Contents

Unit 1. What Is Linguistics?

Objectives

After completing this unit, you will be able to

1. Define the concept of Linguistics as a **science** of Language, and briefly outline its history in the past 25 hundred years
2. Describe the 'core' domains of modern descriptive linguistics
3. Explain why linguistics is a ***science***, and how science generally differs from ***art***, with reference to the Scientific Method
4. Define the concept of ***dialectics*** and contrast the ***dialectical*** and the ***metaphysical*** ways of reasoning in human cognition.

1.0 Introduction

This unit introduces to you Linguistics as a ***science*** that tries to define, explain and describe human Language. We will briefly survey the history of linguistic thought, from ancient times right up to the present. We will then focus on the concepts of *science* and the *Scientific Method*, and on what distinguishes it from the Arts.

This unit will also introduce you to the concept of ***dialectics*** (the philosophy of change), because it is indispensible in the study of ***complex wholes*** (i.e., Language).

1.1 The Science of Language, known as Linguistics, & Its Brief History

As you probably already know,

Linguistics is the *scientific* study of Language

Linguistics tries to describe and explain human Language and everything about it: its origins, its nature, its forms (structures), its meanings, and its role in human life.

From ancient texts, we know that linguistic knowledge developed in several societies (Re: Reading 1). However, Western linguistics, which is the focus of this course, originated in Ancient Greece. We can distinguish roughly **three major phases** in the development of linguistics:

Phase 1: Philosophy → Prescriptive Grammar & Logic

In its **earliest phase**, going back over 2,500 years ago, linguistics was part of **Philosophy**, the '***Mother of All Sciences***.'[1] Ancient Greek thinkers started questioning the mystical belief that language was a gift from the gods, and saw the origins of speech in human imitation of natural sounds. They set standards of 'correct' use of both language and thought, and so 'invented' ***Grammar*** and ***Logic***. Prescriptive Grammar (the kind you learnt in school) prescribes 'correct' and condemns 'incorrect' usage, thus promoting effective communication through

[1] Up until just over a hundred years ago, science was even called natural philosophy; in ancient times, philosophers studied the natural, as well as human world. As more and more knowledge was accumulated, it became impossible for any on to know it all, so specialised sciences began to split off from the body of philosophy.

standard language use in the society, but it does not ask the deeper questions about language.

Phase 2: Philology[2] → Comparative & Historical Linguistics

About 200 years ago, scholars realized that languages had families and histories, just like human individuals, and tried to rediscover the evolution of Language through the reconstruction of 'parent' or ***proto***-languages. To identify changes in a language or in related languages, ***philologists*** examined and compared **written records** (manuscripts and documents) from different historical eras (***diachronic***[3] method of research). Because comparative and historical study was mostly concerned with the *forms* of words and not with how the words were used, it was around that time that the word ***linguistics*** came into use, to distinguish this research from ***philology*** (which also includes literature).

Phase 3: Modern Linguistics

In the early 1900s, the focus of linguistics shifted from comparing isolated word lists from different historical times to discovering how the structure of Language operates **at any one point in time** (***synchronic*** approach). Instead of mulling over old texts, trying to figure out how bits and pieces of language changed over time, linguists for the first time in history focused on ***spoken language*** (not all languages are written) and attempted to understand its mechanism by looking at the WHOLE of linguistic structure (hence, ***structuralism***).

1.2 The Scope of Modern Linguistics and its 'Core' Domains

The traditional 'core' domains of **descriptive linguistics** examine various aspects of language structure:

> **Phonetics** studies the actual *physical sounds* of language. They study the position of the tongue, and other speech organs, during the production of sounds and they record and analyse sound waves. So, ***acoustic phonetics*** is rather a physical science: it is concerned with the description of speech sounds.
>
> **Phonology** studies the sounds and *sound patterns* of individual languages. For example, Japanese (and most Austronesian /Papuan languages) do not allow for consonant clusters (i.e., Japanese 'supun' for *spoon*, 'naifu' for *knife*, 'furaido chikin' for *fried chicken*, etc., Tok Pisin 'bilak' for *black*, Foe 'bulete' for *bullet*, 'kibode' for *keyboard*, 'kibede' for *keypad*, etc.), whereas in Slavic languages like Polish or Russian, consonant clusters are quite common (i.e., 'bistro' for *quick*, 'shchi' for *cabbage soup*, 'obshchestvo' for *society*, etc.
>
> **Morphology** is the study of the structure of words. Morphologists study the smallest bits of meaning, called morphemes, and the way they form words (i.e., why is it that we can say *great* → *greatly*, but not *big* → *bigly*? Or *laugh* → *laughable*, but not *smile* → *smilable*?).
> **Syntax** looks at the structure of sentences, at how words are put together in a language to form sentences.

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[2] ***philology*** means *love* of *words*: ***phil*** Gk = love; ***logos*** → ***log*** word / reason

[3] ***diachronic*** means *across time/ of two times*: Gk. ***dia*** – across, through, apart; ***khronos*** – time; compare Latin **bi-**: "two, twice," etc., from L. bi-, from Old L. dvi- (cognate of Gk. **di-**, O.E. twi-)

Semantics is the study of *meaning*. It looks at how we create meaning by putting together smaller bits of meaning. Meaning is what language is all about (language without meaning is meaning*less*).

Pragmatics studies meaning *in context* (words and their dictionary meanings are relatively independent of each other in use).

Sociolinguistics examines language in society (influence of demographic, social and geographic factors on language use, etc.)

Historical/ Comparative linguistics is concerned with language change, history and evolution. Using the Comparative Method, it also tries to reconstruct languages that are no longer spoken.

Psycholinguistics is concerned with language and the mind, attempting to explain language acquisition and speech processing by the brain).

Applied linguistics focuses on issues related to language teaching and literacy.

Activity 1.1

How would you define linguistics and its 'core' domains?
How is linguistics different from traditional school grammar?
Why do linguists regard speech rather than writing as primary?

Linguists don't tell us how we should use language (that is what teachers of school grammar do); instead, they observe the way people use it, in order to describe the **mental grammar** that guides all speakers – linguistics, we remember, is a ***science***. Now, let us try to understand what '***science***' means when we use the word, and how ***scientific*** **knowledge** differs from that of the **Arts** (i.e., literature, painting, etc.).

1.3 What Is *Science*?

We perceive the world around us through our senses. **Aquinas**, the famous Sicilian monk of the 13th century, wrote: "***There is nothing in the mind unless it is first in the senses***." However, our senses often deceive us – we may see things / hear sounds that are not there, and the other way around. So how can we be sure of what is real and what is not?

Aristotle (384-322 BC), the Ancient Greek philosopher, is credited with formulating the Scientific Method which all sciences use. He was one of the first thinkers to point to the value of ***evidence*** in research. When he approached a problem, he would always examine what people had previously written or said on the subject, then identify the general consensus of opinion on the subject, and make a systematic study of everything else that is part of or related to the subject. In his treatise on animals, he studied over five hundred species; in studying government, he collected and read 158 individual constitutions of Greek states as his fundamental data. This is what is called

inductive reasoning: observing as many examples as possible and then working out the underlying principles. Inductive logic moves from the particular to the general (Re: Reading 2); it is the foundation of the **Scientific Method**, which involves

- Observation of similarities/differences between multiple particular events,
- Looking for the 'causes' (the ***how***s and ***why***s) – hypothesis making,
- Setting up controlled experiments (experimentation), and
- Validation (or rejection) of hypotheses on the basis of experimental results.

So, **the Truth of our ideas is measured by the physical world**, by whether our ideas correspond to reality, and it is in this that **Science** differs from the **Arts**:

- **Science seeks to discover the physical world the way it *is***: why does water turn into ice at 0° C? Why is it that birds can fly, and men cannot? Why can't we live forever?

- **Art represents the artist's perceptions, opinions, attitudes, imagination, and view of the world.** An artist's view may or may not reflect reality. Example: Pa Grass and his buddy through the eyes of the artist: ☺

Source: Calendar 2008

In the search for factual truths about the physical world, *what* we actually see depends on how we look at it. Indeed, 'We look with our eyes, but we *see* with our mind.' Just like the image you take with your camera depends on the lens you use (wide-angle or zoom for close-ups), what each 'Mind's Eye' actually sees depends on its perspective, its 'lens' (wide-angle or zoom).

Look, for example, at the two snapshots at the top of next page. Both of them depict the same planet – our Earth, but how different they are!

The first photo shows what the Earth looks like from space – we see the whole of the Earth, wrapped up in swirling clouds, a living, moving, constantly changing planet… Imagine all the living creatures on it (us among them), and all the things that are happening in our 'worlds' at every moment in time!

The second photo zooms in on a tiny portion of the whole planet – a patch of earth with dry leaves on it:

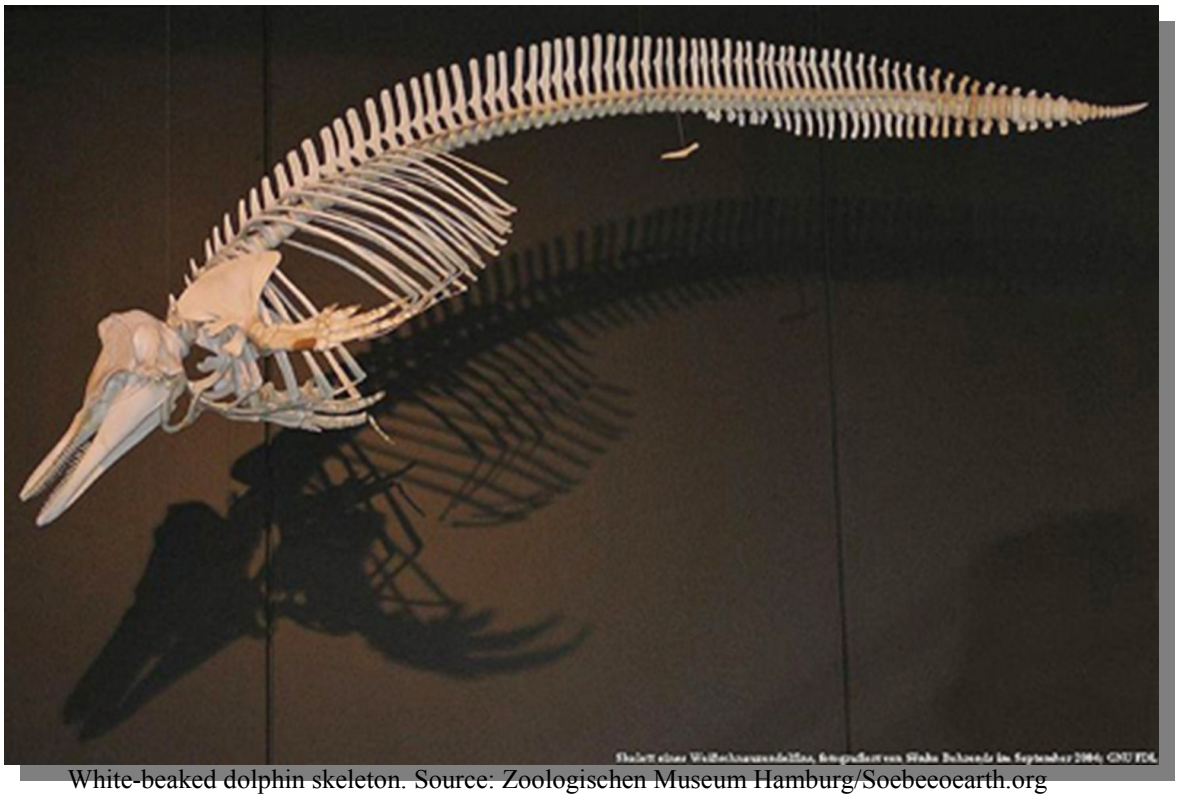

1.4 Dialectics vs. Metaphysics

You could not step twice into the same river, for other waters are ever flowing on to you.
~ Heraclitus, *On the Universe*

In philosophy, the wide-angle lens of the Mind's Eye, when you look at things in all their interconnectedness, motion, change and evolution) is called *dialectical* reasoning (Re: Reading 3).

Dialectics is the philosophy of change**;** it views things in their synthesis, essential unity and interconnectedness, in their development, motion, change and evolution, thus capturing complex systems 'live' – ***in motion*** (i.e., the dolphins swimming in the photo below):

Metaphysics (analysis), on the other hand, focuses on fixed ***parts*** of the whole, and examines them in isolation from the whole (below is an 'in-depth' detail, *part* of one of those frolicking dolphins):



White-beaked dolphin skeleton. Source: Zoologischen Museum Hamburg/Soebeeoearth.org

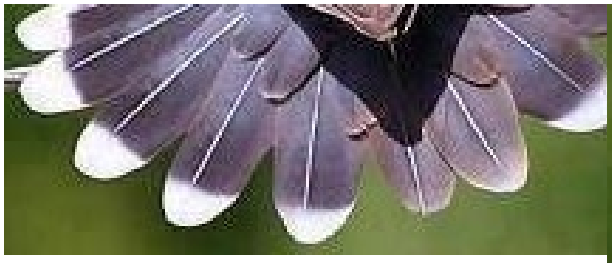
To discover factual truths about the physical world, our minds must use both the wide-angle lens of dialectics and the close-up zoom of metaphysical analysis (the word 'analysis' means 'breaking apart'). We can observe those dolphins, their behavior and habits all we want, but no external observation can give us the knowledge of their skeletal structure – to learn how they are 'put together,' we must kill the animal, cut it open, and examine fixed parts of it (skeleton) in isolation from the whole.

Thus, learning is a process during which our Mind's Eye continually changes focus from wide-angle (synthesis) to zoom (analysis) and back. Like breathing, which is both inhalation and exhalation, learning involves both synthesis and analysis of ideas – they are the two opposite sides of the same coin ☺

Dialectical reasoning rests on three basic principles, a.k.a. '**Laws of Dialectics**':

1. **Everything is ONE 'struggle of opposites'**: day/night; knowledge/ ignorance; joy/ grief, life/ death, order/anarchy, etc.
2. **Quantity changes the Quality**: larvae→caterpillar→butterfly; childhood→youth →adulthood→old age; ice→water→steam (gas), etc.
3. **Change moves in spirals**, because it happens in Time**:** every day is a new day, not the same as yesterday, etc.

We can see the spiral of evolution in the growth of all sciences, including linguistics. From our Brief Survey of the History of Linguistics (Reading 1), we have seen how



the focus of our collective 'Mind's Eye' has been shifting from the predominantly WA view of language in the first phase of its development (philosophy) to the close-up examination of language structures later (philology and structuralism).

Through the narrow windows of specialized analysis, we have seen a lot of detail in all aspects of human Language (and this course will introduce you to all the basic 'essentials'); however, we cannot fully understand parts of the whole without knowing what the 'whole' is – just as you can't really understand what those feathers in the top left photo are (maybe a fan?), unless you see the bird they are part of.

This change of approach combines the benefits of both synthesis and analysis: in the first part of the course, we will view Language as a complex integrated system, a living, changing Whole. We will then zoom in on the details, and examine parts of the whole, before zooming out again in the final unit, to 'put it all together again' for a more comprehensive understanding.

To 're-cap,' then:

Dialectics is a method of reasoning which aims to understand things in 4D: in their essential interconnectedness (synthesis), in their complexity, motion, development & change – in their origin, evolution, and ending. It is the Wide-Angle (WA) lens of our Mind's Eye.

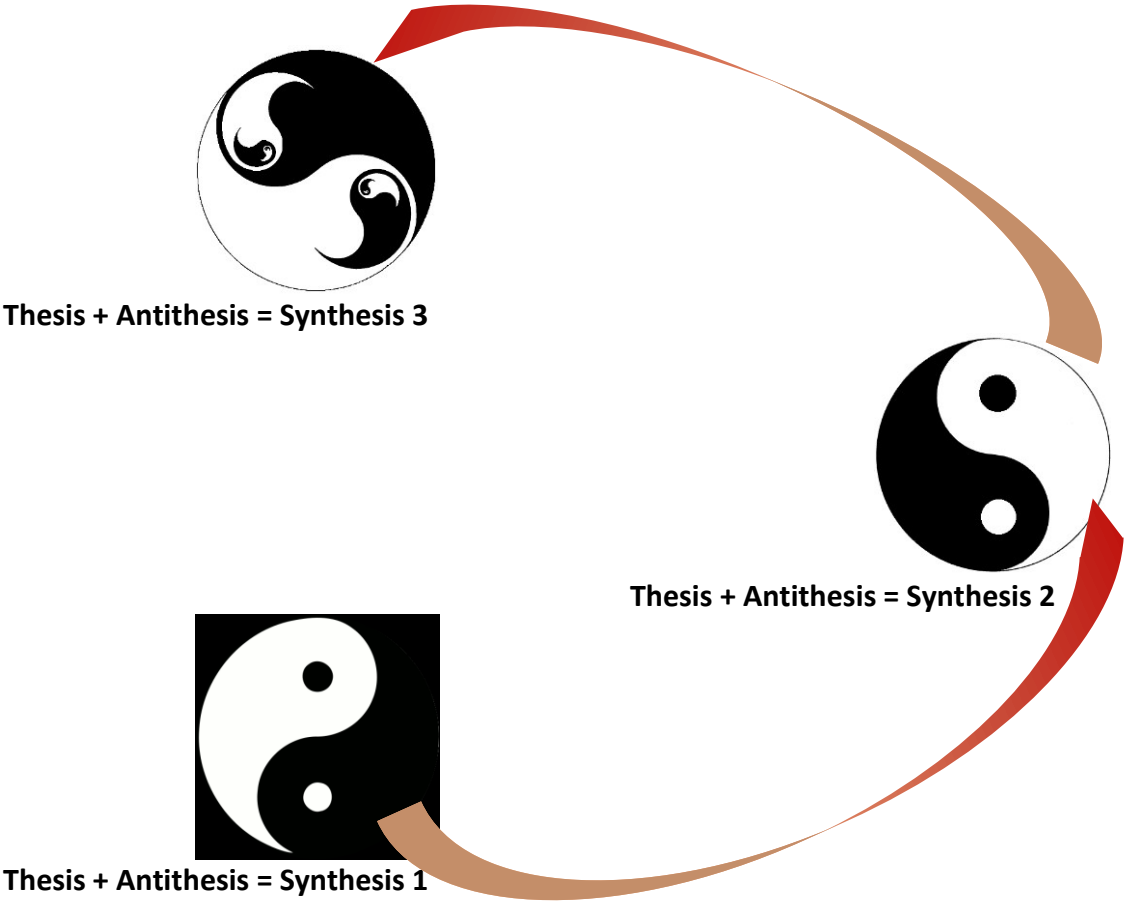
The three basic laws of Dialectics are:

1. **Everything is ONE 'struggle of opposites'**: day/night; knowledge/ ignorance; joy/ grief, life/ death, etc.

2. **Quantity changes the Quality**: larvae→caterpillar→butterfly; childhood→youth →adulthood→old age; ice→water→steam (gas), etc.

3. **Change moves in spirals**, because it happens in Time**:** every day is a new day, not the same as yesterday, etc. (see the spiral of change in the diagram below).

Dialectics explains all change through the resolution of opposites: the dominant force (***thesis***) is opposed by its opposite (***antithesis***). When the opposite force (antithesis) gains dominance, tensions between them are resolved in a new synthesis, in which it becomes the thesis which generates a new antithesis, and so on:



The Dialectics of Learning:

***Synthesis* and *analysis* of ideas are the 'opposite' parts of learning, just as inhalation and exhalation are the 'opposite' parts of breathing.** Awareness of something (as a whole) does not amount to the knowledge of **how** or **why** it is what it is – we must zoom in, isolate and examine the details, before panning out again, to get a better picture.

(a) *Synthesis* (*Dialectics*) is the Wide-Angle lens of our mind's eye. Dialectics views things as a whole – in their essential interconnectedness, motion, development and change. The photo below is wide-angle – it shows the Earth as a whole.

(b) *Analysis* (*Metaphysics*) is the telephoto/ 'zoom-in' lens of our mind's eye. It focuses on ***parts*** of the whole, and examines them ***in isolation from it***. What are the continents in the photo of the Earth on the left? Zoom in – take a closer look!

When studying, trying to *understand* things, we constantly shift focus from the 'whole' (the *wide-angle/ synthesis* approach), to the zoom (*analysis*).

I hope that this rather lengthy introduction has set your Mind's Eye into the WA mode – let us now try and catch a glimpse of Language '*live*'!

Activity 1.2

1. Using your common sense, prove that
   a. 'Everything is a struggle of opposites'
   b. 'Quantity changes the Quality'
   c. Change is a spiral process, it does not move in circles.
2. Why is the dialectical way of reasoning like a WA lens of the Mind's Eye? Using photos below, comment on the importance of perspective:

3. What determines the truth of our ideas about the world?
4. Below is a list of examples of Dialectics in Nature; can you think of more examples?
    a. The syllogism may be seen in the magnet
    b. Quantity and Quality in Chemistry
    c. Attraction and repulsion
    d. Action and reaction in physics
    e. Gradualness and discontinuity
    f. The rainbow (light spectrum)
    g. Development of a plant from its germ (your own development, from conception to adulthood)
    h. A hand /head/leg, etc. - when cut off from the body, they are hand /head/leg, etc. in name only

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Summary

1. **Linguistics is the scientific study of Language;** major stages in its development:
    a. **Philosophy** (5th century BC – 19th century AD): prescriptive grammar and logic
    b. **Philology** (19th century): comparative and historical studies
    c. **Structuralism** (20th century, and up until now): focus on linguistic structure
2. **The 'core' domains of descriptive linguistics**:
    - ✓ Phonetics & Phonology: study of speech sounds and patterns of sounds
    - ✓ Morphology: word structure
    - ✓ Syntax: sentence structure
    - ✓ Semantics & Pragmatics: meaning

3. **Science seeks to discover *facts* about the physical world.** It is based on the Scientific Method, and the truth of its findings is measured by the physical world. **Linguistics is a science, because it seeks to discover *facts* about language**
4. **Dialectics = the WA lens of the Mind's Eye; Metaphysics – the close-up zoom**; **Dialectics** views things in their totality, interconnectedness, change and development (evolution), while **metaphysical/ analytical thinking** focuses on parts of the whole and examines them in isolation from the whole.

Readings

1. A Brief History of Linguistics
2. On Inductive Logic
3. On Dialectics

References

Saussure, Ferdinand. 1993. *Third Course of Lectures on General Linguistics* (1910-1911); http://www.marxists.org/reference/subject/philosophy/works/fr/saussure.htm (27/06/2008)

Temple, O. *Language: captured 'live' through the lens of dialectics*. LLM Vol. 29, 2011, pp. 31-53 http://www.langlxmelanesia.com/LLM%20Vol.%2029%20December%202011%20TEMPLE%201.pdf

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Unit 2. Language: '*live*'

Objectives

After completing this unit, you will be able to

1. Explain how Human Language is different from biological, animal 'languages'
2. Describe the psycho-physical, social and historical aspects of Language
3. Describe the process of thinking (generalizing), and explain how the mechanism of human thought naturally gives rise to symbolic representation and all human knowledge (Re: Hume's *principles of human understanding*)
4. Show that the mechanism of Thought (i.e., generalization) is the mechanism of Language

2.0 Introduction

This Unit will show you how human Language is different from animal 'languages' and explain how the mechanism of human thought has created all symbols and grammars.
Our discussion of Generalization will also focus on the nature of human *understanding* and all *knowledge*.

2.1 Human Language vs. animal 'languages'

What is Human Language, the object of our study? Some linguists define it, for example, as 'an arbitrary system of vocal sounds used to denote objects of human experience for communication' (C.A. Yarapea: 2011, p. 25). Animal 'languages,' they say, 'use sounds distinctive (and thus communicative) only to their own species but not as complex as human language systems' (Ibid.).

Activity 2.1

Consider also the definitions of 'language' below:

Language – 'Communication of thoughts and feelings through a system of arbitrary signals, such as voice sounds, gestures, or written symbols'
http://www.thefreedictionary.com/language

When used as a general concept, "language" refers to the cognitive faculty that enables humans to learn and use systems of complex communication.
http://en.wikipedia.org/wiki/Language

Do these definitions, in your opinion, capture the essence of Human Language? Why? Or, Why not?

