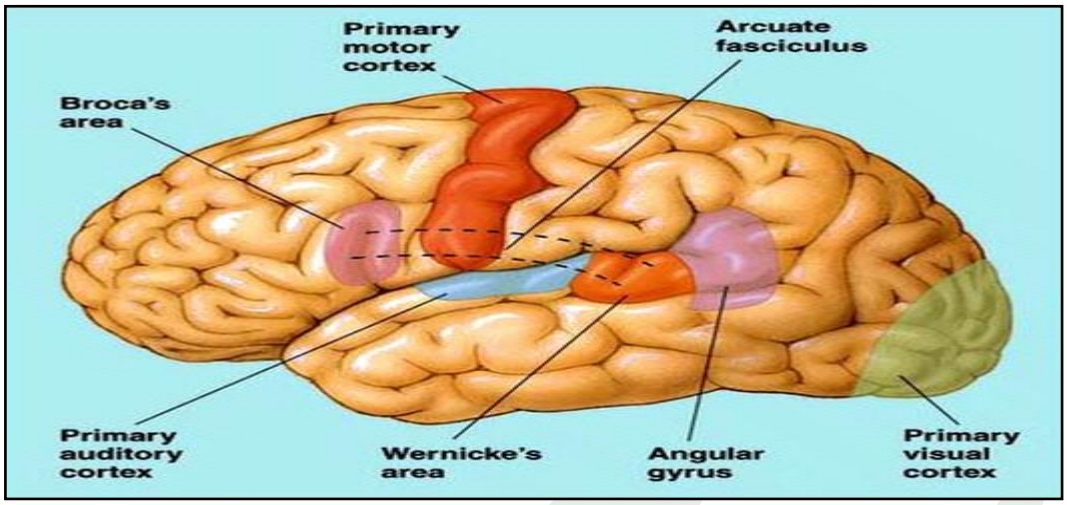

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Figure 1:

Figure 2:

Figure 3:

Broca's Area:

Speech production is linked to the posterior inferior frontal gyrus in the frontal lobe of the left hemisphere. This area is named after Paul Broca, the French neurosurgeon in 1861. Broca's patients had injuries resulting in an inability to speech production. It is known as Broca's aphasia. This kind of inability to speak is also known as expressive aphasia.

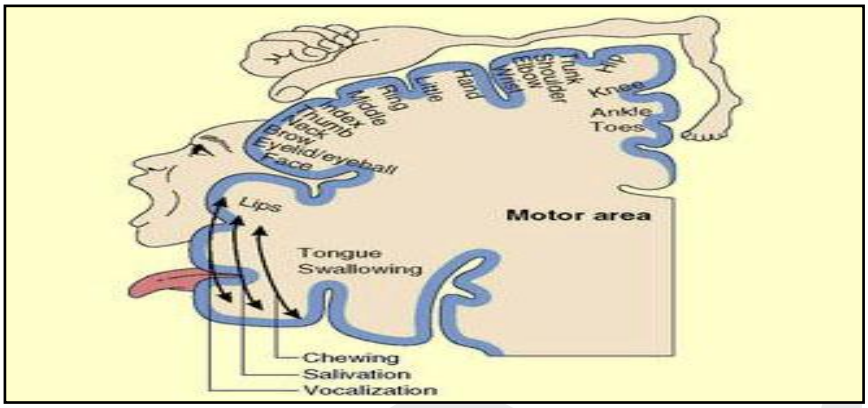
Wernicke's Area:

Wernicke's speech area is responsible for **Language comprehension**. It is the posterior section of the superior temporal gyrus (STG) in the dominant cerebral hemisphere. German neurologist Carl Wernicke discovered this area of the brain in 1871.Lesion in this area results in an inability to speech comprehension. Wernicke's aphasia is also called Receptive fluent aphasia. It is also known as Jargon aphasia.

Arcuate Fasciculus:

A bundle of nerves connecting Broca's area and Wernicke's is called arcuate Fasciculus. It plays an important role in the language comprehension and production process. Lesion to these nerves causes a certain kind of aphasia where the patient can understand the speech of others but cannot repeat words and produce meaningless speech.