We are not the only intelligent species on this planet who communicate through vocal signals, and it is therefore insufficient to say that

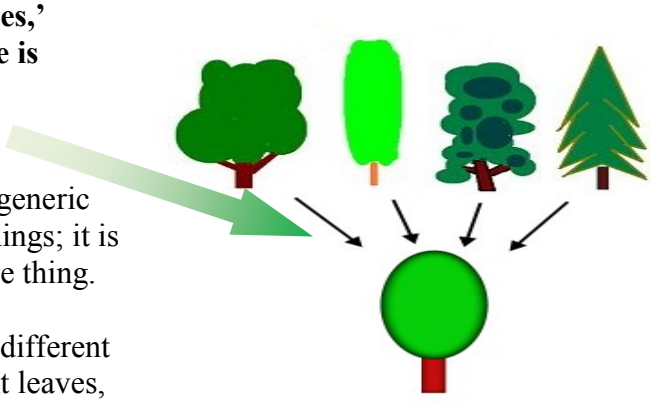
1. Animals 'use sounds distinctive (and thus communicative) only to their own species' [If a dog growls at you, won't you take the warning?], and that
2. Human language and animal 'languages' differ only in the degree of their complexity.

Human Language Is *Verbal* Thought

Lev Vygotsky (1896–1934), a brilliant Russian psychologist, He captured the ***qualitative*** difference between Human Language and animal 'languages' in one short sentence:

Every WORD is a GENERALIZATION and, therefore, an act of thought.

In contrast to animal 'languages,' every word of human language is already a *generalization* in the collective mind of the society:



Each word of any language is a generic name of a general ***category*** of things; it is **not** the name of any one concrete thing.

Our ancestors saw many trees – different shapes, different colors, different leaves, fruits, seeds and branches – yet, they noticed that all trees share something in common: they all have roots, they are all alive but they cannot move, they grow out of the soil, etc. Because people could ***remember*** many similar observations, these got connected in their collective memory, and a generalization was formed! The collective mind of the society 'abstracted' the ***idea*** or ***meaning*** of all trees (the understanding of what all trees share in common, and how they are different from everything else). English speakers call it a *tree*, Latvian speakers call it *kuoks*, Russian speakers call it *derevo*, Tok Pisin speakers call it *diwai*, the Dutch call it *boom* – the sounds of a word could be anything that people in a particular society use. It is the universal capacity of human minds to ***connect in memory*** multiple similar experiences and then generalize, abstract ***ideas*** of those experiences that is remarkable.

Every word of human language has **meaning** for its speakers – **a word without meaning is empty sound**, it is not a word of language! Unlike human languages (verbal thought), animal 'languages' communicate only feelings and sensations (i.e., anger, fear, joy, pain, etc.), but not ***ideas*** (generalizations, abstract concepts). Their 'languages' are ***biological***, much like human laughter or crying (we all laugh and cry in the same way – no language barriers there!). Biological vocalizations/ 'languages' are instinctive – different throats make different sounds, depending on their structure

/shape; that is why all species of animals (including us, humans!) have their own characteristic 'biological language' (dogs bark, cats meow, cows moo, pigs grunt, etc. - much like musical instruments of different shapes: the guitar, the violin, the piano, the drums, etc.)

The table below contrasts the sensory /cognitive abilities of all living creatures on Earth and points out the absence of both sensation and intelligence in inanimate matter:

Evolution of Life on Earth		
Inanimate matter (non-living things)	Rocks, mountains, seas and rivers, the sun and the stars, metals and plastic, etc.	Complete absence of consciousness **no sensation**, **no intelligence**
Animate matter (all living things)	Micro-organisms, plants & insects, fish & reptiles, birds & rodents, mammals, etc.	**Sensation &** (in some animals) **non-verbal intelligence**
	Humans	**sensation & abstract thought (verbal intelligence)**

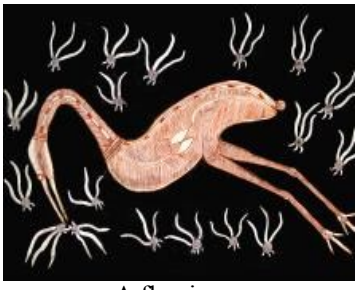
There is a dialectic leap not only between total absence of consciousness (in inanimate matter) and sensation but also between sensation and thought. …The qualitative distinction between sensation and thought is the presence in the latter of a ***generalised*** reflection of reality (Vygotsky: 1934).

Long before Vygotsky, **Aristotle (384-325 BC)**, one of the greatest philosophers of Ancient Greece, also claimed that all intelligent animals have sensation (which engenders memory), and pointed out the difference between humans and other living creatures:

> ALL men by nature desire to know. An indication of this is the delight we take in our senses… above all others, the sense of sight. For …we prefer seeing … to everything else. The reason is that this, most of all the senses, makes us know and brings to light many differences between things.
>
> By nature, animals are born with the faculty of sensation, and from sensation memory is produced in some of them, though not in others. And therefore the former are more intelligent and apt at learning than those which cannot remember …
>
> The animals other than man live by appearances and memories, and have but little of connected experience; …from memory, experience is produced in men; for **several memories of the same thing produce finally the capacity for a single experience.**
>
> Aristotle: Metaphysics, Book I

Through our physical senses, we perceive the immediate, close, *concrete* physical world within our range of perception: We see, hear, smell, touch, taste things that are close to us, and we perceive things all at once, in a sudden '*unfolding*' of awareness:


Mona Lisa


A flamingo


Galaxy

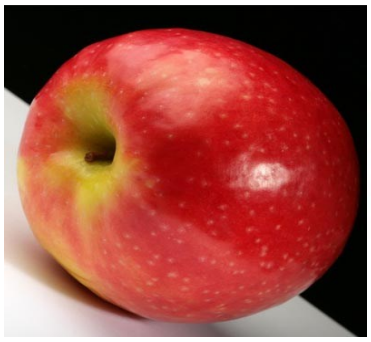
In a 'flash' of recognition, we *know* what we see (a girl's face, flamingo, a galaxy, etc.). This is how all our physical senses work – we taste and smell the whole stew, not its ingredients separately.

Sensations are *experiences*. If what we experience 'catches our Mind's Eye,' then it focuses on the details / parts of the whole impression.

Memory is 'connected experience'; it *engenders* knowledge:

> …from memory, knowledge is produced in men; for ***several*** **memories of the same thing produce finally the capacity for a *single* experience** (Ibid.).

What connects your '*experiences*' below?



Each 'experience' here is different from the others; yet, they all ***resemble*** each other! Out of the '***several*** **memories of the same thing'** we can produce **one experience**! We have made a **generalization**; we have made 'sense' of them all, we have 'abstracted' their shared, common ***meaning*** – 'APPLE'!

> … The world of experience must be greatly simplified and generalised before it can be translated into symbols [***words*** – OT]. Only in this way does communication become possible, for the individual's experience resides only in his own consciousness and is, strictly speaking, not communicable. To become communicable, ***it must be included in a certain category which, by tacit convention, human society regards as a unit.***
>
> Vygotsky: 1934

N.B.: '***it must be included in a certain category which, by tacit convention, human society regards as a unit***' – this statement is very important! If we did not have a common 'currency' of thought exchange (the same way as we have for the exchange of material values, the Kina), thought exchange between individuals in society would become impossible. In his '***Language & Thought***,' Vygotsky argued that "Rational,

intentional conveying of experience and thought to others requires a mediating system, the prototype of which is human speech born of the need of intercourse during work!" (Vygotsky: 1934).

Activity 2.2

Define 'generalization' in your own words – what do you do, when you generalize? Explain how 'every word is a generalization' and give examples from your own Tok Ples.

Now that we know the most important distinguishing feature of human language (***verbal thought*/ *thought in words***), let us look at it as a whole, in all its complexity:

2.2 The Complex WHOLE of Language

> **It is the *combination* of the *idea* with a *vocal sign* which suffices to constitute the whole language.**
>
> Ferdinand de Saussure

Language Is a COMPLEX WHOLE. Saussure, the generally recognized 'Father' of modern linguistics, was one of the first scholars[4] to puzzle over its distinct 'complementary facets, each depending on the other':

> (1) The ear perceives articulated syllables as auditory impressions. …One cannot divorce what is heard from oral articulation. Nor, on the other hand, can one specify the relevant movements of the vocal organs without reference to the corresponding auditory impression.
>
> (2) But even if we ignored this phonetic duality, would language then be reducible to phonetic facts? No. **Speech sounds are only the instrument of thought**, **and have no independent existence**. Here another complementarity emerges, and one of great importance. A sound, itself **a complex auditory-articulatory unit**, **in turn combines with an idea, to form another complex unit, both *physiologically* and *psychologically***. Nor is this all.
>
> (3) Language has **an individual aspect and a social aspect**. One is not conceivable without the other. Furthermore:
>
> (4) Language at any given time involves **an established system and an evolution**. At any given time, it is an institution in the present and a product of the past. At first sight, it looks very easy to distinguish between the system and its history, between what it is and what it was. In reality, the connexion between the two is so close that it is hard to separate them. … There is no way out of the circle.
>
> (Saussure: 1910)

Language, indeed, is full of contradictions and dualities (talk about the dialectical unity of 'opposites'!):

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[4] Wilhelm von **Humboldt** (1767-1835), a German scholar, had voiced similar thoughts on language and linguistics almost a century before, but the extent of his influence on de Saussure is uncertain (Robins: 1995)

(a) The p*sychological* aspect of human language – *meaning*:

1. **A word without meaning is empty sound**: *Aarrrgggggghhh*! *Shumburum*! Even '*nonsense*' has meaning ☺
2. **Meaning is possible only through the act of thought** (***generalization***): True human communication presupposes a generalising attitude… Man's thought reflects conceptualised actuality. That is why certain thoughts cannot be communicated to children even if they are familiar with the necessary words. …Children often have difficulty in learning a new word – not because of its sound, but because of the concept to which the word refers. There is a word available nearly always when the concept has matured (Vygotsky: 1934).
3. **There is no sign without meaning**. The formation of meaning is the main *function* of the sign. Meaning is the *property* of the sign. On the other hand, meanings cannot exist without their physical 'signs' – words. The Russian poet Mandelstam's poem 'The Swallow' (1920) verbalizes this idea:

   But I forget what I to say so wanted …
   And fleshless thought dissolves in other shadows …

4. **Speakers' knowledge of the *words & rules* for putting them together** to make complex meaning also is a psychological aspect of language, essential for its very *purpose* and *function* (communication in society).

(b) The *physical* side of language: The ***physical forms*** that we can perceive with our senses of hearing or sight (**sounds/ writing**), as well as the organs that produce & perceive them: The ***organs* of**

a. **speech production** – the so-called ***'organs of speech'*** [5] and
b. **speech perception** – our ears, brains, etc. (eyes for Sign)

(c) The *social* nature of language: Word meaning is the *synthesis* of both intellectual and social functions of speech (the double function of the sign – ***communication* of *meaning***):

> Communication of experience (memory/ feeling/ thought) is impossible without the mediating system of human speech **'**born of the need of intercourse during work**'** (Vygotsky: 1934).

(d) The *historical* nature of language: Language is like life – a *process*; at any point in time, it is '**an established system and an evolution**' (Saussure: 1910). Societies, individuals (and the languages they create and use) live in a 4-dimensional world, the fourth dimension (apart from the 3 dimensions of **Space**) being **Time**. Just like we all were different 10 years ago from what we are today, so English was different from what it is today – in Shakespeare's time, or even 10 years ago; yet, we are still we, and English is still English!

Language is a *living* structure of Signs; therefore, it has the **properties** of living structures:

5 The term 'organs of speech' usually refers to our mouths, noses, tongues, larynxes, etc. Their primary biological function, of course is breathing, eating, and drinking; strictly speaking, "they are no more to be thought of as primary organs of speech than are the fingers to be considered as essentially organs of piano-playing or the knees as organs of prayer" (Edward Sapir: 1921).

- ***Wholeness***: The system functions *as a whole*, not just as a collection of independent parts; i.e., the human body: we are not just a collection of limbs (head, legs, arms, ears, etc.) – we function as a *whole*, and any change in any of your organs will affect the system *as a whole*.

- ***Transformation***: The system is constantly changing; gradual change results in radical change – that 'last straw that breaks the camel's back' (the 2nd law of dialectics: **Quantity Changes the Quality**)

  > 'I used to think… there is no difference between one fraction of a second and the next… … Then … now… What difficulties here, for the mind. To have always been what I am – and so changed from what I was.'
  >
  > (Samuel Beckett: 1961)

- ***Self-Regulation***: The basic rules of the system are more lasting than its elements, which are constantly changing. Societies have laws that all citizens must follow or suffer the consequences. Languages often 'borrow' words from other languages, but these 'aliens' must conform to the rules of the language that has adopted them (for example, ***zebra***, ***tomato***, ***potato*** and ***bilum*** 'toe the line' with other English nouns).

Language reflects reality differently from our physical senses:

(a) Physical senses perceive *concrete* physical things within the range of our perception; they tend to 'see' the world through the wide-angle lens, perceiving things in a 'flash,' as a whole:

- **We see concrete physical things** all at once, as a whole: a pig, a man, a tree, etc. (our mind's eye first sees things through the wide-angle lens, though we can later 'zoom in' on parts of the whole, focusing on its details).
  For example, what do you see below?

  Your mind's eye first sees some leaves (wide-angle lens); but what ***kind*** of leaves? To see that, it must zoom in and focus on individual leaves – are these banana leaves, a grapevine or, maybe, mint?

- **We hear** the chorus of sounds around us all together, not one after another; we can focus our attention on particular sounds, distinguishing them from the others, if we 'zoom in' on parts of that whole.

- **We taste** the food in our mouths, not its ingredients separately (we can 'zoom' in on a particular flavor, though, tasting for salt / sugar, etc.).

- **We smell** whatever is in the air around us at any given time; the smells of roasting chicken blend in with the smoke from the fire, the oil, the spices, etc.

- **We touch** (or feel the touch of) concrete physical things all at once – we either touch something, or we don't! (Again, we can 'zoom in' on parts of that whole tactile perception, focusing on the *kind* of contact we feel, etc.).

So, then: our **senses react to concrete physical things** within the range of our sense perception.

(b) Language reflects our *ideas* about the physical world. Ideas are the ***abstractions*** we have 'squeezed' out of many concrete experiences, connected in our memory. Ideas have no physical substance – they exist only in our minds.
All human perception has meaning; we perceive all meaning*less* things as meaning*ful*, attaching meaning to them:

> '***There is nothing either good or bad, but thinking makes it so***'
> (Shakespeare).

Activity 2.3

1. Why can't ***meaning*** exist without the ***word***, and vice versa? Give examples.
2. Every sign has 2 functions: (1) to communicate (2) meaning. Give examples.
3. What are the properties of all living systems? Give examples of your own.

Since our study of human language has shown that language is ***verbal thought***, it stands to reason that we should now try to understand the nature of ***thinking***.

2.3 What is thinking?

All of us have done a lot of thinking in our lives – in fact, thinking is so natural to us, humans, we do it most of our waking hours! But have you ever stopped to think – What do you actually do when you think?

David Hume (1711–1776)
Scottish philosopher of the 18th century

David Hume was, perhaps, the first philosopher to enquire into the mechanism of human understanding. His ideas about the workings of the human mind appear first in his Treatise of Human Nature (1740), followed by Philosophical Essays Concerning Human Understanding (1748), many later editions of which were published under the title of 'An Enquiry Concerning Human Understanding.' Having observed a remarkable similarity in the way that people connect ideas when communicating (in all times and places, and in all languages), he tried to determine the nature of these connections, and concluded that they follow a universal pattern:

> Among different languages … it is found, that the words, expressive of ideas, the most compounded, do yet nearly correspond to each other: a certain proof that the simple ideas, comprehended in the compound ones, were bound together by some universal principle, which had an equal influence on all mankind.
> Though it be too obvious to escape observation, that different ideas are connected together; I do not find that any philosopher has attempted to enumerate or class all the principles of association; a subject, however, that seems worthy of curiosity. To me, there appear to be only three principles of connexion among ideas, namely, Resemblance, Contiguity in time or place, and Cause or Effect.

> That these principles serve to connect ideas will not, I believe, be much doubted. A picture naturally leads our thoughts to the original [1]; the mention of one apartment in a building naturally introduces an enquiry or discourse concerning the others [2]; and if we think of a wound, we can scarcely forbear reflecting on the pain which follows it [3] … The more instances we examine, and the more care we employ, the more assurance shall we acquire, that the enumeration, which we form from the whole, is complete and entire:
> [1] Resemblance; [2] Contiguity; [3] Cause and effect (Hume: 1748).

The Treatise of Human Nature, published earlier, explains how this simple universal mechanism of connecting ideas generates the infinity of human thoughts and opinions:

> As all simple ideas may be separated by the imagination, and may be united again in what form it pleases, nothing would be more unaccountable than the operations of that faculty, were it not guided by some universal principles, which render it, in some measure, uniform with itself in all times and places. Were ideas entirely loose and unconnected, chance alone would join them; and it is impossible the same simple ideas should fall regularly into complex ones … without … some associating quality, by which one idea naturally introduces another. This uniting principle among ideas is not to be considered as an inseparable connexion; for that has been already excluded from the imagination: Nor yet are we to conclude, that without it the mind cannot join two ideas; for nothing is more free than that faculty: but we are only to regard it as a gentle force, which… is the cause why… languages so nearly correspond to each other; nature in a manner pointing out to every one those simple ideas, which are most proper to be united in a complex one. The qualities, from which this association arises, and by which the mind is after this manner conveyed from one idea to another, are three, viz. Resemblance, Contiguity in time or place, and Cause/ Effect (Hume: 1740).

Thinking, therefore, is connecting ideas. People everywhere, in all times and places, make sense of things (abstract meaning) **through associations by**

1. **Resemblance** – 'If it looks like a duck, walks like a duck, and quacks like a duck, it is a duck,' etc.
2. **Contiguity in time/space** – personal belongings of a friend remind us of that friend; 'We live in POM' = associating us to a place in time, etc.

and

3. **Cause/Effect** – 'I think, therefore I am,' 'What goes up must come down' etc.

Every thought creates a connection, serves a purpose, solves a problem. The flow of thought does not automatically result in the flow of speech. The process and structure of thought is not the same as the process and structure of speech, so there is no rigid correspondence between the units of thought and speech:

> Thought is not merely expressed in words; it comes into existence through them. Every thought tends to connect something with something else, to establish a relationship between things (Vygotsky: 1934).

Language, however, is not just thinking – it is a 'dynamic system of meaning in which the affective and the intellectual unite. … Every idea contains a transmuted affective attitude toward the bit of reality to which it refers' (Vygotsky: 1934).

Generalization/ thinking → meaning = knowledge = understanding
Understanding something implies seeing how things relate to each other in terms of resemblance, contiguity in space and time, and cause/ effect. Think about it – anyone can break an engine or a computer, but only those who know how the parts must relate to each other in space and time, how they should be connected to form a system, can put it together again.

Thinking, therefore, is the process of abstracting meaning through connecting ideas by Resemblance (a friend's picture reminds us of that friend), Contiguity in time/space (a friend's gift reminds us of that friend), and Cause/Effect (when we see heavy clouds, we expect it to rain).

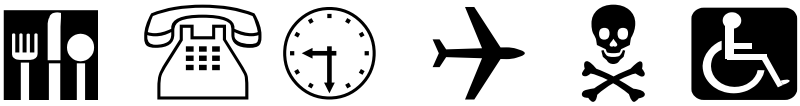
Vygotsky, thoroughly versed in dialectics, viewed the process of thought (as well as everything else in existence) as the 'struggle of opposites'; from this vantage point, he saw that the mechanism of human understanding is both ***synthesis*** and ***analysis*** of ideas:

> In order to form a concept, we must be able not only to *connect*, but also to *abstract*, to single out characteristic elements, and to view them separately from the 'totality of the concrete experience in which they are embedded. … In genuine concept formation, it is equally important to unite and to separate: *Synthesis* and *Analysis* presuppose each other, as inhalation presupposes exhalation (Vygotsky: 1934).

Remember, Vygotsky wrote that "Rational, ***intentional*** conveying of experience and thought to others requires a ***mediating system***, the prototype of which is human speech born of the need of intercourse during work!"? Our ability to connect our experiences in memory by resemblance, contiguity, and cause/effect is what naturally created all the symbols we use (including words!).

Symbols are physical forms that have *meaning* in a society. They are the signs of meaning transmitted to others/ understood in society:

Iconic Symbols are forms that *resemble* their meaning, i.e.:



Arbitrary Symbols are physical *forms* with **no** obvious link to their meaning:

 ∞ **'EGG' '7' '99'**

Words of language are the most important of our symbols, because they teach us to *think* 'human' – to connect things by resemblance, contiguity & cause/ effect:

Spoken words are the symbols of mental experience and written words are the symbols of spoken words.

Aristotle: *On Interpretation* (~350 BC)

Our ability to connect things by resemblance, contiguity, and cause/effect enabled us to 'invent' the symbols for speech – writing. When Phoenicians first invented the Alphabet, their letters resembled the meanings of the words that started with those sounds; i.e., the letter '**A**' (***aleph***, Phoenician for '**ox**') looked like the head of the ox

As '***aleph***' was not 'ox' for the Greeks, they liked it better on its 'two feet': A! ☺

Writing gave us control over our memory. It marked a *qualitative* change in the development of human memory – **from biological, *internal* memory to *external*, socio-historical /*cultural* memory**:

> Everything that civilized humanity remembers and knows at present, all the accumulated experience in books, monuments and manuscripts – all this colossal expansion of the human memory, without which there could be no historical and cultural development, Is due precisely to **external human memorization based on symbols** (Vygotsky: 1930).

The better our system of 'externalized' memory, the more we can remember; and, the better our memory, the greater is our (potential) knowledge:

> Memory is enhanced to the extent that systems of writing and of symbols, together with the methods for using those symbols, are enhanced (Ibid.).

We can see how information technology (IT) nowadays has kicked off the exponential growth of our ability to 'externalize' and store information. It's estimated that 40 exabytes of unique new information was generated worldwide in 2006 - more than in the previous 5,000 years. Total of approx. 161 exabytes of data were created in 2006; this is 3 million times the amount of information contained in all the books ever written; the amount of data generated in 2010 exceeded 988 exabytes.
(1 EB = 1,000,000,000,000,000,000 B = 1018 bytes = 1 billion gigabytes = 1 million terabytes)

Activity 2.4

1. What is generalization? How do we generalize?
2. Revise the concept of 'inductive logic' (Reading 2). Is inductive reasoning the same thing as generalization? Why?/ Why not?

Thus, our ability to connect our experiences by resemblance, contiguity, and cause & effect (which is what we call thinking or generalizing) has naturally given rise to all symbols, all meaning, all understanding, and all knowledge.

Generalization (and **not** the sharpness of your senses) **is the root of all Knowledge:**

We do not regard any of the senses as Wisdom; yet surely these give the most authoritative knowledge of particulars. But they do not tell us the **'why'** of anything - e.g., why fire is hot; they only say that it is hot. …
Wisdom is knowledge about certain *principles* and *causes*.

Aristotle: Metaphysics, Book I

2.4 The Mechanism of Thought = the Mechanism of Language

We have established that human language is different from animal 'languages' (as well as from our own biological 'language'), because it is verbal thought (thought in words), and that, to understand how language works, we must therefore understand how thought works.

We have now seen that all human brains think by generalizing (connecting their experiences by resemblance, contiguity, and cause/effect). This is very important, because the same universal principles that guide human thought also guide all human languages.

> Generalization is the mechanism of verbal thought.
> Verbal thought is Language.
> **Therefore, Generalization is the mechanism of Language.**

We have discovered the Rational Language Mechanism – GENERALIZATION – that has shaped the grammars of all languages!

In the following units, we'll see exactly how the synthesis and analysis of thought (generalization) is reflected in the structures of all languages. This is a daunting task, for Language, as we have seen, is a complex system, full of contradictions and dualities (psycho-physical and socio-historical). To get to understand any complex whole, we must try to identify its smallest unit, and examine its properties and behavior.

What is the smallest unit of Language?

Reading

2. On Inductive Logic
5. Language 'live'
6. In Defense of Dialectical Linguistics

Summary

1. Unlike animal 'languages' which vocalize physical sensations and feelings, Human Language is Verbal Thought (thought in words)
2. Language is a complex whole with psycho-physical and socio-historical properties.
3. Thinking means generalizing (associating ideas by resemblance, contiguity and cause/effect).
4. The mechanism of human thought (generalization) naturally gives rise to symbolic representation and all human knowledge.
5. The mechanism of Thought (generalization) is the Rational Mechanism of Language.

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Unit 3. Word-Meaning – the Smallest Unit of Language

Objectives

After completing this unit, you will be able to

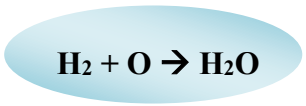
1. Explain why word-meanings are the smallest units of Language and describe their properties and behaviour
2. Explain the relationship between language acquisition and the development of thinking, with reference to Piaget's stages of human cognitive development
3. Explain the concept of ambiguity, distinguish between lexical and structural ambiguity, and discuss its 'causes'

3.0 Introduction

To understand a complex whole, we must examine its smallest unit. Biochemistry, the study of the chemistry of living organisms, focuses on the functioning of their smallest unit – the cell. Chemistry, the study of chemical compounds, focuses on the properties of their smallest units – molecules. To understand the complex whole of Language, we must identify and examine its smallest unit, which has all of its properties intact. In this unit, we will examine the smallest unit of language and discover how, through the words of language, we learn to think. We will also discuss the fascinating concept of linguistic ***ambiguity*** and examine its '***causes***.'

3.1 Word-meaning is the smallest unit of Language

'***The whole is more than the sum of its parts***'
Aristotle: *Metaphysics* 1045a10



In his '***Analysis into Units***,' **Vygotsky** used this example: Two atoms of hydrogen and one atom of oxygen make up one molecule of water. The 'whole' of water, however, is not the two gases combined – it is a qualitatively different substance! Its properties are different from those of hydrogen or oxygen: hydrogen burns, oxygen feeds fire, while water is a liquid which extinguishes fire.

Similarly, even though words of Language are made of sequences of sounds, the properties of sounds are different from the properties of words they make.

Word-meaning is the smallest unit of Language – it has all of its properties intact, and it cannot be further subdivided without losing some of the basic functions and features of Language, which are:

(a) Psychological: Every word is a Sign of *meaning* – generalization:
A word without meaning is an empty sound: meaning is a criterion of *word* (Vygotsky: 1934). Meaning does not coincide with logical meaning ('*nonsense*' has meaning). Meaning is an ***idea***, a generalization. The idea a word carries disappears, if the word is broken into its parts (morphemes, syllables, or individual sounds): the meaning of *armchair* is neither that of *arm* nor of *chair*; *airport* is neither *air,* nor *port*, etc. This

is even more obvious, if we divide the word into its sounds and syllables – bus (b-u-s) / ba-na-na / po-ta-to, etc.

(b) Physical – While the *meaning* of a word is the product of thinking, it comes into being only through the physical 'flesh' of the *word*:
Word meaning is a phenomenon of thought only in so far as thought is embodied in speech, and of speech only in so far as speech is connected with thought … It is a phenomenon of ***verbal thought***, or ***meaningful speech*** – a union of word and thought. …Understanding between minds is impossible without some mediating expression … In the absence of a **system of signs**, linguistic or other, only the most primitive and limited type of communication is possible. Communication by means of expressive movements, observed mainly among animals, is not so much communication as spread of affect (Vygotsky: 1934).

(c) Social: the double function of every Sign – *communication* (1) **of *meaning*** (2).
Word-meanings carry out the intellectual and social functions of speech. They are the social 'currency of thought exchange,' the 'flesh' of our thoughts, the *Signs* of the *conventional meanings* shared by society:

> ***But I forget what I to say so wanted –***
> ***And fleshless thought dissolves in other shadows …***
> Osip Mandelstam: The Swallow (1920)

Word meaning is a ***unit of both generalizing thought and social interchange***; there is a strong **correlation between our social and cognitive development**, i.e., between our ***social interaction*** and our ***thinking ability*** (we learn to speak/ think from society).

(d) Historical: Word-meanings live in Time, because minds, who create them, live in time. Language reflects our understanding of reality; it mirrors our thoughts about the physical world and the society we live in:

…In the historical evolution of language, the very structure of meaning and its psychological nature also change. **From primitive generalisations, verbal thought rises to the most abstract concepts. It is not merely the content of a word that changes, but the way in which reality is generalised and reflected in a word.** (Vygotsky: 1934).

A branch of linguistics, etymology, traces the origin and history of words. It is interesting to see how the meanings of familiar words have changed over time – here is an example from the Online Etymology dictionary:

Silly: O.E. gesælig "happy" (related to sæl "happiness"), from W.Gmc. *sæligas (cf. O.N. sæll "happy," Goth. sels "good, kindhearted," O.S. salig, M.Du. salich, O.H.G. salig, Ger. selig "blessed, happy, blissful"), from PIE base *sel- "happy" (cf. Gk. hilaros "gay, cheerful," L. solari "to comfort," salvus "whole, safe"). The word's considerable sense development moved from "blessed" to "pious," to "innocent" (c.1200), to "harmless," to "pitiable" (late 13c.), to "weak" (c.1300), to "feeble in mind, lacking in reason, foolish" (1570s). Further tendency toward "stunned, dazed, as by a blow" (1886) in *knocked silly*, etc.

Language change has accelerated in the past few years, due to increased cross-cultural contacts and the spread of new technologies (the Internet, cell phones, social networking sites, etc.) that have changed our society and the way we communicate. Before Digicel started operating in PNG in 2007, we did not have the word '***flex***' in the sense that we use it now when we want to buy a '10 kina flex'! For examples of new words, coined by the active minds of UPNG students and their wantoks, see excerpts from two of our research projects, conducted in 2009 and 2010 (Reading 5). Thus:

Word meanings have all the properties of Language; they are at the same time

1. Thought and Speech,
2. Product and Tool of society for generating complex meanings
3. Together with the multitudes of minds that create them, they are constantly changing in time and in use.

Word-Meanings Are Fluid – they are not Saussure's fixed 'objects'

In his '***Analysis into units***,' Vygotsky argued that, to understand human language, we must study the *development*, *functioning*, and *structures* of its minimal units – word-meanings. His analysis uses both the wide-angle (synthesis) and close-up/zoom (analysis) lenses in its examination of verbal thought.

Traditionally, the bond between word and meaning was viewed as a fixed *associative* bond between a sequence of sounds and an object. Sounds call to mind their meaning, just as a friend's shirt, car, etc. remind us of that friend. Semantics up until now has maintained that the "association between word and meaning may grow stronger or weaker, be enriched by linkage with other objects of a similar kind, spread over a wider field, or become more limited, i.e., it may undergo quantitative and external changes, but it cannot change its psychological nature. To do that, it would have to cease being an association" (Vygotsky: 1934).

The close-up lens of Saussure's structuralism freezes word-meanings in time (the synchronic approach), views them as 'fixed objects' and dissects them (like those dolphins), examining their 'dead' structures. From that perspective, "any development in word meanings is inexplicable and impossible – an implication which has handicapped linguistics as well as psychology. Once having committed itself to the association theory, semantics persisted in treating word meaning as an association between a word's sound and its content. All words, from the most concrete to the most abstract, appeared to be formed in the same manner in regard to meaning, and to contain nothing peculiar to speech as such; a word made us think of its meaning just as any object might remind us of another. It is hardly surprising that semantics did not even pose the larger question of the *development* of word meanings. Development was reduced to changes in the associative connections between single words and single objects: A word might denote at first one object and then become associated with another, just as an overcoat, having changed owners, might remind us first of one person and later of another" (Ibid.).

3.2 Dialectical (Wide-Angle) View of Word-Meanings

The WA lens of dialectics captures the complex union of psycho-physical and socio-historical dualities of word-meanings, viewing them 'frolicking' in the sea of live

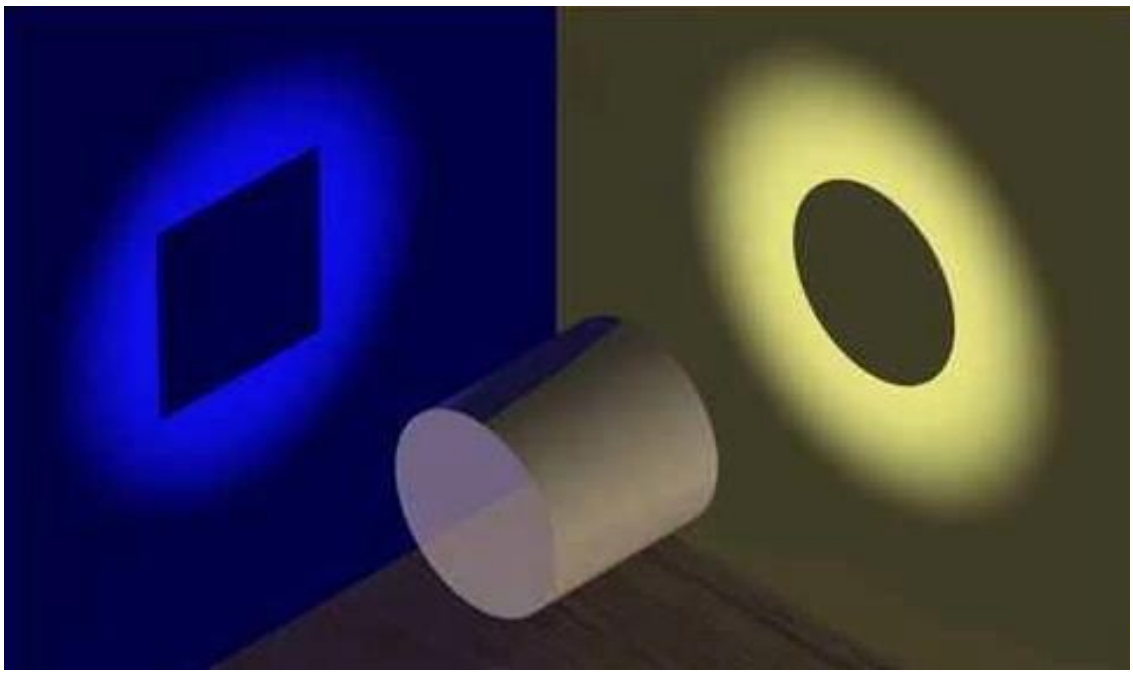
communication, examining them in their movement, change and evolution, in their conception by human minds and in their use by society:

Dialectics brings word-meanings back to life, and revolutionizes the study of both syntax and meaning.

Why are the meanings of words so *indefinable* – so 'fluid'?

If every word is an '***Act* of Thought**,' then, "Who is the ***Actor***?" In their struggle for survival, each society has developed their own 'code/signs' for thought exchange (denotative word-meanings that can be listed in a dictionary).

Our *living, thinking* minds make their *complex webs of generalization* from the **social yarn of *word-meanings*** (each word acquires its meaning only in the context of its own 'web'). Word-meanings germinate, live, develop, change and die in human minds (if you don't know the word *perspicacity*, it has not 'germinated' in your mind ☺). **'MIND Is the Measure' of all *meaning*:**



Let us now take a look at how word-meanings 'live'/'behave' in: **(1)** the collective mind of the society, and **(2)** in each individual mind.

(1) Societies live and think (generalize) in time – our collective mind today is not what it was fifty or even five years ago! Word-meanings are the generalizations of the living, changing mind of our society:

> …In the historical evolution of language, the very structure of meaning and its psychological nature also change. ***From primitive generalisations, verbal thought rises to the most abstract concepts. It is not merely the content of a word that changes, but the way in which reality is generalised and reflected in a word.***
>
> (Vygotsky: 1934).

If we 'scratch below the surface' of most abstract concepts, we will find that they stem from very simple *concrete* ideas; countless examples can be found in the online etymology dictionary http://www.etymonline.com, i.e.:

Except: late 14c., from L. *exceptus*, pp. of *excipere* "take out," from *ex-* "out" (see *ex-*) + *capere* "to take" (see *capable*). Related: *Excepted*; *excepting*. Adjectival function led to use as a preposition, conjunction.

Eliminate: 1560s, from L. *eliminatus*, pp. of *eliminare* "thrust out of doors, expel," from *ex limine* "off the threshold," from *ex* "off, out" + *limine,* abl. of *limen* "threshold."

Abstract: (adj.); late 14c., from L. *abstractus* "drawn away," pp. of *abstrahere,* from *ab(s)-* "away" (see *ab-*) + *trahere* "draw, drag" (see *tract*). Meaning "withdrawn or separated from material objects or practical matters" is from 1550s; specifically in reference to the fine arts, it dates from 1915; *abstract expressionism* from 1952. The general noun sense of "a smaller quantity containing the virtue or power of a greater" [Johnson] is recorded from 1560s; meaning "summary of a document" is from 1520s. The verb is first recorded 1540s.

You can see that 'it is not merely the content of a word that changes' over time, but the way in which societies make sense of the world they live in - and they never stop thinking!

Activity 3.1

Look at these examples from Netlingo http://www.netlingo.com/dictionary/d.php:

MOUSE: rodent → computer appliance; ***drunk mouse*** - When the pointer on your computer screen moves around wildly or irregularly, you are said to have a *drunk mouse*. This commonly happens when there is dirt inside the track ball area of your mouse.

deja moo – 'the feeling that you've heard this particular bullsh*t before'

What are those bells ringing here? ☺Why?

The current wave of linguistic change, triggered off by new technologies (the Internet, SMS, social networking sites such as FB, YouTube, etc.) is characterized by the mushrooming of acronyms in all languages. What causes the human minds to create

acronyms (and even 'backronyms'; Re: www.netlingo.com)? Associations by ***Resemblance*** to the first letters of the words, because (***Cause/Effect***) they habitually occur together (***Contiguity***)!
Put otherwise: when a group of words routinely occur together, the human mind associates them by their contiguity. The first letters of the constituent words will call to mind the whole phrase, simply because (Cause/Effect) of their Resemblance to the first sounds of the words in the sequence (Contiguity); i.e., OMG – Oh My God, LOL – Laughing Out Loud, DUI – Driving Under Influence, IYD – In Your Dreams; EOM – End Of Message; SWU – So What's Up?, etc.

Here are a few other examples of the fluid nature of word-meanings from the Online Etymology Dictionary to illustrate change in word-meanings over time:

Reanalysis (from more concrete to more abstract concepts):

ABLE - early 14c., from O.Fr. (h)able (14c.), from L. habilem, habilis "easily handled, apt," verbal adj. from habere "to hold" (see habit). "Easy to be held," hence "fit for a purpose." The silent h- was dropped in English and resisted academic attempts to restore it 16c.-17c., but some derivatives acquired it (e.g. habiliment, habilitate), via French.

AMBI- combining form meaning "both, on both sides," from L. ambi- "around, round about," from PIE *ambhi "around" (cf. Gk. amphi "round about," Skt. abhitah "on both sides," Avestan aibi, O.E. ymbe, Ger. um, Gaul. ambi-, O.Ir. imb- "round about, about," O.C.S. oba, Lith. abu "both"). The PIE root probably is an ablative plural of *ant-bhi "from both sides," from *ant- "front, forehead" (see ante).

WHY - O.E. hwi, instrumental case (showing for what purpose or by what means) of hwæt (see what), from P.Gmc. *khwi (cf. O.S. hwi, O.N. hvi), from PIE *qwei, locative of *qwo- "who" (cf. Gk. pei "where").

This is how all grammars developed over time; concrete 'content' words, such as *have, be, do*, etc., acquired more abstract, grammatical meanings in the collective mind of the society and thus became part of habitual use (the 'rules' of grammar, or the conventional ways of using words in a language).

Grammaticalization is the process of 'reanalysis' in social consciousness, as a result of which concrete 'content' words acquire more abstract grammatical meanings and begin to serve as 'function' words (such as articles, auxiliary or modal verbs, suffixes, prefixes, prepositions, etc.). For example,

Tok Pisin adjective-forming suffix ***–pla*** (originally, ***fellow***), as in *gutpla*, *tripla*, etc.
Tok Pisin transitive verb ending ***'-im'*** stems from **'him'**: lukim, rausim, harim, etc.

The progenitor of the English modal verb ***can*** originally meant 'to know': O.E. 1st & 3rd pers. sing. pres. indic. of cunnan "know, have power to, be able," (also "to have carnal knowledge"), from P.Gmc. *kunnan "to be mentally able, to have learned" (cf. O.N. kenna "to know, make known," O.Fris. kanna "to recognize, admit," Ger. kennen "to know," Goth. kannjan "to make known"), from PIE base *gno- (know). Absorbing the third sense of "to know," that of "to know how to do something" (in addition to "to know as a fact" and "to be acquainted with" something or someone). An O.E. preterite-present verb, its original p.p., couth, survived only in its negation (*uncouth*), but cf. *could*. The present participle has spun off as *cunning*.

http://www.etymonline.com/index.php?term=can

In all languages, the more abstract 'grammatical' word-meanings evolved from more concrete lexical words; i.e., the so-called 'function words' – auxiliary and modal verbs, prepositions, etc. (*behind* < be+hind; *ahead* < a+head; below < be+low, *across* < a+cross, etc.).
In language contact situations, these same universal principles of human thought (generalization) have, in exactly the same way, created the grammars of new languages – creoles. I have a collection of some Krio proverbs from Sierra Leone (West Africa), which my UPNG students translated into Tok Pisin in the past five years (2008-2012). Tok Pisin translations exhibit consistency of grammatical forms for expressing highly abstract concepts – the collective mind of the Tok Pisin speech community has 'generalized' them in the 200 years since Tok Pisin was born, just like all other social minds do – in the absence of common 'currency' of thought exchange, they create new ways of expressing their generalizations – because that is how they think! The example below clearly shows how the logic of generalization has created ways of expressing complex grammatical meanings of mood, modality, tense, aspect, transitivity, subordination, causality, possession, etc.:

Krio: PEKIN WE NO YERI IN MAMA IN WOD, NA TRIT GO MEN AM.

English: A child who does not obey his Mother's word will grow up in the street.

TOK PISIN:
Pikinini husait ino harim toktok blong mama blong em, pasin blong stap nating long rot bai painin em
Supos pikinini I no harem tok bilong mama, em bai lainim pasim long rot
Pikinini husait ino harim tok blong mama blong em, bai walkabout raun nabaut, nabaut
Pikinini husait ino sawe harim tok bilong mama bai painin taim nogut long strit
Pikinini husait no save arem toktok bilong mama save kamap sirit pikinini

Metaphor (analogy, association by resemblance), **metonymy** (association by contiguity in space/time), and **causality** (association by cause/ effect) are the 'sinews' of Generalization, the universal mechanism of human thought. Collective minds of speech communities create grammars (i.e., the socially assigned denotative word-meanings and rules of their combination) by generalizing. From 'primitive generalizations,' verbal thought has risen to more abstract grammatical concepts in Tok Pisin: subordinating conjunctions '*olsem*' & '*sapos*' clearly derive from English 'all the same' and 'suppose.' The living, thinking social mind has reanalyzed the more concrete meaning because of some resemblance between them – it is not merely the content of a word that has changed, but the way in which reality has been generalized and reflected in the word!

Activity 3.2

Examine the changes in the meaning of the word over time. Why did they occur?

> **NICE** - late 13c., "foolish, stupid, senseless," from O.Fr. nice "silly, foolish," from L. nescius "ignorant," lit. "not-knowing," from ne- "not" (see un-) + stem of scire "to know." "The sense development has been extraordinary, even for an adj." [Weekley] -- from "timid" (pre-1300); to "fussy, fastidious" (late 14c.); to "dainty, delicate" (c.1400); to "precise, careful" (1500s, preserved in

such terms as a nice distinction and nice and early); to "agreeable, delightful" (1769); to "kind, thoughtful" (1830). In 16c.-17c. it is often difficult to determine exactly what is meant when a writer uses this word.

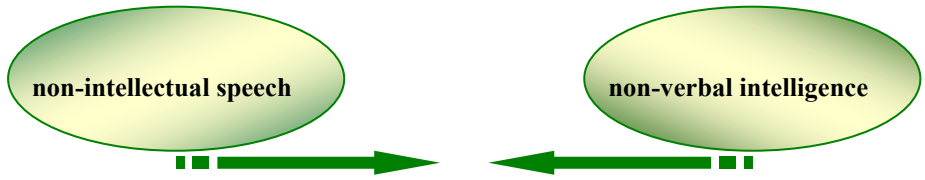
---

(2) Word-meanings also develop and evolve in each speaker's individual mind:

We are born without language. Initially, in babies (as in animals) thought is *nonverbal* and speech – *non-intellectual*: 'a 'prelinguistic period in thought and a pre-intellectual period in speech undoubtedly exist also in the development of the child' (Vygotsky: 1934). As a result of social interaction, children 'discover' that things have *names*, and begin to ask what they are called. They begin to connect sound patterns with the physical objects they perceive. Their speech becomes increasingly rational and thought – verbal, until the **speech structures they have acquired become the basic structures of their thinking**. Verbal thought, therefore, is *not* innate: a *connection* between word and thought originates and grows in the human mind in the course of social interaction – in many ways, *shaped* by society:

> There is no specific interdependence between the genetic roots of thought and of word: **the inner relationship is not a prerequisite for, but rather a product of, the historical development of human consciousness** (Ibid.).

Vygotsky represented thought and speech in animals and human infants as two ***separate*** **circles**:



Speech and Thought spring from different roots – they do not overlap at birth

In babies, these two functions of the brain do not overlap; like all mammals, human babies are governed by instincts and feelings. During the first stage of our cognitive development, we 'soak up' the sounds and words of language from the people around us through our physical senses of hearing and sight. Gradually, we begin to 'connect' the sounds of certain words we hear to concrete objects in the world around us; when that connection 'clicks,' we begin to *use* those sounds to ***refer*** to concrete objects around us.

Babies' first words are not yet abstract thought; rather, they are expressions of wishes /*feelings.* It is the ***whole behavior*** of the child that communicates meaning (just like a dog's barking, squealing, etc. can communicate aggression, fear, pain or joy, etc.):

In mastering external speech, the child starts from one word, then connects two or three words; a little later, he advances from simple sentences to more complicated ones, and finally to coherent speech made up of series of such sentences; in other words, he proceeds **from a part to the whole**. In regard to meaning, on the other hand, the **first word of the child is a whole sentence**. Semantically**, the child starts from the whole**, from a meaningful complex, and only later begins to master the separate semantic units, the meanings of words, and to divide his formerly undifferentiated thought into those units. The external and the semantic aspects of

speech develop in opposite directions – one from the particular to the whole, from word to sentence, and the other from the whole to the particular, from sentence to word. **A child's thought**, **precisely because it is born as a dim, amorphous whole**, **must find expression in a single word**. As his thought becomes more differentiated, the child is less apt to express it in single words but constructs a composite whole. Conversely, progress in speech to the differentiated whole of a sentence helps the child's thoughts to progress from a homogeneous whole to well-defined parts (Vygotsky: 1934).

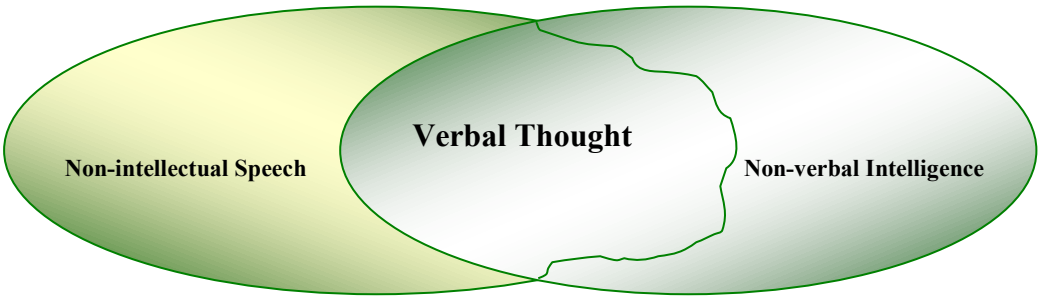
The dynamics of thought development follows the dialectics of *synthesis* and *analysis*. Abstract thought (i.e., human understanding/ conceptualization) is *both*:

> … the advanced **concept** presupposes more than unification. To form such a concept, it is also necessary to abstract, to single out elements, and to view the abstracted elements apart from the totality of the concrete experience in which they are embedded. In genuine concept formation, it is equally important to unite and to separate: synthesis and analysis presuppose each other, as inhalation presupposes exhalation (Vygotsky: 1934, pp. 135-136).