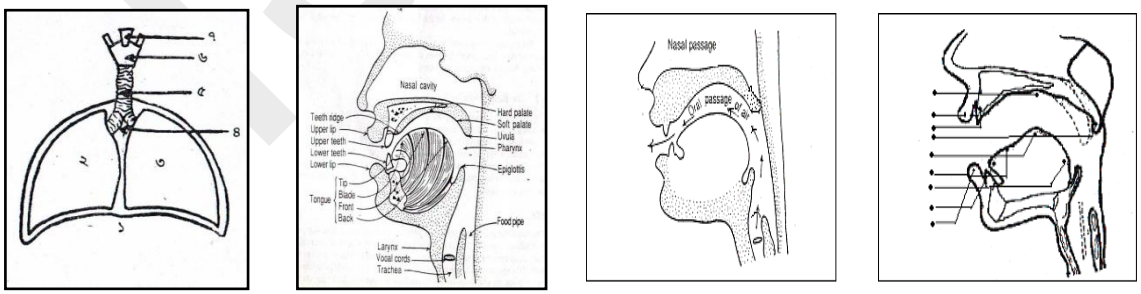
Motor Cortex:



Motor cortex controls the articulation of the speech organs. Movements of all the articulators from larynx to lips are regulated by this motor cortex. Chewing, swallowing, salivating etc. are also controlled by this area. Injury to this area causes stammering. Damage to this area causes the loss of control of salivating, swallowing and chewing.

Articulators:

In the physical level, the message from the cortex is passed to the diaphragm. The diaphragm gives a squeeze and a flow of air rushes out through the windpipe and finally released either through the oral cavity or nasal cavity. In case of consonant sounds, the flow of the air is obstructed almost at a dozen places. But regarding vowel sounds that flow of air is not hindered anywhere and directly let out in the air. Following figures would help us to understand the production of consonant and vowel sounds. Figure - 1 shows the diaphragm where from the air-flow is thrown Figure 2 shows various articulators. The flow of the air is being played by a group of active and passive articulators for producing consonant sounds in figure 4. Figure: 3 shows that the air stream is directly emitted to the air without having in blockage or obstruction for the production of vowel sounds.



1 2 3 4

Figure: 1 Diaphragm

Figure: 2 Articulators
Figure: 3 Free air-stream
Figure: 4 Active and passive articulators

Process of Speaking:

The course of speaking is a very interesting one. Willem Levelt of Holland is outstanding in this field to present a covering model of the speaking process. The model is the outcome of his many years' ceaseless effort. All the aspects of speaking are explored here very beautifully.