Grammar precedes logic in the child's mind. We know that the child has spoken his/her first words when the child 'connects' a particular sound sequence to a concrete object and begins to use those sounds to ***refer*** to that object. For the child, words are *names* of concrete objects:

> … signification independent of naming, and meaning independent of reference, appear later … Only when this development is completed does the child become fully able to formulate his own thought and to understand the speech of others. Until then, his usage of words coincides with that of adults in its objective reference but not in its meaning (Ibid.).

Verbal thought: In children, thought and speech begin to intersect in the course of language acquisition. In adults, the overlap, where thought and speech coincide, represents ***verbal thought***:



This diagram shows that a lot of our intelligence is non-verbal, just as much of our speech is non-intellectual:

> Schematically, we may imagine thought and speech as two intersecting circles. In their overlapping parts, thought and speech coincide to produce what is called verbal thought. Verbal thought, however, does not by any means include all forms of thought or all forms of speech. There is a vast area of thought that has no direct relation to speech. The thinking manifested in the use of tools belongs in this area, as does practical intellect in general (Vygotsky: 1934).

Humans and animals share feelings /sensations, which we all can express in non-intellectual speech (we all laugh and cry in the same way – no language barriers there!). Our 'fellow men and women' give us our humanity through language: it teaches us, first, to connect concrete things to sounds of words, and then to ***think*** / connect ideas (i.e., *generalize* through the *synthesis* and *analysis* of ideas). However, verbal thought (Language) is not compartmentalized in some corner of the brain – we cannot separate abstract thought from the 'fullness of life, from the personal needs and interests, the inclinations and impulses, of the thinker. … Language is a 'dynamic system of meaning in which the affective and the intellectual unite. … Every idea contains a transmuted affective attitude toward the bit of reality to which it refers' (Vygotsky: 1934).

Meaning (and consciousness generally) **is possible only through the act of thought** – this is why none of us can remember the first months and year(s) of our life; we all have the so-called 'childhood amnesia' simply because at that stage in our cognitive development we had not yet learnt language, whose structures later become the structures of logical thinking:

> True human communication presupposes a generalising attitude… Man's thought reflects conceptualised actuality. That is why certain thoughts cannot be communicated to children even if they are familiar with the necessary words. …Children often have difficulty in learning a new word – not because of its sound, but because of the concept to which the word refers. There is a word available nearly always when the concept has matured.
>
> (Vygotsky: 1934).

The vocabulary of the child grows with the grasping of new concepts; if a concept is too abstract for the child's mind to grasp, that word will not 'enter' the child's consciousness. The same, of course, holds true for people of any age: if the concept is not formed in the brain, the word will not 'make sense' to us.

3.3 Piaget's Stages of Cognitive Development

Jean Piaget (1896-1980), a Swiss psychologist, corroborated Vygotsky's findings. He showed that the difference between child and adult thinking is ***qualitative***, not just ***quantitative***: a child is not a miniature adult and his mind is not the mind of an adult on a small scale.

The human brain continues to develop after birth, and matures only by adolescence. During these formative years, according to Piaget, it goes through four major stages of cognitive development:

1. **The Sensorimotor Stage** occurs between birth and age 2. Babies are born with no thinking structures (the so-called schemas) and develop them through 'soaking up' language and exploring their environment through their senses. At his stage, humans are incapable of coherent logical thought, even though most babies begin to speak their first words long before they are 2.

2. **The Pre-Operational Stage** (approx. 2 to 7 years of age). Children rapidly develop language skills and, concurrently, the underlying thinking structures. They develop

personal traits and characters, but are yet incapable of mature reasoning. For example, the concept of conservation is above the average toddler (conservation implies the understanding that actual amounts of any substance may remain constant, even if the shape or form of it may change). When water is poured from a tall, narrow glass to a short, wide bowl, the preoperational child will think that there is now less water. They are also incapable of de-centering (the ability to see things from another's perspective). When pre-operational children are asked to sit at a table but draw the view from the other end of the table from the perspective of someone looking at them, they cannot do it. Both conservation and de-centering are basic requirements for logical thinking.

3. **The Concrete Operational Stage**: ages about 7 to adolescence. Children begin to grasp conservation and de-centering. They can now reason logically, but only on a concrete, not hypothetical or abstract level. When a Concrete Operational child is shown a blue block and asked "Is the block green or not green?" he or she will probably answer "Neither, it's blue!" – that 'blue is not green' is too abstract. They solve problems logically, but not systematically / consistently. As opposed to Preoperational children, children in the concrete operations stage are able to take another's point of view and take into account more than one perspective simultaneously. Although they can understand concrete problems, they cannot yet consider all of the logically possible outcomes.

4. **The Formal Operations Stage**: adolescence or above. The mind is now capable of sophisticated logical thought. It can think abstractly, hypothetically and can solve problems using the logic of combinations. Piaget considered this the ultimate stage of development, and stated that although the children would still have to revise their knowledge base, their way of thinking was as powerful as it would get.

Vygotsky described the process of cognitive development in one sentence:

> Psychology has scrutinized the way individual flashes of human speech gradually emerge from a baby's squeals and from the babble of very young children, and the way the process of the mastery of speech becomes essentially complete only at the time of sexual maturity, as it is only from then on that speech becomes a *tool* enabling the child to form abstract concepts and a means of abstract thinking (Vygotsky: *Primitive Man and His Behaviour*; 1930).

Grammar precedes Logic – language must develop before logical thought. 'The child's babbling, crying, even his first words, are quite clearly stages of speech development that have nothing to do with the development of thinking' (Vygotsky: 1934). The child's first words are not really words, but rather expressions of feelings that are communicated not by the words, but by the child's whole behaviour at the time (like pointing, reaching out to something or pushing it away, etc.). The word mama, for example, could mean anything from *Mama, give me* or *Mama, come here*, *Mama, hold me*, etc.

At a point in the pre-operational stage, the child "makes the greatest discovery of his life" – that "each thing has its name" and begins to ask "What is this?" about every new thing they come across.

> Before this turning point, the child does (like some animals) recognize a small number of words which substitute … for objects, persons, actions, states, or desires. At that age the child knows only the words supplied to him by other people. Now the

> situation changes: The child feels the need for words and, through his questions, actively tries to learn the signs attached to objects. He seems to have discovered the symbolic function of words. Speech … enters the intellectual phase. The lines of speech and thought development have met (Vygotsky: 1934).

Word-meanings, for a child, are the names of concrete things. That is why children cannot understand some abstract thoughts, even if they are familiar with the necessary words – the adequately generalized concept that alone ensures full understanding may still be lacking.

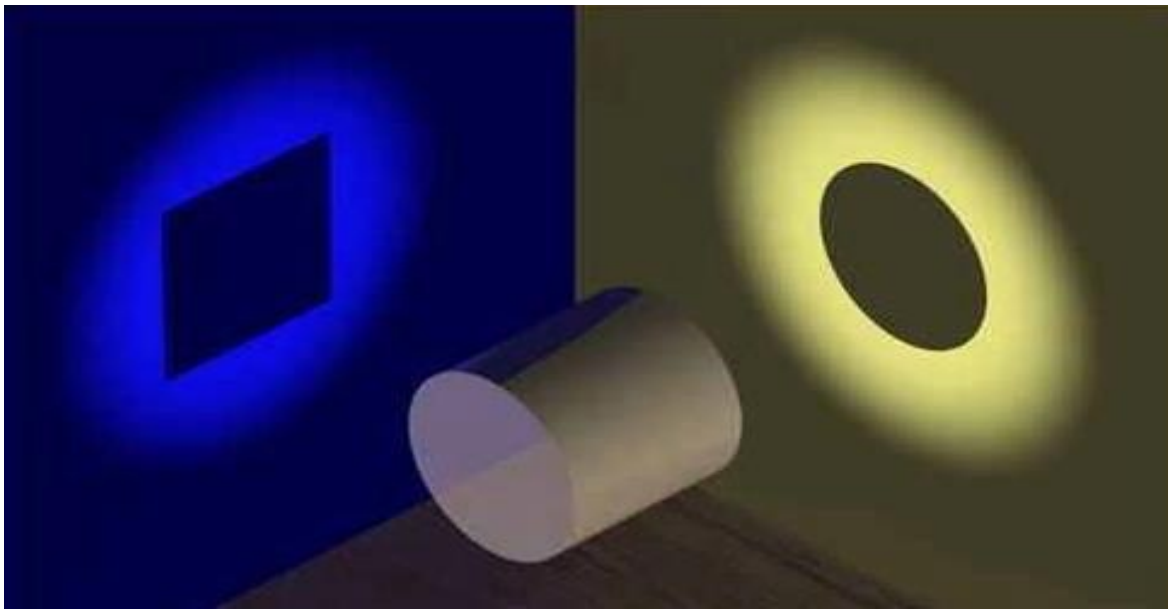
> Thought development is determined by language, i.e., by the linguistic tools of thought and by the socio-cultural experience of the child. Essentially, the development of inner speech depends on outside factors; **the development of logic in the child is a direct function of his socialized speech**. The child's intellectual growth is contingent on his mastering the social means of thought, that is, language (Ibid.).

Word-meanings develop with the child's thinking ability – by the end of the pre-operational stage, they have fully learnt the structures of language, and their thinking becomes more abstract. The pre-operational and formal operational stages differ mostly by the degree of abstraction in the way we think and the 'data base' of knowledge/ experience on which we draw. Not every child reaches the formal operation stage; research shows that only about 25% of all adults use formal operations on a regular basis; these require significant training and cognitive discipline.

Because meaning is the product of each mind's thinking, people often understand the same words differently:

3.4 Ambiguity, or *uncertainty* of meaning

Language is inherently *ambiguous*, because speakers 'make sense' of what they see and hear in their own heads, based on their individual perception and 'connected experience.'



Below is an example of how different minds may view the same sequence of sounds differently:

Santa's sexual harassment trial takes a dramatic change for the worse

Ambiguity: Lexical vs. Structural

Words may sound the same, but have different meanings: **see/sea, bred/bread, hour/our, break/brake**, etc. These are ***homophones*** (= 'same sounds'):

Bush Wins on Budget, But More **Lies** Ahead (newspaper headline)
Child's **Stool** Great for Use in Garden (newspaper ad)
My son has grown another **foot** in the past year.

(a) Lexical ambiguity occurs when same-sounding words have different meanings; look at some ambiguous notices spotted in different countries:

The Manager has personally passed all the water served here (Hotel, Acapulco).
Ladies are requested not to have children in the bar (cocktail lounge, Norway).

(b) Structural ambiguity occurs when a sentence can be understood in several ways because the words in it can be *grouped* differently:

We Need More Honest Politicians (a newspaper headline)
Special cocktails for ladies with nuts (notice in a Tokyo bar)

*For more examples of ambiguity in language, go to Reading 4.

3.5 The Origins of Language (Verbal Thought)

We are not the only intelligent creatures on Earth – remember, what Aristotle noted over 2000 years ago:

By nature, animals are born with the faculty of sensation, and from sensation memory is produced in some of them, though not in others. And therefore the former are more intelligent and apt at learning than those which cannot remember …

The animals other than man live by appearances and memories, and have but little of **connected experience**; …from memory, experience is produced in men; for ***several* memories of the same thing produce finally the capacity for a *single* experience** (*Aristotle*: Metaphysics, Book I).

Generalization (verbal thought) reflects reality differently from our physical senses – what triggered it in human minds? Why did we begin to perceive all meaningless things as meaningful, attaching meaning to them?

There is nothing either good or bad, but thinking makes it so' (Shakespeare).

Two major biological factors enabled us to 'leap into consciousness':

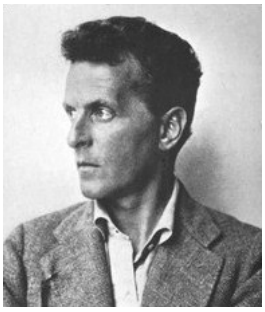
(i) The human brain had evolved the physiological capacity for faster 'broadband' connections and more effective networking – a prerequisite for generalization;

(ii) Species SURVIVAL needs: to survive, we had to cooperate, and to cooperate effectively, we had to communicate effectively.

Thus, it is those superfast 'broadband' connections that make up the '*generalizing attitude*' of the human brain, coupled with the need to communicate with others in order to survive that gave rise to Language.

What was Language like in its infancy?

In his *Philosophical Investigations*, **Ludwig Wittgenstein (1889-1951)**, one of the most influential philosophers of the twentieth century, described the countless 'language games' people play, creating 'meaning ***as use***'; primeval languages spoken must have been much like the 'game' he described in §2 – a very *practical* language, made up of simple, *concrete* word-meanings and very few rules for putting them together:



§ 2. That philosophical *concept* of *meaning* has its place in a primitive idea of *the way language functions*. But one can also say that it is the idea of a language more primitive than ours.
Let us imagine a language ...The language is meant to serve for communication between a builder A and an assistant B. A is building with building-stones; there are blocks, pillars, slabs and beams. B has to pass the stones, and that in the order in which A needs them. For this purpose they use a language consisting of the words 'block', 'pillar', 'slab', 'beam'. A calls them out; --B brings the stone which he has learnt to bring at such-and-such a call. -- Conceive this as a complete primitive language.

(Wittgenstein: Philosophical Investigations. Retrieved November 18, 2008 from http://www.galilean-library.org/pi10.html)

We have already seen that tracing the history of words (etymology) confirms this hypothesis, revealing concrete concepts in the most abstract of word-meanings; *ambi-* in *ambiguous*, for example, is rooted in two very concrete ideas:

ambi- : combining form meaning "both, on both sides," from L. ambi- "around, round about," from **PIE *ambhi-** "around" (cf. **Gk. amphi** "round about," **Skt. abhitah** "on both sides," Avestan aibi, **O.E. ymbe**, **Ger. um**, **Gaul. ambi-**, **O.Ir. imb-** "round about, about," **O.C.S. oba**, **Lith. abu** "both"). The PIE root is probably an ablative plural of ***ant-bhi** "from both sides," from ***ant-** "front, forehead"

Arbitrary: early 15c., "deciding by one's own discretion," from L. arbitrarius "depending on the will, uncertain," from arbiter (see ***arbiter***).

Arbiter: c.1500, from L. arbiter "one who goes somewhere (as witness or judge)," from **ad-** "to" + **baetere** "to come, go."

http://www.etymonline.com/index.php?l=a&p=11

Many scholars currently believe that human language arose spontaneously out of our existential need for cooperation, and that it was originally a simple code of voice signals to represent *concrete* objects or actions. For example, M.H. Christiansen (Psychology, Cornell University) and Nick Chater (Psychology, University College London) argue in their interesting article *Language & the Brain* that

'Language reflects preexisting, and hence non-language-specific, human learning and processing mechanisms' which 'provide a possible origin of grammatical structure from a proto-language initially involving perhaps unordered and uninflected strings of content words' (Christiansen & Chater: 2008).

They concluded that
'Language, in all its diversity, has been shaped by the brain' and that most of language change and creolization arise from natural 'cognitive constraints on learning and processing' (Ibid.).

A parallel may be drawn between a child's cognitive development and the evolution of speech (verbal thought) in our collective mind. By this analogy, our collective consciousness co-evolved with Language over millennia, from holophrastic chunks of complex meanings, represented by simple structures, to more differentiated, precise, abstract meanings, embodied in more complex linguistic structures.

Grammar preceded Logic in our collective social cognition, as it does in individual cognitive development. Our collective consciousness 'matured' through the co-evolution of Language and the Brain. Knowledge arises from connected experience – the more experiences we can connect, the more knowledge we can abstract from them. The invention of writing 'externalized' our memory, thus expanding our knowledge dramatically. Our collective memory (and, therefore, knowledge) is enhanced 'to the extent that systems of writing and of symbols, together with the methods for using those symbols, are enhanced' (Vygotsky: 1925). Digital technology ushered in the 'Information Age' – a dialectical leap, a *qualitative* change in our ability to amass information / abstract knowledge from it (Re: Unit 2).

Biologically, we are not significantly different from our earliest ancestors; it is the level of abstraction in our collective mind which distinguishes modern humans from the primitive man that lived millennia ago. Languages, the 'flesh' of our social consciousnesses, have formed their 'bones' (structures, rules of grammar) in the process of grammaticalization.

Activity 3.3

Write an outline summary of this unit, 'abstracting' all the most important points and those ideas which you found most interesting.

Dialectical linguistics views Language (verbal thought) as a natural product and reflection of the collective social mind; language evolves in society in the course of communication necessary for survival. This social function of language opens up yet another dimension of its fluid nature. As a complex, multifaceted, *living* 'whole', Language is much more than just the sum of word-meanings and rules for putting them together – Unit 4 will try to explain how this is, and why.

Summary

1. Vygotsky's 'Analysis into Units': word-meaning is the smallest unit of Language, because it has all of its properties intact.
2. Word-meanings are not 'fixed objects' – they *develop*; they 'grow' and change, both in individual and in collective consciousness
3. Grammar is shaped by 'reanalysis' of content words in the collective mind of the speech community, whereby lexical words and phrases acquire more abstract grammatical functions (they become function words)
4. Grammaticalization is the process whereby concrete words acquire grammatical functions
5. Piaget's stages of cognitive development are:
    a. Sensori-motor
    b. Pre-operational
    c. Concrete operational
    d. Formal operational
6. In babies, as in animals, speech is non-intellectual, and intelligence – non-verbal; during the first (sensori-motor) stage of cognitive development, speech and thought begin to overlap
7. Children develop Language before Logic
8. Two major biological factors enabled us to 'leap into consciousness':
   (i) The human brain had developed 'broadband' – a prerequisite for generalization;
   (ii) Basic SURVIVAL needs: to survive, we had to cooperate, and to cooperate effectively, we had to communicate effectively.
9. Children go through the ***holophrastic*** stage in their cognitive development; similarly, human societies have all gone through that initial stage in human evolution (the co-evolution of Language and the Brain).
10. Language in its 'infancy' had no grammar – it was made up of largely 'unordered and uninflected strings of content words.'

Readings

4. On Ambiguity
7. Baby Talk
9. On History of Tok Pisin
11. UPNG Students' Texting Lingo (SMS)

References

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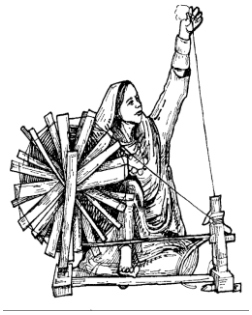
Unit 4. Language – the Social Spinning Wheel



Objectives

After completing this unit, you will be able to

1. Explain, how the social tool of Language works & discuss '***meaning-as-use***'
2. Contrast traditional descriptive study of meaning (semantics & pragmatics) vs. the dialectical view of it.

4.0 Introduction

In this unit, we'll discuss the essence, function and purpose of human language – meaning, contrasting ***denotative*** conventional meanings society assigns to words vs. word-meanings in live communication (meaning-as-use).

4.1 Language – the tool societies use to spin their 'webs of significance'

The whole is more than the sum of its parts.
(Aristotle: *Metaphysics* 1045a10)

Language is more than the sum of set word-meanings & rules for putting them together.

Language is a social *means* of thought – a TOOL for generating complex meanings.

'*Man is an animal suspended in the webs of significance he himself has spun*' (Max Weber's words), and Language is our spinning wheel. The society gives us this ingenious tool and teaches us to spin our own 'webs' of meaning. What is the Mechanism of this social tool, this Spinning Wheel – Language?

The Language tool consists of a set of conventional ***denotative**** word-meanings and rules of how to put them together into sentences (mosaics of word-meanings). Artists can create any kind of mosaic images by arranging colored tiles in a particular way:

Source: http://www.firelily.com/samples/images/mosaic.lily.html (12/04/2010)
Source: http://www.lineartgallery.com/web/Artist/Strachan/art_mosaics/art_mosaic_photos/art_mosaic_frog.jpg (12/04/2010)

[****Denotative*** meanings are the ones that we have 'fixed' and listed in dictionaries.]

We are all artists, in that sense – we create complex /composite meaning by arranging word-meanings into sentence mosaics. Words are like tiles of different colors – a brown tile may be part of a flower, an eye socket of a skull, a sucker on a frog's toe, or anything else – **its true meaning is its *use* in the mosaic**. Likewise, words acquire their true meaning only in the context of the composite whole of the sentence mosaic; i.e., compare the meaning of '*beef*' in '*Stop beefing about Karen*'; '*Where is the beef*?' '*You have a beef with me*?'; and 'Your essay is good, but you must beef it up with facts.'

Each sentence we make, like a mosaic image, has a composite meaning of its own, reflecting the physical world just as our mind's eye sees it. We play the same 'language game' with our 'wantoks' who can 'see' the 'mosaics' we create, because we all use the same set of tiles (conventional word-meanings) and rules of putting them together to create our composite meanings.

We *acquire* Language through our senses; we also *perceive* it through our senses (of hearing & sight); therefore, we perceive spoken (and written!) language through the wide-angle lens of our physical senses, in *chunks* of meaning. This is why we often understand the sentence, before the speaker has finished saying it, and can even guess the words not yet spoken. Made up of colorful word-meanings, sentences transmit their meaning 'in a flash', just like pictures (mosaic images) do. The only difference between sentences and mosaics is that we see the meaning of images with our eyes, while our minds 'see' the meaning of sentences ('word mosaics') through our ears. Because our physical senses perceive things as a whole, we 'sense' word mosaics (sentences) just as we see visual images – as a whole.

Use yuor phsyscial sesne of sihgt! ☺

Cna yuo raed tihs? Olny 55 plepoe out of 100 can!

I cdnuolt blveiee taht I cluod aulaclty uesdnatnrd waht I was rdanieg. The phaonmneal pweor of the hmuan mnid, aoccdrnig to a rscheearch at Cmabrigde Uinervtisy, it dseno't mtaetr in waht oerdr the ltteres in a wrod are, the olny iproamtnt tihng is taht the frsit and lsat ltteer be in the rghit pclae. The rset can be a taotl mses and you can sitll raed it whotuit a pboerlm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe. Azanmig huh? yaeh and I awlyas tghuhot slpeling was ipmorantt! if you can raed tihs forwrad it!

These are not regular English words – how come you can make sense of them?

Tihs is bcuseae the uor mnid's eye deos not see ervey lteter by istlef, but the wrod as a wlohe – we perceive language with our physical senses!

*This example also shows how our minds generalize by ***connecting*** ideas – ***because*** of some ***resemblance***, we 'slot' things into ***categories*** existing in our consciousness.

Meaning as Use

Conventional word-meanings are the social 'currency of thought exchange.' They are the colored tiles we put together to create our mosaics (composite meanings). Each tile in a mosaic acquires its 'meaning' only in the context of the other tiles that make up the whole image. For example, what is the 'meaning' of each black tile in this ancient Italian mosaic?

http://www.trekearth.com/gallery/Europe/Italy/Campania/Naples/Naples/photo625199.htm

In the same way, each word acquires its true meaning only in the nexus of the proposition whose meaning, in turn, is more than the sum of its words – it also depends on *how* they have been put together ('Paul eats fish' is not the same as 'Fish eats Paul').

'Meaning as Use' reflects the *fluid* nature of word-meanings – so fluid that, indeed, words and their meanings are relatively independent of each other in the word 'mosaics' we make (the same brown tile can be used as part of a cock's tail, beak, or eye, etc. in the mosaic above).

It is practically impossible to 'freeze' meanings in use, because each mind's eye has its own vision (and even that also varies in time): ideas exist only in the mind. We all perceive the physical world with our own eyes and ears, and we 'make sense' of it only in our own heads. Each mind's eye views the world from its own perspective; its clarity of vision depends on many factors, such as the level of cognitive development, experience, emotional /physical state, the cultural context and place /time of the communication, etc.

The 'picture' (sentence meaning) different people see with their mind's eye, therefore, may not be the same; it depends as much on the 'color' and patterns of the word-meanings making up the whole 'image' (proposition), as on the all the other variables (the level of cognitive development/ individual experiences and memories of the people who are trying to make sense of them; social and physical circumstances of

exchange, etc.). This is why, as we learned in Unit 3, ***ambiguity*** is so inherent in all human languages.

The webs (mosaics) of significance which we spin are not the product of the tool we use to spin them (Language) – they are the product of the living and thinking human minds that use the tool to create meaning.

Because the principles of generalization are universal, they underlie all systems of meaning created by human minds and embodied in all languages and cultures. Ideas, we remember, have no physical substance – they do not exist out there, in the physical world; they exist only in human minds. The truth of our ideas can only be measured by their correlation with physical reality – everything else is a matter of taste, opinion or conviction.

Generalization Is the Mechanism of Our 'Spinning Wheel' – Language
We 'think' by connecting ideas into complex mosaics of meaning. Just as the process of breathing involves both inhalation and exhalation, so also the process of thinking involves both synthesis and analysis of ideas. We use the 'thinking tool' (language) to spin our 'webs of significance' through synthesis and analysis of ideas. In order to form a concept (i.e., *understand* something), we must be able not only to connect, but also to *abstract*, to *single out* its characteristic elements, and to view them separately from the "totality of the concrete experience in which they are embedded" (Vygotsky: 1986, p. 135).

To make a mosaic, we must not only put our tiles together into a meaningful pattern, but also add enough detail, to make the image clearer. Similarly, when making a sentence, we must not only put words together into a basic meaningful structure (S/V/C), but make our meaning clearer, by adding detail (description) to the major sentence constituents (Subject, Verb, and Compliment).

We spin our verbal 'webs of significance' by putting word-meanings together into the ***nexus*** of the proposition (**synthesis**) and describing *parts* of the nexus by associating them with other ideas, based on some Resemblance, Contiguity, or Cause/ Effect relationship (***analysis***).

Generalization is thus the matrix of universal grammar of verbal thought; it is embodied in countless forms and structures of the world's languages, all shaped by it:

> [Logic] shares something with grammar in that it provides rules for expressions, yet it differs in that grammar only provides rules specific to the expressions of a given community, whereas the science of logic provides common rules that are general for the expressions of every community (al Farabi: 1931; 17.5-7, 18.4-7).

'Practice Makes Perfect.' We acquire all skills through practice (even though inborn talent may also play a role). This is why our language (and, therefore, thinking) skills are conditioned by the quantity and quality of our social interaction; there is a direct **correlation between our social and cognitive development**, i.e., between our ***social interaction*** and our ***thinking ability***.

As individuals, we often underestimate the role of society in our lives; we need to be reminded that, **by giving us language, our society made us human**.

4.2 Dialectic vs. Traditional /Descriptive Study of Meaning (Semantics)

Dialectical linguistics views word-meanings as monolithic psycho-physical and socio-historical ***wholes***. It examines ***word-meanings* in *use*** by active minds, 'alive' only in those minds that produce them, viewing them as significant parts of the verbal mosaic of the sentence, in their interconnectedness, movement and evolution.

In contrast to dialectical linguistic analysis which sees word-meaning in the union of all its dualities and contradictions, traditional semantic theories postulate that the meaning of an expression is a certain sort of fixed ***entity***, and that the job of semantics is to pair expressions with these entities (their meanings). They question the nature of these ***entities*** and try to describe them:

- ***Semantics*** focuses on the denotative meanings of words and set phrases (idiomatic expressions);
- ***Pragmatics*** analyzes meanings of words in the context of the sentence;
    - ***Discourse analysis*** tries to pair sentences and even larger chunks of speech with their meanings (all as they are perceived by the analyst).

They fix the meanings, breaking the sentence mosaic into parts and focusing on the meaning of the so-called '*lexical items*' (isolated words, phrases, etc.) in isolation. They split word-meanings into ***signifiers*** (physical linguistic structures) and the '***signifieds****'* (the conventional meanings of words as listed in dictionaries).

They further break isolated words into their ***semantic components*** (also called ***semantic properties*** or ***semantic primes***); these are the components of meaning of a word; for example, the component *male* is a semantic property of *boy, man, grandfather, youth, bull, stallion*, *cock*, etc. They also devised a rather complicated system of **semantic features** – a notational device for expressing the presence or absence of semantic properties by pluses and minuses. Semantic features are supposed to cover the 'core properties' of isolated words; for example:

"woman"	is	[+human], [- male], [+adult]
'man'	is	[+human], [+male], [+adult]
'boy'	is	[+human], [+male], [- adult]
'girl'	is	[+human], [- male], [- adult]

It is not always easy to identify semantic properties – many abstract concepts are difficult to break into 'components' of meaning (take, for example, *advice*, *threat*, *hope,* or *implication, etc.*). That is why this type of semantics focuses primarily on *content words* expressing concrete ideas, such as *mango, run, blue*, etc., rather than on abstract concepts or *function words* (i.e., *of*, *in*, *which*, *that*, etc.) whose meanings are generally more abstract /grammatical.

Traditional semantic analysis also looks at how words (denotative word-meanings, the ones 'fixed' in dictionaries) relate to each other in the language. These relations between words, or '***lexical relations***', have been classified (not surprisingly!) into

those based on resemblance (***because*** of that resemblance!), and those based on contiguity[6] (***because*** of that association in space/time!):

(a) Relationships based on Resemblance (or lack of it)

Concepts may be very similar (or opposite) in meaning; these relationships between them are called ***synonymy*** and ***antonymy***:

Synonymy

Synonyms are words with similar meanings, i.e. *liberty* : *freedom*, *broad* : *wide*, *near* : *close*, *kind* : *good-hearted*, etc. There are no perfect synonyms - no two words ever have exactly the same meaning in all contexts: to '*break*' is synonymous with '*snap*' in the phrase 'break/snap a stick into two', but not in 'snap/ *break one's fingers' or 'break/*snap a world record.' This, semanticists claim, is because meanings can 'overlap' in some contexts and diverge in others (the dialectical approach, meaning-as-use, views the meanings of parts of the word-mosaic in the context of the whole).

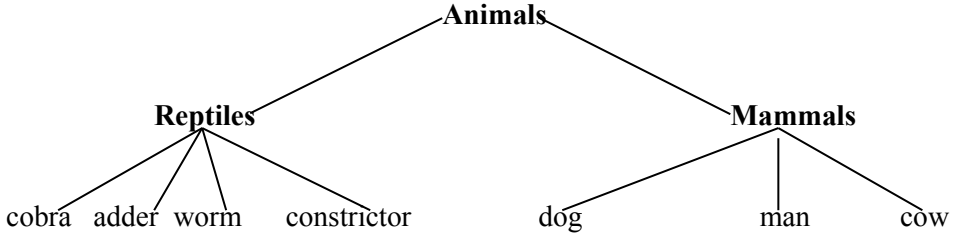
Antonymy

Antonyms are words with opposite meanings, and the contrast between them may be of several types:

- ⇒ **Complementary** (the negative of one automatically implies the other); for example: *single* (= not married) **:** *married* (= not single), or *easy* (= not hard) : *hard* (= not easy)*, alive* (= not dead) *: dead* (= not alive)
- ⇒ **Gradable contrast**, i.e., big : small, hot : cold, fast : slow, happy : sad, etc. With gradable pairs, the negative of one is not synonymous with the other; for example, *not happy* is not necessarily *sad*, *not cold* is not the same as *hot*, etc.
- ⇒ **Relational opposites** (contrast depends on perspective): husband : wife, give : take, buy : sell, teacher : pupil, parent : child, provider : user, etc.

(b) Relationships based on Contiguity

A relationship between words in which one word-meaning is included in another is called **hyponymy**. To classify things as belonging to a category, we use the ***inclusion*** principle to build a hierarchy of related concepts, for example:



In hyponymy, one word may be replaced by a second word, but not the other way around, without a significant change in meaning. The concept "animal" entails "reptile" which in turn may entail "Papuan Black" or any other type of snake, but the entailment does not go the other way around (*reptile* is not the same as *rattle snake*, it has a more general meaning). Examples of hyponymy:

[6] Associations by Resemblance, Contiguity in space or time, and Cause/Effect underlie all human understanding (Re: Sutra 1)

⇒ To ***go***: to *walk*, *stroll*, *strut*, *pace, march, hobble*, etc;
⇒ To ***sleep***: to *nap*, *snooze*, *snore*, etc.
⇒ To ***laugh***: to smile, to snigger, to guffaw, to giggle, etc.
⇒ To ***speak***: to blabber, to whisper, to proclaim, to declare, to pronounce, etc.

Homonymy & Polysemy

There are several other terms semanticists use to describe relationships between words in a language.

Homonymy

Homonyms are words which have ***the same form*** (orthographic or phonetic), but ***unrelated meanings***. If they only differ in one way, they are called homophones or homographs, respectively:

⇒ ***Homonym*** = 'has the same name': *bat* (tennis) : *bat* (flying rodent), *grave* (serious) : *grave* (burial site), *can* do : *can* of fish, etc.
⇒ ***Homophone*** = 'has the same sound': two : too, break : brake, flower : flour, etc.
⇒ ***Homograph*** = 'has the same spelling, written the same way': lead (the metal) vs. lead (not follow), moped (motorized bicycle) vs. moped (wallowed in self-pity), etc.

For example, there is a fish called a *fluke*, a part of a whale called *fluke*, and a stroke of luck called a *fluke*, but these are three different words with separate histories (etymologies) – they just happen to share the same form. Similarly, a river *bank* and a savings *bank* share the same spelling and sound, but have unrelated meanings and etymology (they are *homonyms*).

Homonymy usually results from an *accidental phonological similarity* between two unrelated words; for example, the words *bark* (of a dog) and *bark* (of a tree) come from two completely different historical sources. The first is from Anglo Saxon *beorcan*, and the second is from Old Norse *börkr.*

Homonymy may also result when two related meanings drift apart over time. The word *sole* (a kind of fish) was originally related to the word *sole* (of the foot), because the sole of the foot is flat, like the fish. Speakers of modern-day English do not find any such similarity of meaning.

Polysemy

Polysemy (*poly-* = many; *-sem-* = meanings) refers to words with multiple *historically related* meanings. Polysemy almost always arises historically when a meaning of a word is extended to include a new meaning (i.e., when a word begins to be commonly used in a new sense, while also retaining its original meaning). For example, the word *fork* can refer either to a branch in the road, an instrument used for digging, or to a utensil used for eating. The three senses of *fork* are all related in terms of shape (metaphoric extension by resemblance).

Polysemy results from the **conventionalization** of a semantic extension and the **retention** of the original meaning.
Polysemy is different from ***homonymy***, where two lexical items happen to have the same form purely by chance (e.g. *bat* 'stick used for hitting a baseball' vs. *bat* 'flying mammal'). Polysemous senses of a lexical item always have related meanings. Homonyms, on the other hand, do not normally have related meanings.

You can usually tell if words are polysemous or homonymous by the way they are listed in the dictionary – if a word has multiple meanings (polysemic), then its meanings will be listed as part of a single entry. If, on the other hand, word-meanings are unrelated (homonyms), then they will appear as different entries.

As we have seen, the basis for all these categories/ lexical relations is our ability to *create* and *connect* ideas based on resemblance, contiguity, and cause/effect. Association by resemblance and contiguity are part of generalisation (= the mechanism of human thought). We have already seen how the principles of human understanding shape language structures (through *synthesis* and *analysis*, in terms of description/ modification/ specification of the main sentence constituents).

It is time now to consider how the same principles of human understanding drive semantic change (change in word meanings).

(c) Metaphor & Metonymy – the 'drivers' of Linguistic Change

In semantics, association by resemblance is called ***metaphor*** and association by contiguity in space/time is called ***metonymy***.

Metaphor

Metaphors express one concept in terms of another, based on some similarity between the two. Often, metaphor involves expressing a relatively abstract concept in terms of a relatively concrete one. Metaphors often apply to entire domains of experience, and affect entire discourses, not just isolated words, i.e.:

- ⇒ **Happy / good = up; sad / bad = down:** i.e., I was feeling down, but now I'm feeling up again. My spirits rose, but then they sank. What can I do to lift your fallen spirits?
- ⇒ **time = money / value:** You're wasting my time. How do you spend your time? Is it really worth your time? You need to budget your time better. I'm living on borrowed time. This will save you a lot of time.
- ⇒ **mind = machine:** My math skills are a little rusty. He's trying to grind out a solution to the problem. My mind just isn't working properly.

- ⇒ **love = madness/ sickness:** I'm crazy about him. He drives me out of my mind. He raves about her all the time because he's mad about her. Our relationship is very healthy, but theirs is sick. We thought their marriage was dead, but now it's on the mend.
- ⇒ **seeing = touching:** His eyes are glued to the television. He can't take his eyes off of her. Their eyes made contact.

This type of metaphoric extension is a powerful tool for creating 'high-density' meaning. That is why both metaphor and metonymy are taught in writing classes as *figures of speech*/ literary devices for effective expression. Calling somebody 'honey,' 'tiger' or 'pig' automatically means that the speaker sees some similarity between the two. People have been aware of the power of metaphor (and metonymy) for thousands of years – the Sophists of Ancient Greece stressed the value of 'figures of speech' in rhetoric, and used it effectively in their writing.

Why is *Gorgias'* description of language so memorable?

The power of speech has the same relation to the order of the soul as drugs have to the nature of bodies. For as different drugs expel different humors from the body, and some put an end to sickness, and others – to life, so some words cause grief, others joy, some fear, others render their hearers bold, and still others drug and bewitch the soul through an evil persuasion …

Gorgias (~ 485-380 BC): *Praise of Helen*

Metonymy

Metonymy always involves an association between two things that **is based on something other than resemblance**. Any type of relationship 'based simply on a close connection in everyday experience'[7] is metonymic. For example, we often say things like, 'He drank a whole bottle of wine.' Of course, what we really mean is that he drank *the wine*, not the bottle. But the bottle and the wine were *close together in space and time*. This close association leads to a natural metonymic shift from one concept to the other. Compare also: *bottle shop*, to *go/be on the bottle*, to *drown one's sorrows in the bottle*, etc.

'Close connections in everyday experience' may include associations between

- **Organization and its management**: *Datec* employed new people recently. Or: *The University* will not agree to that.
- **Controller and controlled**: I accidentally hit a tree when driving home yesterday – lucky it was not a pedestrian! Or: A truck hit John in the right front fender.
- **Producer and product**: *Chomsky*[8] is on the top shelf. Or: We have an old *Ford* (*Mitsubishi*, etc.).
- **Part-Whole relationships**: We need more *boots* on the ground in Afghanistan (= troops). She's just another pretty *face* (= person). We need a *hand* here (= person who can help)

Metaphor and metonymy drive the process of ***grammaticalization*** (Re:Unit 2) which traditional approaches describe as "semantic 'bleaching' and acquisition of more abstract grammatical meaning, accompanied by phonological reduction."

Metaphoric /metonymic extension also drives purely semantic change, which does not involve grammaticalization (polysemy, in particular).

[7] Yule, G. The Study of Language (1996), p.122
[8] Chomsky is a famous American linguist

(d) Semantic Change

In historical/ diachronic linguistics, ***semantic change*** refers to a change in word meaning. Apart from phonological reduction/ most natural development principle and arbitrary social tastes and habits of the speakers, no comprehensive '***causes***' for change in meaning could be given. As Vygotsky rightly noted, the bond between word and meaning is traditionally viewed as a fixed *associative* bond between a sequence of sounds and an object. Sounds call to mind their meaning, just as a friend's shirt, car, etc. remind us of that friend. Semantics up until now has maintained that the "association between word and meaning may grow stronger or weaker, be enriched by linkage with other objects of a similar kind, spread over a wider field, or become more limited, i.e., it may undergo quantitative and external changes, but it cannot change its psychological nature. To do that, it would have to cease being an association. From that point of view, any development in word meanings is inexplicable and impossible – an implication which handicapped linguistics as well as psychology" (Vygotsky: 1934).

Thus handicapped, traditional descriptive linguistics, states the various kinds of semantic change without explaining its 'causes':

Semantic shift is the general way of referring to any unspecified semantic change. Major categories of semantic change include

- **Widening** – a shift to a more general meaning: i.e., in Middle English, *bridde* meant a 'small bird'; later, *bird* came to be used in a general sense and the word *fowl*, formerly the more general word, was restricted to the sense of 'farm birds bred especially for consumption';
- **Narrowing** – a shift towards a more specific concept: the opposite of widening, or expansion. i.e., *fowl* → chicken, *meat* which derives from Middle English *mete* with the general meaning of 'food' and now restricted to processed animal flesh. In turn the word *flesh* was narrowed in its range to 'human flesh'.
- **Amelioration**[9] - a shift towards a more positive quality; an improvement in the meaning of a word: The term *nice* derives from Latin *nescius* 'ignorant' and came at the time of its borrowing from Old French to mean 'silly, simple' then 'foolish, stupid', later developing a more positive meaning as 'pleasing, agreeable'.

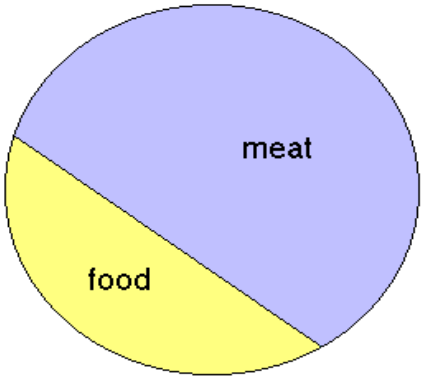
- **Pejoration** – a shift towards a more negative quality: i.e., Old English *cnafa* (boy: compare German *Knabe*) became Modern English *knave* someone dishonest; Latin *villanus* (a farm servant) became Middle English *vilain/ vilein* (a serf with some rights of independence), then Modern English *villain* (a scoundrel, criminal). Another example of pejoration:

  Lewd (Old English *læwede*) originally meant 'non-ecclesiastical, lay', then came to mean 'uneducated, unlearned' from which it developed into 'vulgar, lower-class' and then through 'bad-mannered, ignorant', to 'sexually insinuating'.

[9] Synonyms of *amelioration*/ *melioration*: improvement; betterment; mending, amendment, emendation

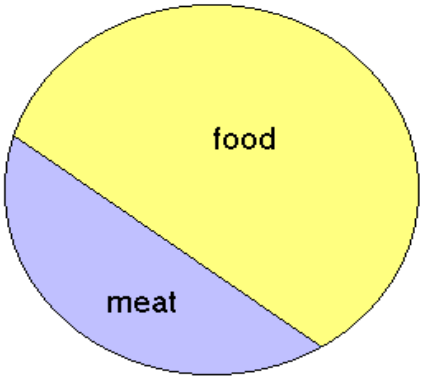
In morphology, there are inflectional paradigms; in semantics, a similar concept is represented by the ***word field*** where words and their meanings form a network of relationships (lexical relations). The graphs below show two cases of semantic shift (changes in the word fields) in which the increase in the scope of one word is paralleled by the reduction in scope of a related word:

Word field in Middle English



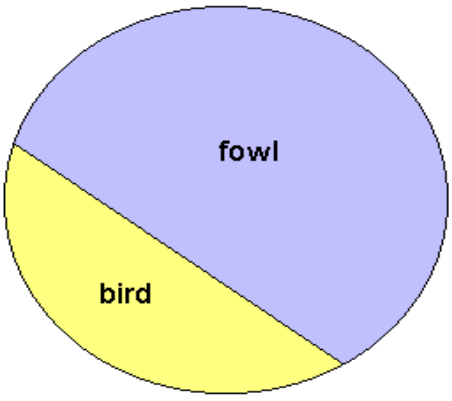
meat = "food in general"
food = "provisions; item of food"

Word field in Modern English



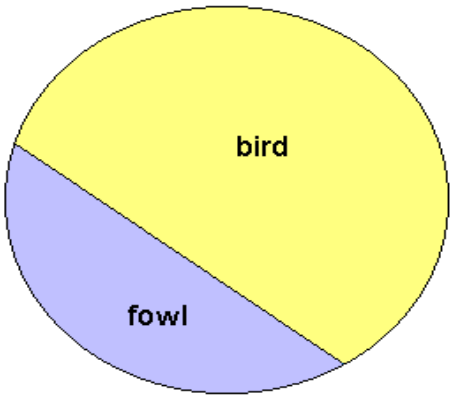
meat = "animal flesh"
food = "all types of nourishment"

Word field in Old English



fowl = "flying animal"
bird = "young bird, fledgling"

Word field in Middle/Modern English



fowl = "poultry"
bird = "flying animal"

Summary

Traditional descriptive linguistics views the bond between word and meaning as an *association* between a *fixed* signifier and an object of thought (signs call to mind their meaning, just as any*thing*, belonging to someone we know, reminds us of that person).

Semantics concedes that the "association between word and meaning may grow stronger or weaker, be enriched by linkage with other objects of a similar kind, spread over a wider field, or become more limited" (as a result of all the various types of semantic shift), but it cannot tell us ***why*** these changes occur. From that point of view, any development in word meanings, any change in the way reality is ***generalized*** in the word, is inconceivable:

"…having committed itself to the association theory, semantics persisted in treating word meaning as an association between a word's sound and its content. All words, from the most concrete to the most abstract, appeared to be formed in the same manner in regard to meaning, and to contain nothing peculiar to speech as such; a word made us think of its meaning just as any object might remind us of another. It is hardly surprising that semantics did not even pose the larger question of the *development* of word meanings. Development was reduced to changes in the associative connections between single words and single objects: A word might denote at first one object and then become associated with another, just as an overcoat, having changed owners, might remind us first of one person and later of another" (Ibid.).

Dialectical approach captures the multidimensional essence of word-meanings, the creations of living, active minds, and examines them as they 'frolic' in the sea of live communication:

Activity 4.1

Write an outline summary of all the most important ideas discussed in this unit.

Reading

5. Language 'live'
6. In Defense of Dialectical Linguistics
9. On Tok Pisin History

References

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Unit 5. The Rational Mechanism of Language

Objectives

After completing this unit, you will be able to

4. Define the concept of 'syntax' and see how the basic principles of human understanding (generalization) are reflected in sentence structure
5. Use Generalizing Analysis (G-nalysis) to 'x-ray' any sentence of the languages you speak, to see the logical connections between words and groups of words in the sentence.

5.0 Introduction

In Part II of this course, we will zoom in on the diverse and fluid ***forms*** of Language, and try to see how the 'rational mechanism' of Language, ***generalisation***, has shaped (and is continually shaping) them. Let us now see how the two principles of human cognition – ***synthesis*** and ***analysis*** – are embodied in the sentences of all languages.

5.1 The Limitations of Arbitrariness

We already know that words are largely arbitrary symbols – their physical forms (in sounds or in writing) do not have a direct link with their meanings. This is the fundamental principle of synchronic linguistics, that **The Sign Is Arbitrary**. The existence of flexions (conjugations, declensions) and other linguistic paradigms seems to contradict this principle: i.e., 'I think' vs. 'He thinks'; 'He thinks' vs. 'He thought' vs. 'He is thinking' vs. 'He will think'; unthinkable, unbelievable, unfriendly, unsure; undo, the newly coined 'unfriend' (on FB), etc. Even the 'Father' of Structuralism, Ferdinand de Saussure, had to concede that even though ultimately 'the link between signal and signification is arbitrary' within a language system, **'***the sign may be motivated to a certain extent*':

> …The entire linguistic system is founded upon the irrational principle that the sign is arbitrary**.** Applied without restriction, this principle would lead to utter chaos. But the mind succeeds in introducing a principle of order and regularity into certain areas of the mass of signs. That is the role of relative motivation. **If languages had a mechanism, which were entirely rational, that mechanism could be studied in its own right.**
>
> (Saussure: 1910)

As we mentioned in Unit 3, many scholars currently believe that human language arose spontaneously, thanks to the biological evolution of the human brain, and out of our existential need for cooperation; they hypothesize that it was originally a simple unstructured code of voice signals to represent *concrete* objects or actions (just like Language begins for babies in the pre-operational stage of their development):

'Language reflects **preexisting, and hence non-language-specific, human learning and processing mechanisms**' which 'provide a **possible origin of grammatical structure from a proto-language initially involving perhaps unordered and uninflected strings of content words**' (Christiansen & Chater: 2008).

Each society has developed its own ways of doing things (including habitual ways of putting words together to form meaningful mosaics). Each grammar, therefore, sets its own paradigms of forms (i.e., verb tenses and conjugations, declensions of the noun, word order, etc.). However, the bewildering diversity of grammars may be connected by those 'sinews' of generalization ('broadband' ability to 'connect the dots' – to connect things by resemblance, contiguity, & cause/effect!):

> **'**It seems that many apparently arbitrary aspects of language can be explained by relatively **natural cognitive constraints** – and hence that **language may be rather less arbitrary than at first supposed**' (Christiansen/ Chater: 2007)

The WA lens of dialectical analysis has brought into focus those universal and natural cognitive constraints - we share them with other intelligent animals, just not to the same degree! Think, for example: How do our dogs recognize us? ***Resemblance***! How do they know when to eat? ***Continguity***! All tied up by ***cause/effect*****!** ☺

Dialectical analysis has finally identified those 'preexisting, and hence non-language-specific, human learning and processing mechanisms' – they are associations by resemblance, contiguity, and cause/effect! They underlie not only human, but also non-human thinking, but that ability to connect sensations in memory 'blossomed' in the *human* brain, which developed the capacity for 'high-speed,' 'broadband' connections, required for ***generalization***.