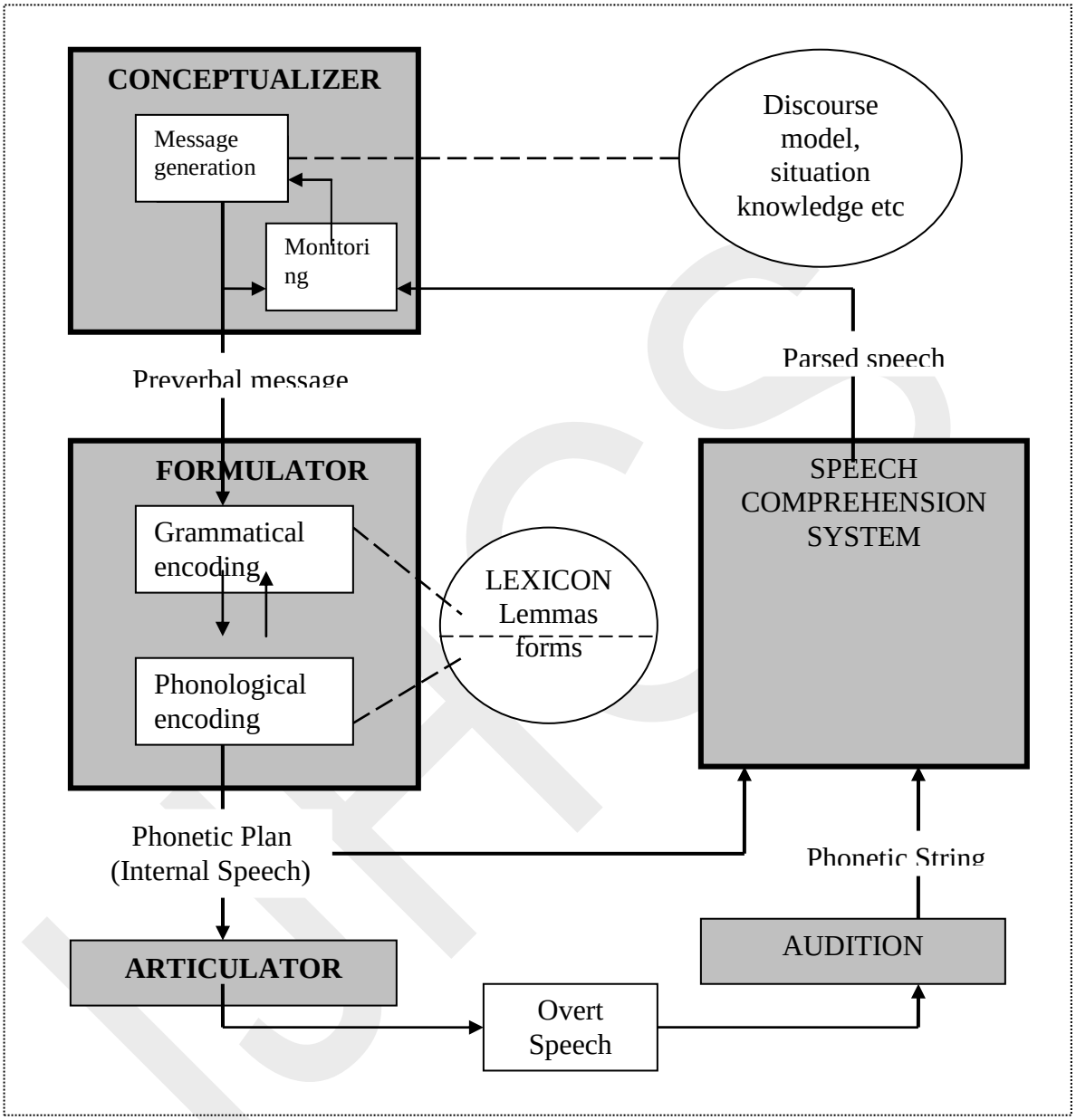


Figure: 2 The Blueprint of the speaking process
Source: Levlet (1989:9)

The three levels mentioned in the earlier section are differently treated by Levelt. The major components of speaking procedure, according to him, are CONCEPTUALISER, FORMULATOR and ARTICULATOR. The circle and the oval shape in the figure represent knowledge stored in the long

term memory and they are directly related to conceptualizer, formulator and speech comprehension system. In the very first stage, the massage is generated and monitored within the conceptualizer then it is passed to the formulator in a preverbal state. The preverbal message receives grammatical and phonological encoding within the formulator. Then it achieves the state of a phonological plan or internal speech which is then passed to the articulators for transforming them as sounds. Overt speech is the outcome of the articulatory level. Being received by the audition and processed by the comprehension system the message is again sent back to conceptualizer. Comprehension system is fed with the message as a phonetic string from the auditory organs. While speaking, Levelt recognizes, the speaker also listens to his speech very closely to check the accuracy and clarity of the message and this checking out or monitoring takes place within the conceptualizer.

Suppose, somebody wants to say TIGERS ARE FEROCIOUS. Now let us see does says this following the model of Levelt.

- From the long term memory they retrieve the idea TIGERS ARE FEROCIOUS. The speaker also retrieves other associated bits of information with it at the same time but they are filtered aside.

- The phonological forms are retrieved from the form part of the 'form' part of the lexical entries in the memory.

Tiger - /taigə/ ferocious - /fərəʊʃəs/

They are brought under surface structure –
/taigə/+(noun,plural) + verb+ /fərəʊʃəs/ (complement)

- Morpho-phonemic features are added /taigə/+ /z/ and so on

At this stage the message is in 'phonetic plan' stage. Now it is to be prepared and passed to the articulator.

- The speaker listens to and does self monitoring and brings changes if necessary.

- The speaker builds a syntactic frame from the probable lexical entries.

- Supra-segmental features like stress may be added at this level where the speaker feels necessary.