The universal principles of human understanding, first identified by David Hume over 250 years ago, can help us in syntactic analysis! They ***are*** the logical connections that our living, thinking brains naturally make between words and groups of words, building meaningful patterns of sentences out of them. They underlie the unspoken conventional ways of putting words together that all speakers know and share (we call them our ***mental grammar***). All human *societies* have developed their own ways of doing things (cultures), and speaking is one of them. It is the speech habits of the community that determine speakers' perception of the '***grammaticality***' or '***correctness***' of speech - Language is not the product of one brain – it is the product of **many** brains!

Language is a social *means* of thought.

Grammaticality refers to whether a word-mosaic (sentence) complies with all the wantok group habits of constructing word mosaics. In English, as in all languages, every sentence is a sequence of words, but not every sequence of words is a sentence! A sentence is always a **nexus** – a ***synthesis*** of what we speak about, and what we say about it. Word mosaics that conform to the conventional rules of putting words together in a sentence are said to be ***grammatical***; those, which violate the socially accepted syntactic rules, are called ***ungrammatical***. Only if we use the commonly accepted ***habitual*** or '***grammatical'*** ways of connecting word-meanings together, can we hope to communicate meaningful 'images' to other members of the society.

Grammaticality judgments are therefore ***objective*** – they are not based on individual perceptions; they are based on the language habits of the group (speech community).

Native speakers of any language intuitively distinguish grammatical 'mosaics' from ungrammatical ones, because they are used to their own 'wantok' habits. Second language learners, on the other hand, must learn exactly how the particular grammar connects word-meanings into meaningful patterns (sentence-mosaics).

Grammaticality refers to the *physical form* of language structures, not to their ***logical sense*** – '*nonsense*' has meaning, doesn't it? A sentence may be absurd, yet perfectly grammatical, i.e.:

Mean-looking crocks in pink pantaloons have been jamming in lockstep.

We can even use non-words, and still put them in grammatical sequences (see how that Jabberwocky poem from Lewis Carroll's ***Alice in Wonderland*** does it!):

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe:
All mimsy were the borogoves,
And the mome raths outgrabe.

These sentences seem to fill our heads with ideas – only we, like Alice, don't know what they actually are! Grammaticality does not depend on the truth of sentences either – lies and false arguments can have perfect grammar; it is purely our knowledge of language forms and structures that permits us to make grammaticality judgments (we measure the truth value of utterances by their relation to reality).

Grammaticality exists on different levels: syntactic, lexical and semantic, and some deviations from the norm are worse than others. Even though the wrong choice of words (lexical / semantic errors) may make something sound 'funny' or strange, we would still be able to make sense of what is said. But failure to connect the Subject (what we speak about) with the Predicate (what we say about the Subject) makes an utterance completely unintelligible. In other words, if the S/V/C structure is not properly synthesized, the statement becomes ungrammatical. So the degree of grammaticality can range between bad, worse and worst:

Lexical / Semantic problems: BAD

- By the time he was admitted, his rapid heart had stopped, and he was feeling better.
- On the second day, the bad knee was better and on the third day it had completely disappeared.
- The patient refused an autopsy.
- The patient has no past history of suicides.
- The patient expired on the floor uneventfully.
- Patient has left his white blood cells at another hospital

[The above examples are actual quotes from medical Emergency reports]

- Many young girls who cannot accommodate babies are pregnant
- With education and support, people will be able to take actions to protect infections.

- Sex education should be compulsory to make sure people know more so they don't put themselves in a situation that can be controlled. PNG needs to be educated: it's better to be safe, then sorry.
- I am quite aware of the situation the country is in and because of that the prices of goods are increasing.

[The above examples come from POMNATHS student essays, 1999]

Verb/Noun form error, etc.: WORSE

- People who have AIDS don't die straight away, but is said to have developed the HIV (Human Immune Virus).
- This bush medicine (Devil's Fig) is specified to cure natural pain, like backache, stomach ache, and many others. However, it is not recommended to be treated on children under 15, as it can affect their skin.
- AIDS is a serious disease that affect almost the entire life of PNG.
- These process should be repeated and consumed after 12hours if pain persists.

[The above examples come from POMNATHS student essays, 1999]

Broken Phrase Structure Rules – the WORST! These render utterances virtually unintelligible:

My dog white four years has.
Help you can him.
Hospital ended up the patient in.
Yes… ah…Monday ah… Dad… and Dad …ah … Hospital … and ah … Wednesday Wednesday … nine o'clock and ah Thursday … ten o'clock ah doctors … two … two … ah doctors and … ah … teeth… yah. And a doctor … ah girl … and gums, and I…

[This example of how some brain-damaged people (aphasics) struggle to express their thoughts is documented by Harold Goodglass in 'Studies on the Grammar of Aphasics' in 'Psycholinguistics and Aphasia': H. Goodglass and S. Blumstein, eds. Baltimore, MD: John Hopkins University Press, 1973.]

Phrase structure rules specify how words are combined into phrases; for example, English adjectives usually come before the nouns they describe, whereas in French they usually come after the nouns they modify (i.e., a 'black cat' vs. '*chat noir'*). Sentences that violate basic phrase structure rules are less grammatical than those that violate other rules (for example, a *cat black* is less grammatical than a *horizontal cat*).

We are not going to learn the rules of any one grammar here – our task is to learn about the general principles of building sentence mosaics in all languages.

5.2 Syntax – the *Physical Structures* of Sentences

Syntax, we remember, is a core domain of linguistics; it focuses on the way we put words together in our sentence mosaics. It describes the rules we use to create our mosaics of word-meanings. A single tile has no other meaning beyond its physical properties (color, shape, size and texture); a single word has no other meaning beyond its conventional 'dictionary' meaning and sound. The meaning of a mosaic image is made up of all the tiles put together in a particular way; indeed – how do some of the tiles below become roosters, their eyes, tails, or legs? The way they are placed in relation to all the other tiles in the pattern makes them what they are in the mosaic.

Every sentence is a mosaic – it is not just the sum of its words, it is words forming a particular image (meaning/ generalization) in speakers' minds.

We don't speak in single words; our word mosaics (sentences) always say something *about* something, connecting ideas into a meaningful pattern of the sentence mosaic:

> Every thought tends to connect something with something else, to establish a relationship between things. Every thought moves, grows and develops, fulfills a function, solves a problem (Lev Vygotsky).

The sentence mosaic in any human language is a union of *what* we talk about (the Subject) and what we say *about* the Subject (the Verb with all the words that go with it, called the Predicate):

- What we speak about is the Subject of the sentence
- What we say about the Subject is the Predicate (i.e., the verb with all the words that go with it)

However, three *basic parts* of the sentence mosaic are usually distinguished, with the Predicate further divided into the Verb and its (optional) Direct Object. No sentence mosaic is possible without the verb to 'glue' it together:

> **A verb is that which, in addition to its proper meaning, carries with it the notion of time. No part of it has any independent meaning; it is a sign of something said of something else** (Aristotle: On Interpretation, Part 3).

Words can perform 8 *functions* in the sentence, called Parts of Speech. These functions are: naming things (noun), replacing nouns (pronoun), describing nouns (adjective), naming actions (verb), describing actions (adverb), showing the positions of things in space and time (preposition), joining two or more similar grammatical

items together (conjunction), and expressing emotion (interjection) [Re: **Notes on Basic Grammatical Terms & Concepts** at the end of this unit].

The verb function is crucial in holding the sentence mosaic together. The Verb is the 'connector,' the 'lightning rod' that brings the composite meaning of the sentence mosaic alive by connecting its Subject with what is said about it. In many languages, this connection takes the physical form of the so-called 'subject-verb agreement' (i.e., when the verb's physical form changes to fit the form of the Subject in Number and Person). To know (understand) anything is to see how that something relates to everything else in terms of resemblance, contiguity in space/time, and cause/effect.

With this in mind, let us now try to understand linguistic structures through discovering how they reflect the logic of human thought.

***Synthesis* & *Analysis* are the opposite parts of the process of human understanding & its physical expression – generalization**. They are integral parts of thinking, just as inhalation & exhalation are the integral parts of breathing.

Generalization is the universal mechanism of verbal thought.
Verbal Thought *Is* Language.
➡ **Generalization Is the Rational Mechanism of Language.**

Synthesis & Analysis form the 'mechanism' of all generalization/ understanding. In order to form a concept, we need to see how things relate to each other (in terms of similarities/contrast between them, relation in time and space, all the causal and part-whole relationships, etc.). We must be able not only to connect, but also to *abstract*, to *single out* characteristic elements, and to view them separately from the "totality of the concrete experience in which they are embedded" (Vygotsky: 1986, p. 135)

This Rational Mechanism of Language/ Generalization consists of *synthesis* of words into sentence mosaics and *analysis* of the constituent parts of those mosaics. This mechanism of human thought is embodied in all grammars:

- ***Synthesis*** creates the mosaic of the compound generalization (sentence), connecting word-meanings into the 'Subject, Verb, and Object' pattern of the proposition; their nexus represents the linear (syntagmatic) relationship between them, and
- ***Analysis*** zooms in on *parts* of that mosaic (sentence) and describes them by Resemblance, Contiguity, and/or Cause/ Effect.

Synthesis and **Analysis** are the 'opposite' parts of *generalisation,* just as both inhalation and exhalation are parts of breathing.

Recursion, or insertion of phrases inside others, so typical of all human languages, is nothing but analysis in action – the lens of our mind's eye, zooming in on the details of the sentence mosaic! An example of recursion is extending the sentence '*Nothing intelligent would ever get done*' to '*If people did not sometimes do silly things, nothing intelligent would ever get done*' (here, the adverbial clause states a condition for the hypothetical action in the main clause).

Other examples of 'expanding' nexal patterns by stuffing 'specifics' into them:

S V $C_{(DO)}$
Doctors // treat // patients

S V $C_{(DO)}$
Young doctors // **carefully** treat // **sick** patients

S V $C_{(DO)}$ S_2 V_2 $C_{2(DO)}$
Young doctors // **carefully** treat // **sick** patients, ***because they want them to get better***.

Why?

To understand linguistic structures, we must understand the *relationships* between words and groups of words within the nexus of the sentence mosaic.

Logical Connections in Generalization (Relations of Synthesis & Analysis)
In order to form a concept (generalization), we must not only *connect*, but also *abstract*, single out parts of it. Different societies developed their own ways of building their word mosaics through the synthesis and analysis of word-meanings. The relations between words in a sentence may therefore be viewed as those of synthesis (syntagmatic relations) and those of analysis (associative relations).

5.3 Relations of Synthesis

These include (a) the linear pattern of the sentence nexus, and (b) the relations between the verb and the nouns within the nexus:

(a) Speech communities 'synthesize' their mosaics of generalization (sentences) in different ways, following their habit and tradition. The basic order of subject, verb, and direct object in their sentence 'mosaics' may vary between six basic types:

- Subject Verb Object (**SVO**) } these account for > 75% of all
- Subject Object Verb (**SOV**) } of the world's languages
- Verb Subject Object (**VSO**)
- Verb Object Subject (**VOS**)
- Object Subject Verb (**OSV**) } these are rare; they make up only
- Object Verb Subject (**OVS**) } 0.25% & 0.75% of all λs, respectively

SOV is the most common way of synthesizing generalization mosaics in the world's languages, with **SVO** being a close second; together, these two patterns account for more than 75% of the world's languages.

Some languages (particularly, inflectional languages like Russian, Latvian, etc.) allow for all possible patterns – SVO, OVS, SOV, OSV, VSO, and VOS. Each of these patterns adds a shade to the overall meaning.
Most Austronesian languages of the Central and Milne Bay Provinces of Papua New Guinea use the SOV pattern in their sentence mosaics, as we see in Motu:

Sisia	ese	tau	ta	e-ita-ia.
dog	subject	man	one	it-see-him
SUBJECT		OBJECT		VERB

'The dog saw a man.'

However, some Austronesian languages, such as Tolai, prefer the SVO patterns (Crowley: 1997, p. 141). The same sentence in Tolai has the SVO structure:

A	pap	i	gire	tikana	tutana.
the	dog	it	see	one	man
SUBJECT			VERB	OBJECT	

'The dog saw a man.'

(b) Relations between 2 Nouns/ Noun & the Verb (a.k.a. *Thematic Roles*):
These logical relations usually show how things relate to each other in space and are expressed through the so-called '*Cases of the Noun*,' a.k.a. ***Thematic Roles***. Thematic roles of nouns can be marked by noun case endings, as is typical in many Indo-European languages, through the use of prepositions, as is typical in English, or through both (case endings & prepositions). The meanings of possible relationships between nouns and verbs (thematic roles) include:

- **Agent**: Subject performs the action (Nominative case): Paul fries fish.
- **Source**: where the action originated (Genitive): Fish comes from the sea.
- **Goal**: what the action is directed towards (Dative): Paul gave the fish to his friends
- **Receiver** of Action: Direct Object of the verb (Accusative): Paul fries fish.
- **Instrument**: what is used to carry out the action (Instrumental): Paul stuffed himself with fish.
- **Location**: where the action occurs (Locative): Paul fries fish in the frying pan.

As you can see, it is the relationship between the noun and the verb in the nexus that determines whether the noun is the Subject of the Verb (agent) or the receiver of the action of the verb (its Direct Object) – this distinction is important in shaping the nexus of the sentence mosaic (Re: nexal patterns above).

Inflexional languages (those that express the logical relations between two nouns / between a noun and the verb in the nexus through noun endings)

typically distinguish six types of logical connections, expressed through the ***cases*** of the noun:

1. **Nominative** (naming the Subject, doer of the action): Men fight wars; Cats roam the streets; Cows give us milk, etc.
2. **Genitive** (this case, called *possessive* in English, shows from where the action originates, as well as part-whole relations between nouns/ possession): Men's sports; Mother's bag; fish from the sea; fruits of our labour, children of the city, days of the week, etc.
3. **Dative** (nouns in this case are the receivers of the product of the action of the verb/ indirect object; they also show movement towards that noun): from A to B; from the rich to the poor; we prayed for them; etc.
4. **Accusative** (receiver of the action; direct object): Dogs love bones; Students hate exams; Children ate the cakes; etc.
5. **Instrumental** (nouns in this case show that they are used as tools/ or that they accompany something else): to hit with the hammer; to go with friends; proceed with caution; etc.
6. **Locative** (showing the location of where the action takes place): to sit in class; to live in the city; to be in the game; to float on air; etc.

Thus, linear /syntagmatic relations between words and 'pieces of words' (such as endings or prefixes) shape the nexus of the sentence (SVO) and show their 'thematic roles' in the sentence, how nouns relate to each other (in terms of contiguity in space or time/ part-whole relationships/ causality) or to the verb.

5.4 Relations of Analysis

These are the associative relations between any one of the three major sentence constituents (Subject, Verb, or Compliment) and concepts that describe or name them. Three word functions express these associations:

- **Adjective** word function connects ideas by resemblance,
- **Adverb** function expresses contiguity in space/time or cause/ effect, and
- **Noun** function names concepts, based on all three principal associations (resemblance, contiguity, and cause/effect).

The ***functions*** of words in the sentence – whether they ***name*** the main sentence constituents or ***modify*** them – determine the relationships between them. These functions (Parts of Speech) are the same in all languages, since they reflect the universal mechanism of human thought, generalization. In live communication, word-meanings form 'chunks' of composite meanings – the mosaics of phrases and clauses.

Associating ideas by resemblance, contiguity in space/time, and cause/effect allows for an open-ended structural expansion of the main nexus pattern (S/V/C) through the sequential replication of nexal patterns /embedding of more and more details into any one of the three 'slots' of the preceding nexal pattern – ***recursion***; i.e.,

- ❖ I know that you know that he knows that she knows that we know – and so forth, ad infinitum.

- I met a young man from the city who met what he thought was a kitty; he gave it a pat and said, 'Nice little cat'… They buried his clothes out of pity.

Recursion shows how our minds make the resemblance, contiguity in space/ time, and cause/effect connections between word-meanings in sentence mosaics. To understand syntactic structures, it helps to use the logic of our thinking to see how the way we think is embodied in the sentence mosaics. This is the essence of generalizing syntactic analysis (G-nalysis).

G-nalysis identifies the logical connections between words/ groups of words through asking logical questions, i.e., What? Which? What kind? How? When? Where? Why? With what purpose? On what condition? With what consequence? etc.

The 'zoom-in lens' of analysis is made up of a group of words which act together as one adjective, adverb, or noun, inserted into one of the three 'slots' of the sentence mosaic. These 'zoom lenses,' depending on what they focus on, are called noun, adjective, or adverb phrases or clauses (Re: Appendix I for more examples). The embedding of these 'zoom-in lenses' (recursion) is typical of all human languages, because analysis is a vital part of all human understanding.

If a 'zoom lens' has its own nexus structure (Subject & Verb conjugated), it is a dependent clause. The sentence **'***I think, therefore I am*' has two nexus patterns, associated by cause/effect.

With what consequence?

5.5 Generalizing syntactic analysis (G-nalysis)

G-nalysis uses the universal principles of human understanding (generalization) to make sense of language structures. G-nalysis allows for flexibility of interpretation; it accommodates the idiosyncrasy of all human perception, which accounts for the inherent ambiguity of language.

G-nalysis seeks to discover the relationships between words and groups of words in the sentence by asking 'natural' questions. To make these relationships more vivid, it depicts them in sentence diagrams, where quadrangles represent independent nexus patterns, while triangles stand for dependent nexus patterns (Adjective, Adverb, or Noun clauses)

G-nalysis uses the *mechanism of meaning creation*, Generalisation, to identify the ways we ***connect*** and ***expand*** simple ideas into larger chunks of meaning – word-meanings, ***phrases*** and ***clauses*** (groups of word-meanings), and ***sentences***. Because this method of sentence analysis (g-nalysis) uses the way the human brain thinks naturally, it is really easy to understand, and use.

G-nalysis allows for flexibility in interpreting ambiguous structures (please see G-nalysis Practice at the end of this unit).

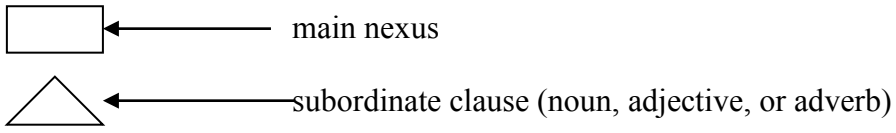
Recursion makes the Language/ Thought mechanism open-ended, allowing for infinite expansion of the 'skeletal' sentence meaning through embedding the 'zoom-in lenses' of phrases and clauses into the main sentence slots, i.e.:

This is the farmer sowing the corn
That kept the cock that crowed in the morn
That waked the priest all shaven and shorn
That married the man all tattered and torn
That kissed the maiden all forlorn
That milked the cow with the crooked horn
That tossed the dog
That chased the cat
That killed the rat
That ate the malt
That lay in the house that Jack built.

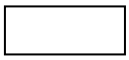
The Two Steps of G-nalysis:

1. The first step in G-nalysis focuses on identifying all S/V/C patterns present in the sentence.
2. The second step aims to determine the ***logical relationships*** between all the S/V/C patterns in the sentence. This is done through asking relevant questions (Re: Some examples of practical sentence analysis below).

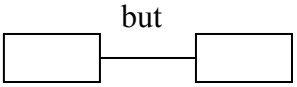
G-nalysis: Key Symbols



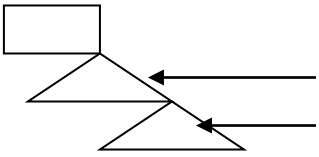
S V C_{zero}
(1) //All great truths / begin as blasphemies/ /.



S_1 V_1 $C_{1\ (DO)}$ S_2 V_2 C_{zero}
(2) //You / can twist / perceptions//, but // reality / won't budge//.

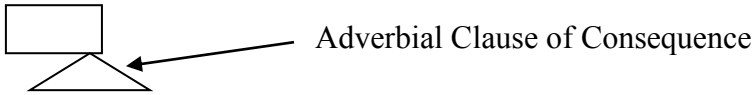


Which something? *Until when?*
S_1 V_1 $C_{1\ (PN)}$ S_2 V_2 $C_{2\ zero}$ S_3 V_3
(3) //Experience / is / something // you / don't get / until just after /you / need / it//.
$C_{3\ (DO)}$



With what consequence?

(4) //I / think //, //therefore / I / am.// ~ *Descartes*



S V $C_{(DO)}$

(5) //Drawing on my fine command of language, / I / said / nothing//.*

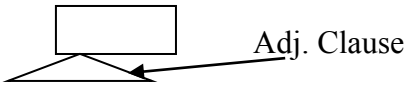
How?

* The adverb of manner phrase precedes the Subject.

Which everything?

S_1 S_2 V_2 V_1 $C_{1\ (PA)}$

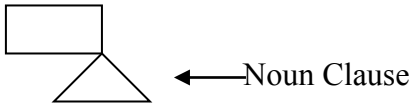
(6) //Everything // you / can imagine // is / real. // ~ *Picasso*



What?

S_1 V_2 S_2 V_2 $C_{2\ (DO)}$

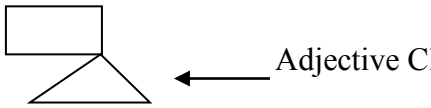
(7) //True knowledge / exists in knowing / that /you / know / nothing.// ~ *Socrates*



Which tracks?

$S_{1.1}$ $S_{1.2}$

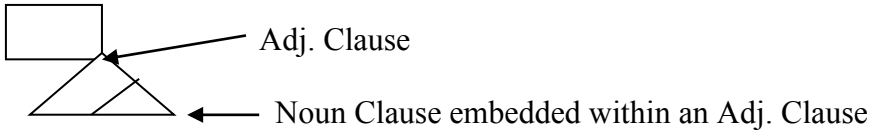
(8) // Knowledge and belief / are / two separate tracks // that / run parallel to each other and never meet, except in the child.// ~ *Godfried Bomans: Buitelingen II*



What?

Which apparatus?

(9) //Brain / is / an apparatus // with which /we / think / we / think.// ~ *Ambrose Bierce*



G-nalysis is flexible: it allows for ambiguity, so inherent in language. The functions of words and groups pf words (phrases and clauses) may be analysed differently, depending on one's perception / the kind of generalization one makes. In example (7), for example, the phrase *in knowing* can be analysed as

(a) ***Indirect Object*** (IO) in the compliment slot, if the question '(exists) *In what?*' is asked

or as

(b) An ***adverb of place phrase***, if the question '*Where?*' is asked instead; in this case, the complement would be analysed as zero.

This flexibility of G-nalysis reflects the fluid nature of 'live' meanings we create and perceive, as we 'play our language games'; it accounts for the indeterminacy of meaning (meaning as use) that Ludwig Wittgenstein and Bachtin wrote about. G-nalysis reflects the natural way we think / reason, which accounts for why it both enjoyable and easy to make sense of.

Activity 5.1

G-nalyse the following Tok Pisin sentences:

Olsem yu mekim bet bilong yu, na yu ken silip long em
Yu ken traim long haitim simuk tasol em bai kam aut yet
Taim ai i lukim, maus i mas pas
Olgeta man i no wankain long dispela graun, olsem na pinga tu, i no wankain
Wanem (h)ap ol [i] taitim /pasim kau, lo (h)ap em bai kai-kai
Wanem samtin ren i bungim, dispela samtin em wet / [em bai wetim]

Observe, how the cause/effect relationship between two clauses is rendered in different languages:

I think; therefore, I am.

Je pense; donc Je suis. [French]

Cogito, ergo sum. [Latin]

Nne aposi, eguko nne. [Telei of Southern Bougainville]

Na kotupunena, arare Na ara. [Zia, Morobe province]

Iau nukia, ba iau iau. [Tolai]

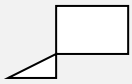
Saya pikir, mahanya Saya ada. [Bahasa Indonesia]

Ah de tink, so na mi. [Krio of Sierra Leone]

What conclusions can you make, based on this observation?

Some More Practical Sentence Analysis – G-nalysis

S V $C_{(DO)}$ S_2 V_2 $C_{2(DO)}$
When Emerson takes up the challenge, /*It's never been done before*/ becomes /*Consider it done!*

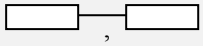


S_2 & C_2 are both *nouns* and *sentences* in their own right:
It (S_3) /has never been done before (V_3)/($C_{3(zero)}$)
[You] (S_4)/ consider (V_4)/ it ($C_{4(DO)}$) done {'done' answers the question *Consider how?* and is therefore an adverb of manner
Complex sentence structure

S V $C_{(PN)}$ (IO)
Specter's defection/ was /a bit of a solar plexus blow to the Republicans.

Simple sentence

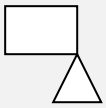
S V S_2 V_2
School/ will soon be in recess,/ final exams /are scheduled <u>to start in early June</u>.



Compound sentence structure

When is it like that?
S V S_2 V_2
It /is <u>like fixing a flat</u>/ when the whole truck/ is broken.

How is it?
(Adv. of manner phrase)

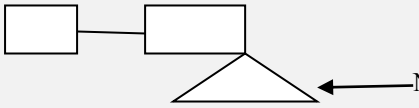


Adv. of Time
Complex sentence

What? Which light?
S V $C_{(DO)}$ S_2 V_2 $C_{2(PA)}$ S_3 V_3 $C_{3(IO)}$
We /are seeing /a light <u>at the end of the tunnel</u>, but /we/ are not /sure /it/'s not /an oncoming train!

That what?

but



Compound-Complex structure

Activity 5.2

G-nalyse the sentences below. Compare your g-nalysis with mine (look for it at the end of this unit)

1. Adjective clauses modify nouns and pronouns.
2. A clause is a group of words containing a subject and a predicate.
3. Synthesis and analysis of word-meanings creates complex meanings, expressed by sentence-mosaics.
4. Dialectical linguistics views language in all its complexity, interconnectedness, development and change.

Before engaging in more practical sentence g-nalysis, please ‘chew’ carefully, once again, on David Hume’s description of the ‘universal principle of connection’:

> Though it be too obvious to escape observation, that different ideas are connected together; I do not find that any philosopher has attempted to enumerate or class all the principles of association; a subject, however, that seems worthy of curiosity. To me, there appear to be only three principles of connexion among ideas, namely, Resemblance, Contiguity in time or place, and Cause or Effect.
>
> That these principles serve to connect ideas will not, I believe, be much doubted. A picture naturally leads our thoughts to the original: [1] the mention of one apartment in a building naturally introduces an enquiry or discourse concerning the others: [2] and if we think of a wound, we can scarcely forbear reflecting on the pain which follows it. [3] But that this enumeration is complete, and that there are no other principles of association except these, may be difficult to prove to the satisfaction of the reader, or even to a man's own satisfaction. All we can do, in such cases, is to run over several instances, and examine carefully the principle which binds the different thoughts to each other, never stopping till we render the principle as general as possible. [4] The more instances we examine, and the more care we employ, the more assurance shall we acquire, that the enumeration, which we form from the whole, is complete and entire.
>
> [1] Resemblance.
> [2] Contiguity.
> [3] Cause and effect.

[4] For instance, Contrast or Contrariety is also a connexion among Ideas: but it may perhaps, be considered as a mixture of Causation and Resemblance. Where two objects are contrary, the one destroys the other; that is, the cause of its annihilation, and the idea of the annihilation of an object, implies the idea of its former existence.

Analysis is the ‘opposite’ of Synthesis. Together, these opposites make one whole

GENERALIZATION

Summary

1. **Syntax** – arrangement of words in the sentence
    a. The **Sentence** – saying something *about* something
    b. The **Subject** – what we speak about
    c. The **Predicate** – what we say about the Subject
    d. **Parts of Speech** – functions of words and groups of words in the sentence
    e. **Phrases** – groups of words that function together as 1 part of speech; no nexus structure
    f. **Clauses** – groups of words with nexus structure that function as one part of speech (Noun, Adjective, or Adverb)
2. ***Synthesis*** & ***Analysis*** together are ***generalisation***; since the words and sentences of language are generalisations, languages structures embody ***Synthesis*** & ***Analysis***
3. ***Relations of Synthesis***: syntagmatic; (a) nexus; (b) 'thematic roles' of nouns in the nexus in relation to the verb /each other
4. ***Relations of Analysis***: associative; associations by resemblance, contiguity & cause/ effect; associative relations allow for recursion.
5. ***Recursion*** – the potentially unlimited extension of language structures by embedding phrases and sentences into other sentences; it shows how ***generalisation*** can generate an infinity of ideas through the ***synthesis & analysis*** of word-meanings
6. ***Generalising*** **Sentence Analysis** (***G-nalysis***) aims to identify S/V/C patterns and determine how they relate to each other (how they function, or what they do in the main sentence).

Reading

10. On Tok Pisin Grammar

References

Crowley, Terry. *An Introduction to Historical Linguistics*, 3rd ed., Oxford Univ. Press, 1997

Hume, David. An Enquiry Concerning Human Understanding, Section III – Of the Association of Ideas. http://18th.eserver.org/hume-enquiry.html & http://18th.eserver.org/hume-enquiry.html#3 (27/06/2008)

Notes on Basic Grammatical Terms & Concepts

(1) What are Parts of Speech?

Syntax, or the arrangement of words in the sentence, is determined primarily by word *functions,* otherwise called *Parts of Speech.* So Parts of Speech are really the *functions* of words, phrases, or whole clauses within the larger context of the sentence. We can use words (or groups of words) in different ways:

	Function	***Questions they answer***
Nouns	name things	(***What? Who?***)
Pronouns	stand instead of nouns	(***What? Who?***)
Adjectives	describe (modify) nouns	(***Which? What kind?***)

[RESEMBLANCE]

Verbs name actions or states of being; apart from *naming* actions, they carry in them the meaning of time:

> A **verb** is that which, in addition to its proper meaning, ***carries with it the notion of time*** … It is a sign of ***something said of something else*** (Aristotle).

Adverbs modify/ describe verbs (***How? Where? When? Why?*** etc.)

Conjunctions join similar grammatical items (words, phrases, clauses, etc.)

Prepositions show relative 'positions' of things in space and time [CONTIGUITY]

Interjections expressions of feelings and attitudes interjected, or 'thrown into' the midst of a clause (they are our 'raisins in the cake')

Word-meanings in all languages have ways of doing these eight 'jobs' and, *depending on* ***what they do*** in the sentence, they will function as one or another part of speech:

Parts of Speech are the functions of words in the sentence.

Some words may have only one function (for example, *and* as a conjunction). Others may be used in different ways (for example, *fancy*, which is a noun in the phrase *'flights of fancy'*, a verb in *'Fancy that!'* and an adjective in *'a fancy hat'*). Some other examples:

A characteristic *feature* (noun)
To *feature* in a film, etc. (verb)
A *feature* film (adjective)

Ann came in *early* (adverb)
She is an *early* bird! (adjective)

The divide between the *rich* and the *poor* is growing wider (nouns)
The *poor* people get poorer, whereas the *rich* elite get richer (adjectives)
Figure of speech (noun)

It is difficult to *figure* out his meaning (verb)
Figure skating (adjective)

The killer *bicycles* away (verb)
Barack Obama gave a '*get-down-to-business*' speech (adjective)

Most of these are examples of single words doing different 'jobs.' However, *groups of words* can also 'team up' and work together as one unit, fulfilling one function (Re: the 'Barack Obama' speech example, where 4 words are used as one *adjective*, to describe the *kind* of speech he gave). Groups of words working together as one part of speech are called ***phrases*** or ***clauses.*** What are they? We already know that both are groups of words. The difference between them is structural: phrases do not have their own subject-predicate patterns, whereas clauses do.

(2) What is a Sentence?

A sentence is not just any group of words, such as 'beyond high mountains and deep blue seas,' for example; it's **a group of words that *says something about something***. For example, '*I breathe*' is a sentence, because it says something about me.

A sentence, then, has 2 parts: **what we speak *about*** (its **Subject**) and **what we say *about* the Subject** (the **Predicate**, or the verb together with all the words that go with it). In the examples below, the Subjects are in bold, and the Predicates are underlined:

Every word of language is a generalisation.
Every sentence (*thought*) is a generalisation.

(3) Basic Sentence Pattern (S/V/C). In English, most declarative sentences follow the S/V/C pattern: the **Subject** + its modifiers (**what we speak about**) fill the first slot / the **Finite Verb** and its modifiers fill the second slot / and **Compliment** (optional) takes the third slot (S/V/C).

Linguists usually refer to the third sentence component as Object (S/V/O). We will call it Compliment, because objects are not the only things that can fill that third slot:

1. **Zero Compliment**: I breathe. I think.
2. **Predicate Adjective** (PA): Life is interesting. Work is hard.
3. **Predicate Noun** (PN): Life is hope. Knowledge is Power.
4. **Direct/ Indirect Object** (DO/IO): Peter fries fish for his friend.

Together, the Verb and the Compliment make up the Predicate, or what we say *about* the Subject. The 'heart' of the predicate is the ***finite verb***,[10] which may be separated from its Subject by modifiers (other words, phrases, or even clauses). It is important that the Subject-Verb Agreement is maintained despite the intervening words: without

[10] ***Finite Verb*** is a verb *defined* by its Subject (it has the Subject's number and person, because it about its Subject: I am, You are, He is, We are, They are, etc.)

the Subject-Verb Agreement the sentence becomes ungrammatical (as in 'Mary, a girl in my class, am clever'). Another example:

S / V / C (PN)
Ignorance / is / the mother of devotion. (Robert Burton)

Reminder:

Subject is what we speak about and ***Predicate*** is what we say about the subject (V/C).

The ***subject*** of the sentence is the thing we talk about with all its modifiers, e.g.:

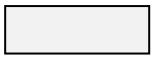
The definition of experience *is knowledge acquired too late.*

The ***predicate*** is made up of the finite verb (expressing action performed or received by its subject), together with all the words that go with that verb:

The definition of experience ***is knowledge acquired too late****.*

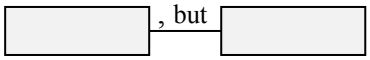
(4) Four types of sentence structure:

⇒ ***Simple:*** one S/V/C pattern: ***All great truths begin as blasphemies****.*



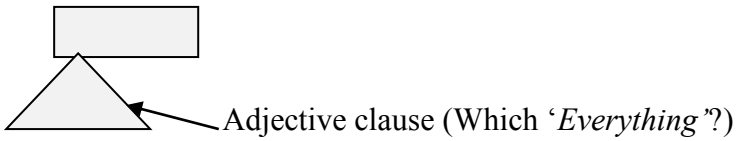
⇒ ***Compound:*** two or more S/V/C patterns (simple sentences), joined by a conjunction:

You can twist perceptions, **but** ***reality won't budge.***



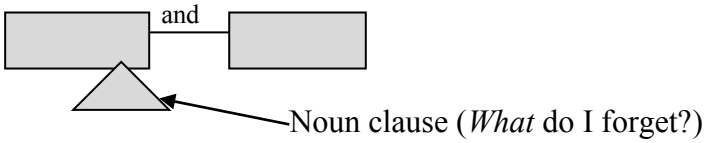
⇒ ***Complex:*** one main clause plus one or more dependent clause(s):

Everything you can imagine is real.



⇒ ***Compound-complex:*** at least two main clauses and one or more subordinate clauses:

But I forget what I to say so wanted
And fleshless thought dissolves in other shadows…



(5) What is the Difference between Phrases and Subordinate Clauses? Both are groups of words that function as one part of speech (a noun, an adjective, or an adverb). In order to understand and diagram sentence structure correctly, we must be able to *recognize* clauses and differentiate them from *phrases,* which are not shown in our schematic clause diagrams.

The difference between them is *structural*: clauses have their own S/V/C pattern; phrases do not:

It is a mark of an educated mind *to be able to entertain a thought without accepting it*

(Aristotle)

N.B.: The phrase '*without accepting it*' is an adverb modifying the infinitive verb 'to entertain' within the framework of the larger phrase '*to be able to entertain a thought without accepting it*' which *names* that thing that the 'mark' is. Neither of these phrases has an S/V/C pattern.

$/S_1/$ $/S_2/$ $/V_{2.1}/$ $/C_{2.1}/$ $/V_{2.2}/$ $/C_{2.2}/$ $/V_1/$ $/C_1/$
A man, *who has made a mistake and doesn't see it,* is making another mistake.

(Confucius, 'Success and Failure')

Here the clause *who has made a mistake and doesn't see it* is an Adjective describing the noun 'man' in the main clause.

(6) The Difference between the Main and Subordinate Clauses:

***Subordinate* clauses** may function in three ways within the sentence mosaic:

⇒ ***Noun clauses*** name something/somebody in the main clause, i.e.:

The most incomprehensible thing about the world is that it is comprehensible (Einstein)

⇒ ***Adjective clauses*** modify (describe) nouns in the main clause, for example:

The person who knows how to laugh at himself will never cease to be amused.

⇒ ***Adverb clauses*** describe actions in the main clause, i.e.,

'We *don't see* things as they are. We *see* things as *we* are.' (Anais Nin)

Main clauses have no such function; they are generalizations, correlating what they speak about with what they say about it (the Subject with its Verb and all the words that go with it):

⇒ 'I hear and I forget. I see and I remember. I do and I understand.' (Confucius)

(7) What is the Finite Verb? The finite verb is a verb that has a Subject which defines its form (*number* and *person*). Subject-Verb Agreement (conjugation, 'tie'

between them) is what makes a sentence. Examples of some common verb **conjugations** (= the 'tying together' of the Subject and its Verb):

Number / Person	Singular	Plural	Singular	Plural	Sing.	Plural
1st	I am	We are	I do	We do	I have	We have
2nd	You are	You are	You do	You do	You have	You have
3rd	He/she/it is	They are	He/she/it does	They do	He has	They have

Table 1 Verb conjugation

(8) What is the Infinitive Verb? Infinitive verbs have no Subjects (or *doers*; they are just names of actions, as listed in dictionaries). Since they only name actions or states of being, they function as nouns, *names* of actions /states of being. They are usually preceded by the particle 'to' when used in sentences, except after modal verbs (can, must, may, might, could, should, would, etc.). Example (infinitives are in italics):

A diplomat is someone who can ***tell*** you ***to go*** to hell and ***make*** you happy ***to be*** on your way.

(9) What are Modal Verbs? Modal verbs do not express ***concrete*** actions; their meanings are ***abstract*** – they express our ***attitudes*** (what we think or feel about a situation), i.e., '*They should not have gone'* or '*They might get angry*.'

Our attitudes and opinions may concern:

Ability to do something – **can / be able / manage**

He can be very persuasive.
We were able to breathe under water.
He manages* to resist the temptation every time.

Advisability of something – **should/ ought to**

We should go now, it's getting late.
He ought to know better than take silly risks.

Obligation /necessity – **must/ have to / need to**

We must follow the law here.
They have to follow the rules.
I need* to see the doctor / Need we go there? / He need not wait.

****Need*** can be used as an ordinary verb, meaning 'must have': *I need a new car*, etc.

Possibility/ likelihood – **could / can / might / may**

He could be there.
He may not come.
They might not come.

Permission – **can / may**

You may sit down now.
You can go now.

Requests – **can / could / will / would**

Can you sit down, please?
Could you do it for me?
Will you keep quiet, please?
Would you please leave now?

(10) What are the Auxiliary Verbs? Auxiliary means 'helping'; auxiliary verbs are verbs like DO, BE, and HAVE. Apart from their 'concrete' meanings, they also help us form:

1. **Negatives**: I do not see how we can do it.
2. **Questions**: Does he want to go?
3. **Complex verb tenses**, indicating continuing or completed aspects of the action: to *be* waiting / to *have* waited / to *have* been waiting

(11) Compounding. Compounding means joining two or more *similar* items by conjunctions 'and,' 'or,' 'but,' 'either … or,' and 'neither … nor.' These conjunctions are often used to join **equal grammatical constructions** – subject and subject, object and object, adjective and adjective, verb and verb, etc. Whatever grammatical construction appears before one of these words should also appear after it.

(12) Ellipsis. Ellipsis is simply the omission of understood words in a sentence (also called *omission*, *reduction* or *implication*). For example,

[You] Help! [me] or [You] Put your thinking cap on [your head]!

(13) English Verb Tenses: Sentence analysis involves identifying the S/V/C patterns in sentences, and trying to figure out how all the words relate to each other / what 'jobs' they do. This means that we must be good at recognizing verbs, even when they are made up of several words (as in the complex tenses). Please review the structures and grammatical meanings of the various tenses of English verbs:

1. **Simple**
   - **a.** Present Simple: regular, habitual actions; 2 forms: the base form and the '-s'-form (after 3rd person singular subjects)
   - **b.** Past Simple: regular & irregular verbs, expressing non-specific actions in the past
   - **c.** Future Simple: Auxilliary BE forms (will/shall) + base form of the verb; refer to any future actions.

2. **Continuous**: **BE + Present Participle** (*-ing*-form of the verb), i.e., I am working, You are working, He is working, etc.; I was working, We were

working, etc.; I will be working, We shall be working, etc.; Continuous tenses express ***continuing*** actions at a point in time (Present, Past, or future)

3. **Perfect** Tenses relate two actions; the result (effect) of the first action is present (felt) at the time of the other action, i.e., I have seen this man before, We had expected this to happen, They will have arrived at 4 pm, etc.; The general 'formula' for the Perfect tenses:

   HAVE + Past Participle

4. **Perfect Continuous**: a 'cross' between the Perfect and Continuous tenses: they refer to completed actions at a point in time, but emphasize their duration (the time that they took happening), i.e., 'We *have been waiting* for you,' etc.

   The general 'formula' for the Perfect Continuous tenses:

   HAVE + BEEN + Present Participle

(14) Passive Voice of the Verb: The **Direct Object** of the verb's action becomes the **grammatical Subject** of the Verb:

		We will be told to leave
Simple:	BE + Past Participle	We are told to leave
		We were told to leave
Continuous:	BE + being + Past Participle	We are being told to leave
		We were being taken for fools!
		We will have been taken for fools
Perfect:	HAVE + BEEN + Past Participle	We have been told to go
		We had been taken for fools!

The Future Continuous verbs are rarely used in the Passive; Perfect Continuous constructions, likewise, become too clumsy to be used in the Passive Voice.

The Passive is used when the doer (subject) of the action is either not known or is unimportant/ irrelevant: the focus shifts to the action *per se*. For example,

A car ***is stolen*** every minute in big cities.
Water ***is added*** to the mixture, etc.

(15) Grammaticality refers to the perceived '*correctness'* of the form of an utterance, based on social habits of word use.

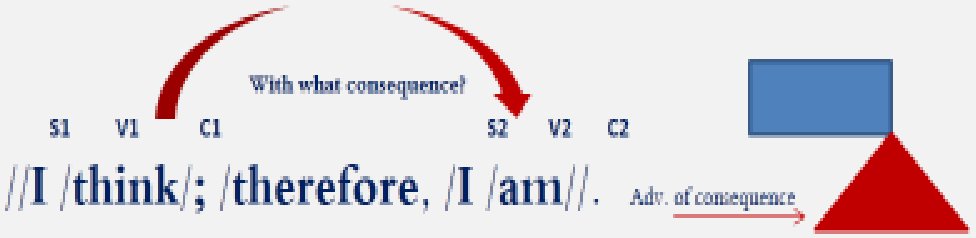
(16) Ambiguity (both lexical and structural) refers to the *uncertainty of meaning* of an otherwise grammatical utterance.

G-nalysis Practical (Examples & Practice)

G-nalysis focuses on how **words & groups of words** function together in the nexus of the main sentence; 2 steps:

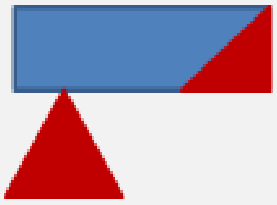
- ID all nexal patterns
- ID clause/phrase/word functions through the WA view of the whole, and asking 'common sense'/ logical questions about its parts

Diagram nexal patterns (independent ; dependent)



//All /who were there/saw /what /happened//.

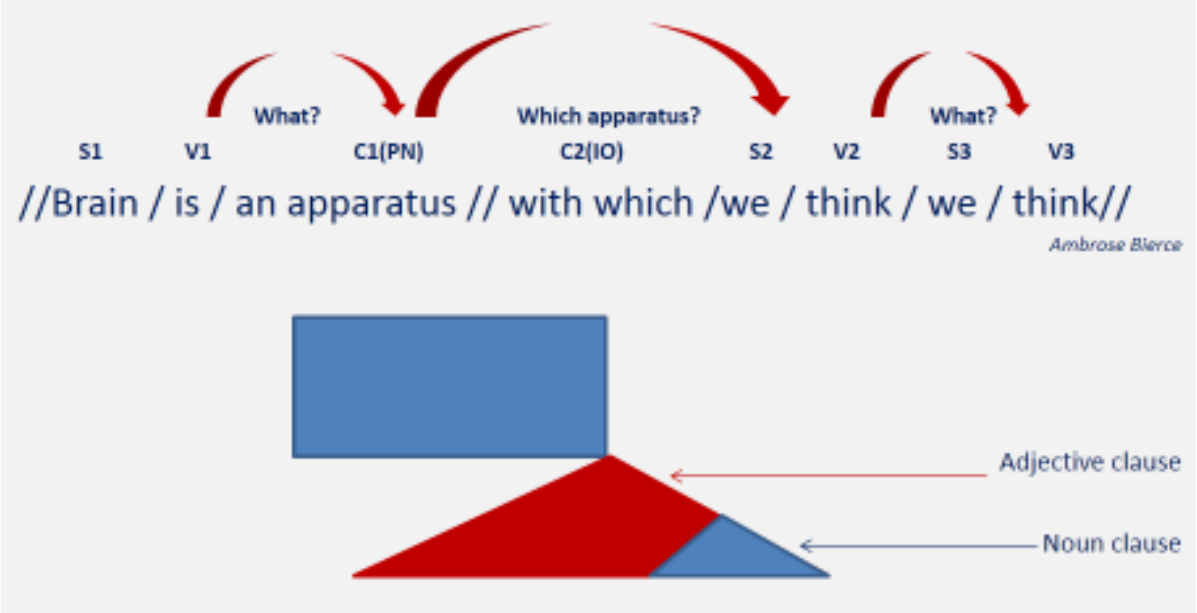
S/V/C # 1: All saw [what happened]
S/V/C # 2: Who were there
S/V/C # 3: what happened

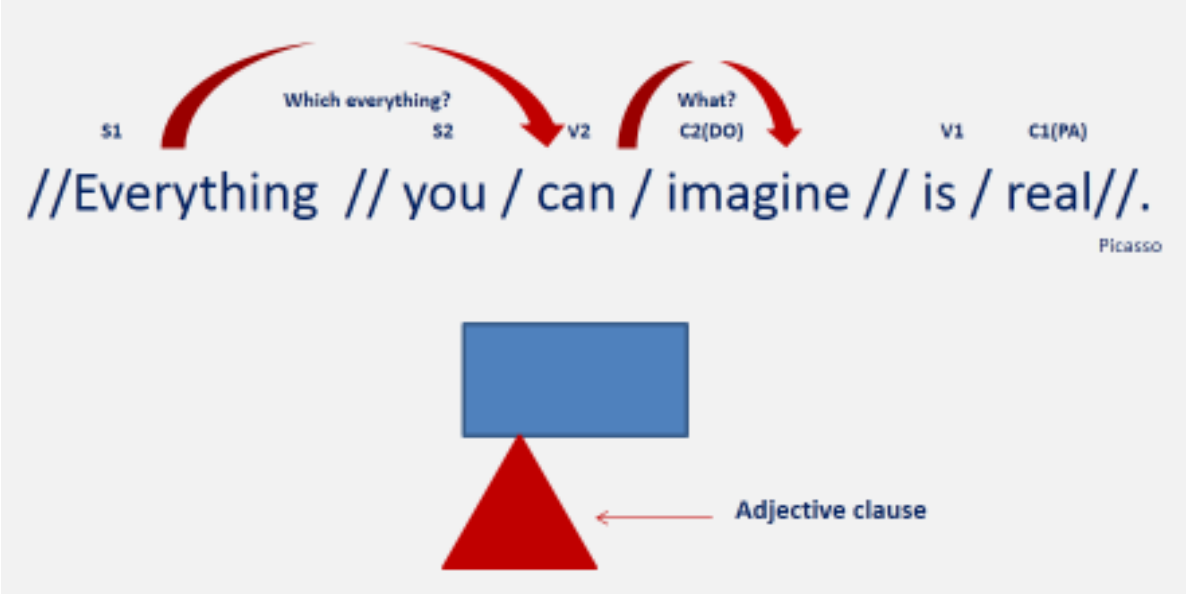


Main S/V/C: All saw what happened.