Features of speaking:

We are going to throw some light on a few curious characteristics of speech that we never cared to know such as speech rate, active vocabulary, pauses and fillers, kinds of speech and so on. Some of these interesting features of speaking are given below:

- How many words do we speak per minute is known as speech rate. The normal speech rate of a grown up human being is 150
- A normal educated adult speaker has got an active vocabulary of 30,000 words
- Within a second a speaker make a choice two to five times
- Per second the maximum possible number of syllable on the part o f the human articulator to produce is eight

When we talk, very often we have pauses. Why do we take pauses? A remarkable characteristic of speaking is its pause. There are causes, types and effects of a pause.

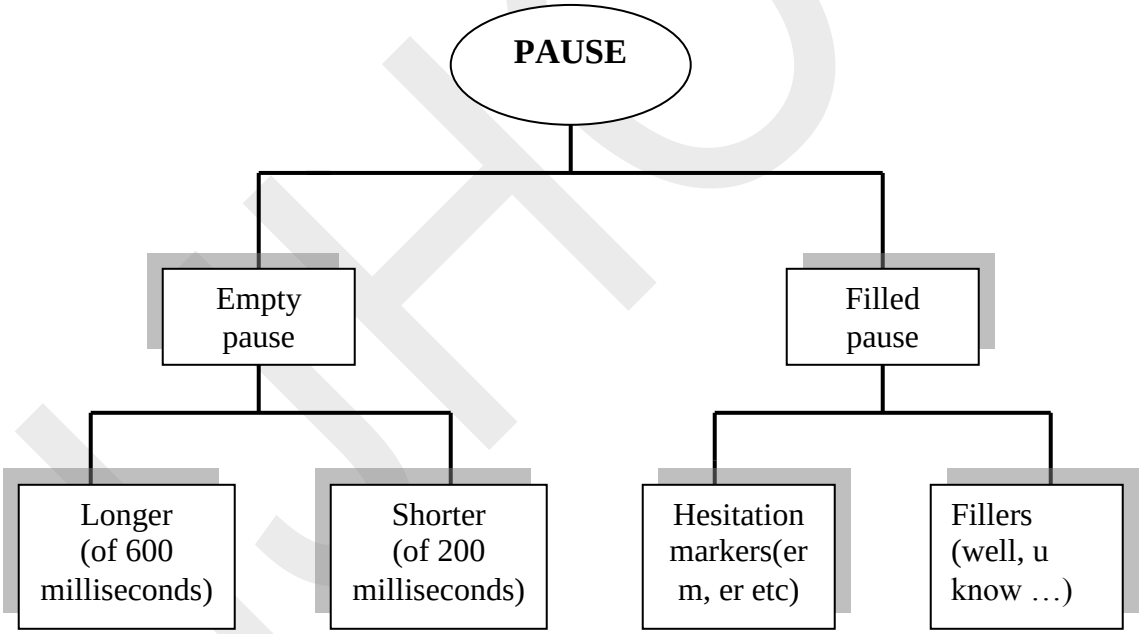


Figure: 3 Pauses

According to Field (2003) pauses can broadly be categorized into two types – empty pauses and filled pauses. Empty pauses of are two types – longer and shorter. Longer empty pause consumes 600 milliseconds whereas shorter ones 200 milliseconds. Filled pauses are also of two types. They are hesitation markers and fillers. Hesitations markers like um, er, erm are very frequently used by the

native speakers. Commonly used fillers are like u see, you know, I mean to say, I mean well and so forth.

Important points about pauses are as follows:

- People pause to make speech plan.
- The pauses tend to appear at the clause boundaries, at the finishing of one and the outset of another.
- Pausing is vital to remove the speech buffer
- People may pause to retrieve an infrequent word
- Situation or physical fatigue may cause pause
- Pauses may , more importantly, be use to mean the turn over
- They may rhetorically be used to mean what comes next is important

In relation to pauses, considering phonological phrase and chunks of speech Laver (1994) divides speech into following three categories:

- Continuous fluent speech (several phonological phrases without pauses)
- Non continuous fluent speech (several phonological phrases with pauses)
- Non continuous hesitant speech (with hesitation pauses)

Our talk is very much different from the mechanical talk of a 'talking clock'. Rhythm, assimilation, elision and linking all these happen when a normal native speakers speaks his mother tongue. Rhythm is a notable feature of any language. Many language speakers like English use stress-timed rhythm and many other use syllable-timed rhythms like French. We always do not talk in a slow tempo very often we speak very fast. Then assimilation, elision, and linking of words frequently do occur. Some samples of English language are cited below from Roach (2000):

- Assimilation That person – thap person
  Light blue – laip blue

- Elision Lots of them – lots o them
  Looked back – look back

- Linking Formula A – formulaR a
  Media event – mediaR evernt

Stages of speaking:

Sequencing of the linguistic components is an important issue to take note of. Following an order different levels of processing go on in assembling the spoken utterances. Let's look at the slips of the tongue below:

a) ice-cream in the fridge → ice-cream in the oven
b) he swam in the pool → he swimmed in the pool.
c) Such fantastic acrobats → such fantastic apricots
d) Can you wriggle your ankle→ … … wriggle your elbow
e) Does it sound different? → does it hear different?
f) Fight very hard → fart very hide

Field (2003) studying a set of slips of the tongue like this derived some conclusions regarding the sequence.

- A meaning driven search in the lexicon is made
- At a stage words are given phonological form. Speakers has a meaning code or semantic shape following which he tries to retrieve a particular word
- A syntactic structure is established and words are later fitted to that structure. That is syntactic slots are later tagged with morpheme information
- Syllable is an important unit of planning. Keeping the syllable same a phoneme may be dislocated.
- Plans may be kept in a buffer
- Intonation and word stressed are assigned. Intonation may happen at the time of syntactic structuring and stress come from lexicon at time phonological forming.

Self-correction in speaking:

A speaker is the first listener of his own speech. Levelt opines (2003), while listening; a speaker carries on doing a self-monitoring of his own speech. He corrects lexis, syntax, phonology, articulatory plans and so on.

A speaker may do monitoring of his speech for a number of reasons. According to Levelt (2003, pp90-92), a speaker may repair, replace, restructure when they feel the following questions:

- *Is this the message/concept I want say?*
- *Is this the way I want to say it?*
- *Is what I am saying up to social standards?*
- *Am I making a lexical error?*
- *Are my syntax and morphology alright?*
- *Am I making a sound form error?*
- *Has my articulation the right speed, loudness, precision, fluency?*

Let us look at some expressions:

a) Hey, why didn't you show up last week? Either of you two.
b) What things are this kid – is this kid going to say incorrectly?
c) Left to pink – er straight to pink. (Levelt)

d) I'm beginning to feel like a clippie… … who are doing all wonderful jobs (quoted in Cutting, 2002, pp44-45)

If we analyze the examples we will see that the speakers are instantly having the correction. In the example a) the speaker repairs the ambiguity by adding the remainder. In the example b) the speaker makes a correction of subject-verb agreement. In the expression c) the speaker almost has said straight but a wrong lemma *left* is activated. The example d) is a saying of the Iron Lady Margaret Thatcher. In 1979 she had been in election campaign and rode a double-decker bus to show that she mixes with all common people. Later she recollects her experience. She felt like a clippie meaning bus conductor who clips tickets. She did not feel honourable and says so. When she becomes socially aware that she might hurt the feelings of a group of people then she adds the later part of *wonderful job* to the sentence.

Field (2003) thinks it is not natural that a speaker attends and monitors all these aspects at a time. It may differ from context to context and a speaker's attention to self generated troubles also fluctuates in course of speaking.

Conclusion:

Thus, we see that this apparent simple act of speaking is neither an automatic nor an unconscious job rather it is a deliberate, conscious effort on the part of the speaker where there are different subtleties. The location of speaking is in our left hemisphere of our brain. To pass a message through speaking, the process initiates in psychological level, then, through the physiological journey the message is sent to the physical level for production where various articulators are activated. In the psychological stage, the role of Broca's area, Wernicke's area, arcuate fasciculus and motor cortex are also seen. 'The blueprint of the speaking process' presented by Levlet projects the whole system very nicely. So, we see, human beings are especially favored by the gift of speaking, and, all the features of speaking including self-correcting, pauses, assimilation and elision are all very interesting to know.

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