Dependent SVCs:

- who were there = Adjective clause (describes 'All')
- what happened = Noun clause (names what all saw)





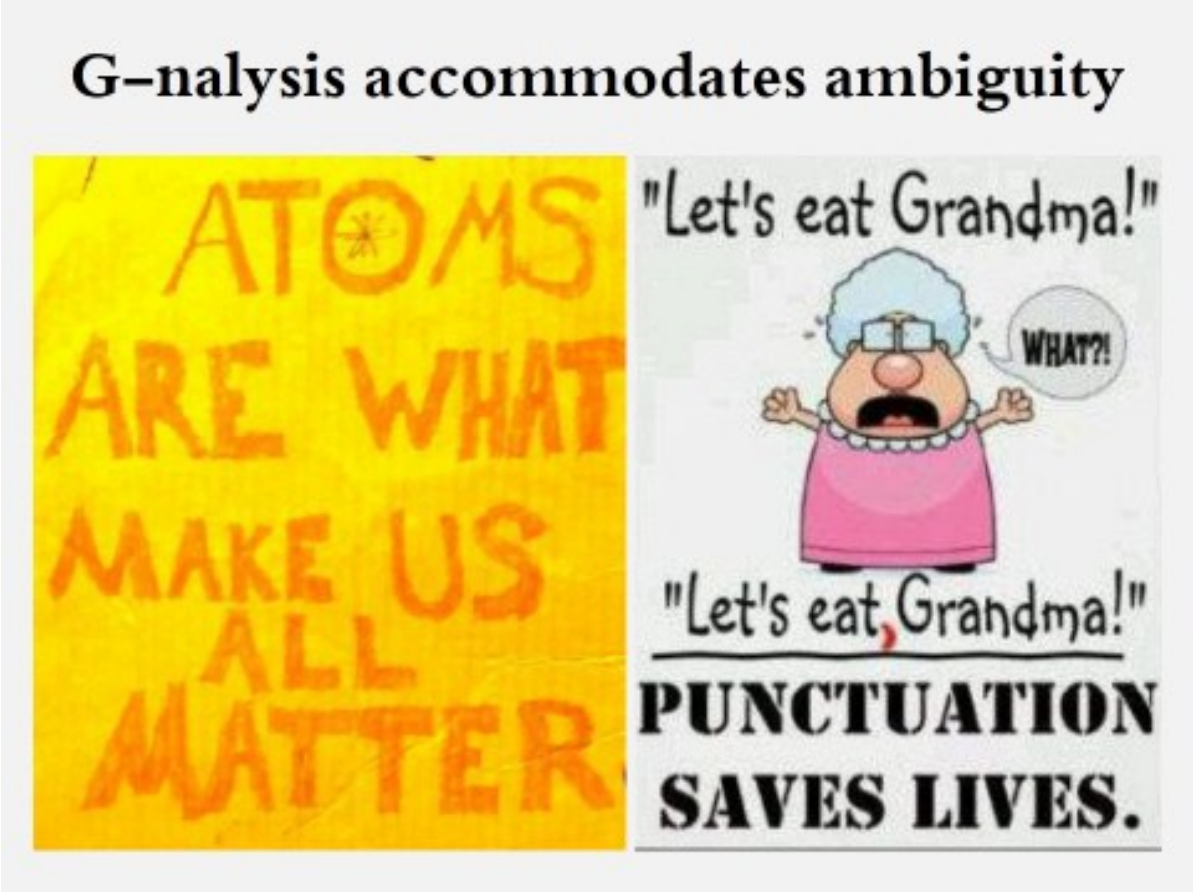
G-nalysis can capture ambiguity:

Which books? – on volcanoes (Adj, phrase)

S V $C_{(DO)}$
// Alice / reads / books on volcanoes //.

S V $C_{(DO)}$
// Alice / reads / books on volcanoes //.

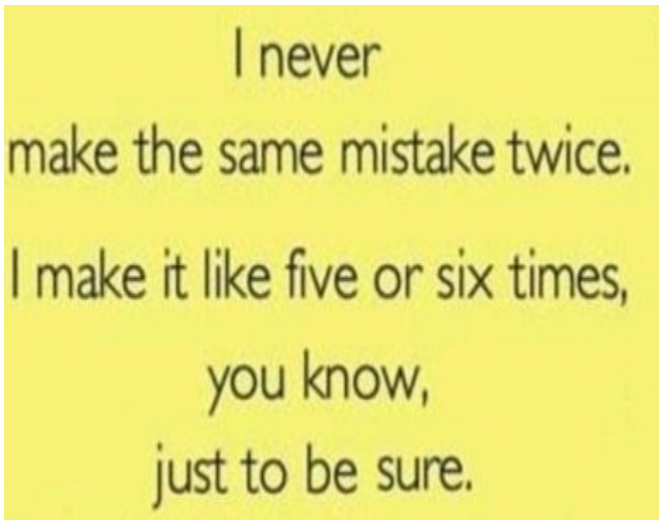
Where does she read? (Adv. Of place phrase)



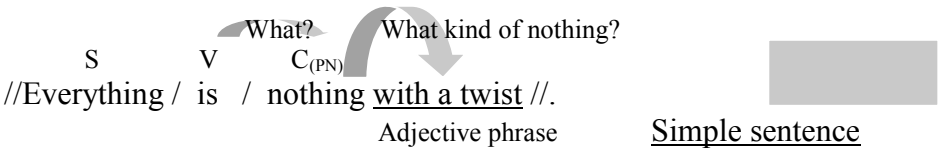
G-nalysis Practice
Try to analyze any of the sentences below:

1. Everything is nothing with a twist.
2. I never make the same mistake twice; I make it like five or six times, you know, just to make sure.
3. Be where you are; otherwise, you risk missing your life. (Buddha)

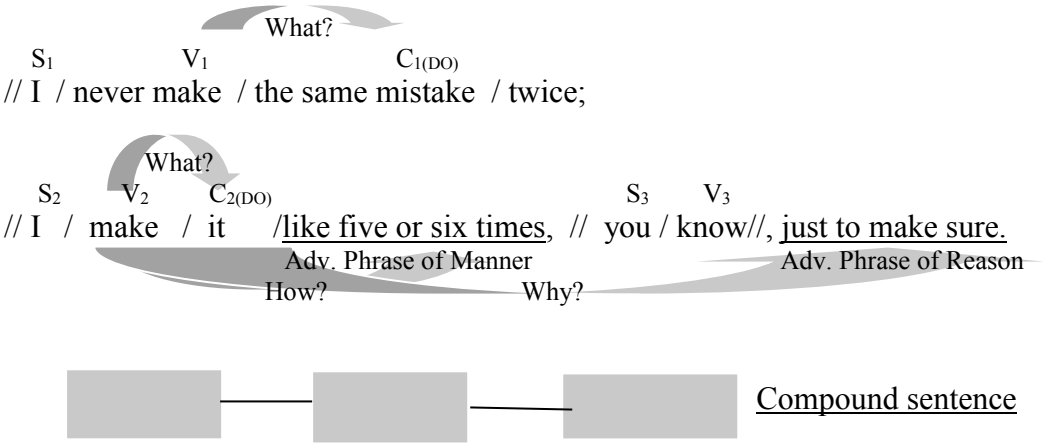
Compare your analysis with mine on the next page. Can you logically explain/ defend your G-nalysis?



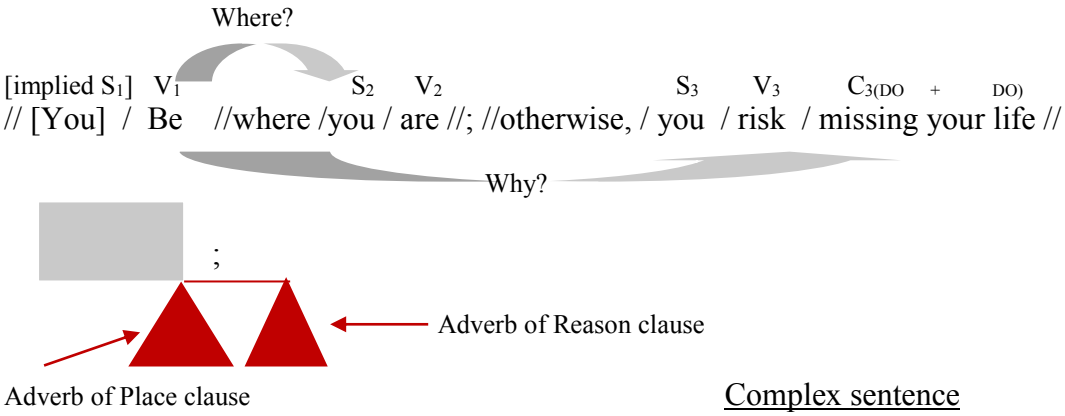
My G-nalysis:



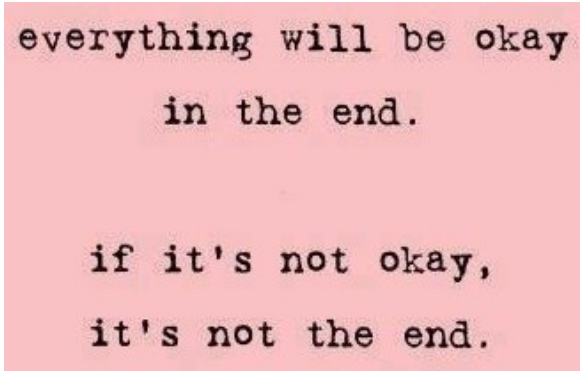
Simple sentence

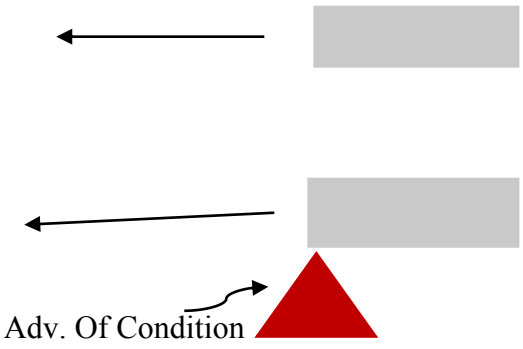


Compound sentence

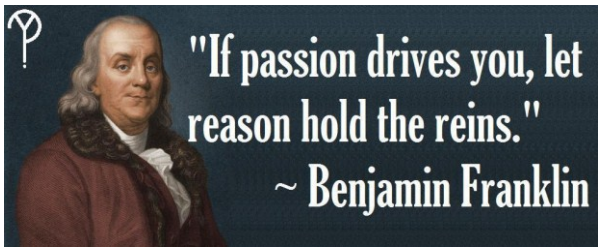


Complex sentence





Simple sentence w/ embedded Adj. phrase ('of your imagination)



Adverb of Condition

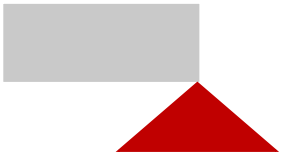
Complex sentence

Simple sentence with an embedded Adjective phrase 'of quality', describing the Subject 'men':

Simple sentence

Below is a complex sentence:

Subject:	Arguing with a fool (adjective phrase)
Verb:	proves (+ adverb of manner 'only')
Complement:	Direct Object (Noun Clause)



Readings

5. Language 'live'
6. In Defence of Dialectical Lx

Unit 6: Morphology – Words & Pieces of Words

Objectives

After completing this unit, you will be able to

1. Define the concept ***morphology***
2. Define the concept ***morpheme*** vs. ***word***
3. Describe the characteristic features of morphemes
4. Describe different types of morphemes
5. Describe the principles of English word structure
6. Describe various word formation processes

6.0 Introduction

Up until now we have been dealing with the 'whole' of Language, examining how it functions through the use of word-meanings in social communication. We are now going to dissect these smallest units of Language (word-meanings) and examine their ***parts***, the bits and pieces of words, called ***morphemes***. What are morphemes? How are they different from word-meanings, the smallest units of Language? What do they do? How do they form word-meanings, and how do we classify different kinds of morphemes? Let us now look for answers to these questions.

6.1 What Is Morphology?

Morphology is the study of forms (*morphs*) which looks at the structural make-up of words. Morphology breaks the smallest unit of Language – word-meaning – into its meaningful parts, morphemes, and focuses on how languages build words out of them. This synthesis of morphemes into words is not haphazard – every language system has its own 'word-building rules' (just like they have sentence-building rules). It is the knowledge of these rules of synthesis that enables us to understand words that we have never heard before, and to create new ones.

Look at some unusual words and expressions, all from recent TV programmes – see if you can understand what they mean:

Growingly, hotels are accommodating women travellers.
Untangle, uncomplicate, unwire your life! (Use InTel technology! ☺)
'We had some difficulty in operationalizing it with Turkey' (Powell).
A subwar between the Turks and the Kurds
There is a risk of flood defences being overtopped by the surge
They'd outfaxed all the reporters
McCain had outraised Obama there
Iran has conducted these in-your-face navy exercises in the Persian Gulf… Should we be worried about this warmupmanship?
Techsperts (= tech experts)
Obama certainly wowed the crowds in Strassburg
Sharp-shooters on board ships would deincentivize the pirates (CNN,16/04/09)
I had this is-it-really-happening-to-me kind of moment (words of a pirated sailor)

We are able to make sense of them, because they follow English word-building rules, unlike non-words like *runnity, *funner, *schoolship, *bigly, *shoppest, *tablable, *manling, etc.

What we have in our heads is the knowledge of the building-blocks (morphemes), and of how to *put them together* into words. We use morphological rules to build all kinds of words – simple, as well as complex 'high-rise' structures, made up of several levels (i.e., *my mother-in-law's house, George the 6th's Throne, the editor-in-chief's role*, etc.). The output of one rule can be the input to another, or to itself. This enables us to create unlimited numbers of words without overloading our memory.

Morphological analysis helps us understand how we create brand-new word-meanings out of 'bits and pieces' of words. It explains why you 'get' the meaning of '*insuperior*' or 'downsizable' and why it is that we can say

- Great → greatly, huge → hugely, but not big → *bigly* or red → *redly*;
- Laugh → laughable, but not smile → *smilable*;
- Eat → eatable, drink → drinkable, but not sip → *sippable*.

Activity 6.1

Morphological analysis helps us understand how we create brand-new word-meanings out of 'bits and pieces' of words.

1. Can you 'get' the meaning of '*insuperior*' or 'downsizable'?
2. Why is it that we can say *great* → *greatly*, huge → hugely, but not *big* → *bigly* or red → redly? *Laugh* → *laughable*, but not *smile* → *smilable*? And why can we say, eat → eatable, *drink* → *drinkable*, but not *sip* → *sippable*?

Now, what are these word-building blocks, *morphemes*?

6.2 Words & Morphemes

Literally, the word '*morpheme*' means an '***element* in a system of forms**.**'** They are 'pieces' of words that have meaning. Language works because we associate ***forms*** with ***meanings***. A form can be any kind of physical structure. It is easy to think of the letters on a page as shapes or forms, but what about spoken words? Think of the sounds of 'arm' and 'chair.' The two words sound different, just as they look different when written down. From the point of view of our ears, these two words have different shapes, or *forms*. Each different form evokes a different meaning.

If we say '*arm*' and '*chair*' together, their meanings fuse into one word-meaning (*armchair*); the two 'parts' of '*armchair*' are separate word-meanings, but *together* they fuse into a new word-meaning.

'Hang on a minute,' you may say, 'isn't that what happens when we put words together in a sentence? Their meanings also blend into one chunk – ***meaning-as-use***?' Indeed – that is why Bhartrhari, the Indian scholar of the 7th century AD, regarded the whole ***sentence*** as a ***unit of meaning***, 'conveying its meaning *in a flash*, just as a picture.' If both ***morphemes*** and ***word-meanings*** are forms associated with meaning, then what's the difference between them?

Word-meaning, as we remember, is the smallest unit of language that has all of its properties intact: each word-meaning is **socialised thought in the form of sound;** it **exists *in time*** and **changes *in use.***
If words can be made up of any number of 'meaningful pieces' (as in *down-to-earth*, *understatement*, or *multitasking*, etc.), how do we know then when we have a word? *Bus stop*, *web site*, *power outage, mock exam* – are these pairs of words, or just words?

Descriptive linguists define ***word*** as a ***minimal free form***. This implies that it is a sound sequence which is ***uninterruptible***[11] and ***mobile*** (i.e., *banana* cannot be interrupted – you cannot say, **ba-green-nana* or **bana-yummy-na*. The sequence *banana* can also freely move about in the sentence, as in:

This banana is green.
Peter ate a banana.
We use banana leaves to wrap mumu, etc.

Words can be made up of one or of many morphemes. In fact, most long words in English can be broken down into smaller 'pieces of meaning'. The longest word in English (according to Webster's Unabridged Dictionary) contains 45 letters and can be broken down into 9 morphemes:

Pneumonoultramicroscopicsilicovolcanoconiosis

lung, respiration beyond small look Adj. silicon volcanic dust N condition, result

'a lung condition caused by the very small-looking particles of volcanic silicon dust'

Morphemes are different from words, because they **are *not necessarily free***; many of them cannot stand on their own, and only acquire their meaning when fused with other morphemes. Look, for example, at the –***s*** morpheme, which can mean the plural of a noun or the 3rd person singular form of the verb:

1 apple	2 apple***s*** (book***s***, thought***s***, etc.)
I read	She read***s***, look***s***, think***s***, etc.

By itself, the sound [***s***] has NO meaning! That is why ***morpheme*** is often defined as a "**minimal unit of *meaning* or *grammatical function***" (Yule: 1998).

[11] This 'uninterruptibility' principle is challenged by '**infixes**' (i.e., *a-whole-nother* matter, etc.; these are rare in English, but quite common in many other languages – Re: Section 8.4)

However, every **grammatical function has its meaning** (albeit more abstract), i.e., the grammatical meanings of verb tenses, the order and manner of connecting words and pieces of words into larger patterns also create meaning, as we remember from Unit 5, etc. This is why we will use a simpler definition:

Morphemes are minimal units of meaning

This definition is 'stretchable': it covers all kinds of *forms* (free and not free, sound / visual), and all kinds of *meaning* (concrete, as well as the more abstract grammatical meanings).

Recognising Morphemes

In theory, there is no limit on the number of morphemes in a word. It is only our breath and memory that limit their number!

Linguists identify morphemes by comparing many utterances and looking for sequences which are partially the same. For example:

The	anti-war	frog	croak-***ed***	tender-***ly***	***and***	jump-***ed***	for-***wards***
The	pro-choice	chicken	squawk-***ed***	loud-***ly***	***and***	strutt-***ed***	back-***wards***

Partial similarity between these sequences enables us to isolate sequences ***-ed***, ***-ly***, and ***–wards,*** as well as '***the***' and '***and***.'

In Turkish, partial similarity between *adam**lar*** and *kadin**lar*** enables us to isolate the plural suffix: *'**-lar,**'* and the words *adam* (man) and *kadin* (woman).

In Swahili, the overlap between **ni*ta****soma* (I will read); **ni*li****soma* (I read – past tense); **u*ta****soma* (you will read); **u*li****soma* (you read – past tense) enables us to identify ***soma*** 'read'; ***ni*** 'I'; ***u*** 'you'; ***ta*** (future tense); and ***li*** (past tense).

Not all morphemes are as easily 'segmentable' as these examples, but the identification of morphemes is done wholly by means of this basic technique of isolation through the comparison of partially similar sequences.

Activity 6.2

Do the concepts of ***word*** and ***morpheme*** overlap? If yes (or no), then why/ how?

6.3 Characteristics of Morphemes

Morphemes have four defining characteristics:

⇒ They cannot be subdivided
⇒ They add meaning to a word
⇒ They can appear in many different words
⇒ They can have any number of syllables.

Let us look at each of these features:

1. Morphemes cannot be subdivided and retain the same meaning

By definition, morphemes are the smallest *meaningful* forms of language. If you try to divide a morpheme into smaller pieces, all you will get are sounds. The individual sounds of language do not have a meaning by themselves – they have to be combined with other sounds before they have meaning. For example, we can break the morpheme '*cat*' into its component sounds (/k/, /æ/, and /t/), but none of them by themselves convey any meaning. They all have to be put together – in just the right order – to create the meaning 'feline animal.' If arranged differently, they would create other meanings: [ækt], or [tæk]. These patterns of sounds convey different meanings and therefore they make up different morphemes.

2. Morphemes add meaning to a word

Each morpheme contributes to the overall meaning of the word, but not in equal measure – some affect the overall meaning more than others. In your opinion, which morphemes have more effect on the overall word meaning in the examples below?

arm + chair = armchair	arm + s = arms	chair + s = chairs
tool + bar = toolbar	tool + s = tools	bar + s = bars
gate + way = gateway	gate + s = gates	way + s = ways
school + girl = schoolgirl	school + s = schools	girl + s = girls
sea + horse = seahorse	sea + s = seas	horse + s = horses

3. Morphemes can appear in many different words

Morphemes are *recyclable.* If you know the meaning of the morphemes, you can 'crack' the meanings of even unfamiliar words quite easily, because the same morphemes show up over and over again in many different words. Once you've learnt the meaning of a morpheme and the knack of spotting it in slightly different forms, you'll know something about all the words that use it. Take, for example, the Latin morpheme *duc* (lead, draw, pull) - look at some words that use it:

re*duc*e	'to *pull* back';	de*duc*e	'to draw away from'
se*duc*e	'to lead apart';	pro*duc*e	'to pull forward'
in*duc*e	'to lead into'	con*duc*t	'to lead together'

Another example is *ped* 'foot' – also from Latin:

pedal	'pertaining to the foot'
pedestrian	'one who uses his/her feet for transportation'
pedigree	< Old French *pied de grue*, or Crane's Foot
biped	a creature with two feet
expedite	'to free the feet' = to speed up progress
impede	to have something in the way of one's foot (to slow down)

4. Morphemes can have any number of syllables

Don't confuse morphemes with syllables:

A syllable is a unit of *sound*; a morpheme is a unit of *meaning*.

Some morphemes have several syllables, i.e., 'hurricane,' 'banana', 'tornado,' while others don't even form a syllable: *cats* = 2 morphemes, *cats'* = 3 morphemes in a

single syllable! Although possessive ['] is shown in writing, it is not even pronounced! However, the morpheme clearly exists in that word, because the words *cats* and *cats'* have different meanings (that apostrophe adds the meaning of possession).

Syllables may even divide one morpheme. For example, the word 'pregnant' has three morphemes, but only two syllables:

pre- / gn / -ant
'b/4' 'birth' 'one who' – literally, 'one who is before giving birth'

Compare to the number of syllables: preg + nant. The morpheme *gn* is split in half by the syllable structure of the word dictated by the 'gravitational pull' of the vowels.

Activity 6.3

Contrast the number of morphemes and syllables in each of the following words: dancers, paw-paw, mango, tomatoes, potatoes, zebras, algebra, sisters' songs

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6.4 Types of Morphemes

The words of language – any language – often consist of a number of elements. For example, English word-forms such as *cools, cooler, coolest, coolers, cooled, cooling, pre-cooled,* and *uncool* are made up of one element *cool,* and a number of other elements such as -s, *-er, -est,* [*-er* + *-s*], *-ed, -ing, pre-,* and *un-*. All of them are morphemes (minimal units of meaning).

The 'common denominator' between related words (i.e., *cool*) is called the **stem;** the other morphemes attached to it are called **affixes**. Affixes that come before the stem are called **prefixes**; affixes that come after the stem are called **suffixes**; affixes that are inserted into the stem are called **infixes** (infixes are rare in English, but quite common in some Austronesian languages).

Free and bound morphemes

Some stems (such as *cool, teach,* etc.) can stand by themselves as single words; they are called **free morphemes** (Re: Section 8.2).

All **affixes**, as the name suggests, must be *fixed* (or attached) to a stem; they are the **bound morphemes** which cannot normally stand alone, e.g. ***anti***-capital***ist, pro***-choice*,* work***ed,*** happi***ly***, song***s***, sing***er***, sleep***less***, etc. They cannot stand on their own and only make sense in combination with the stem.

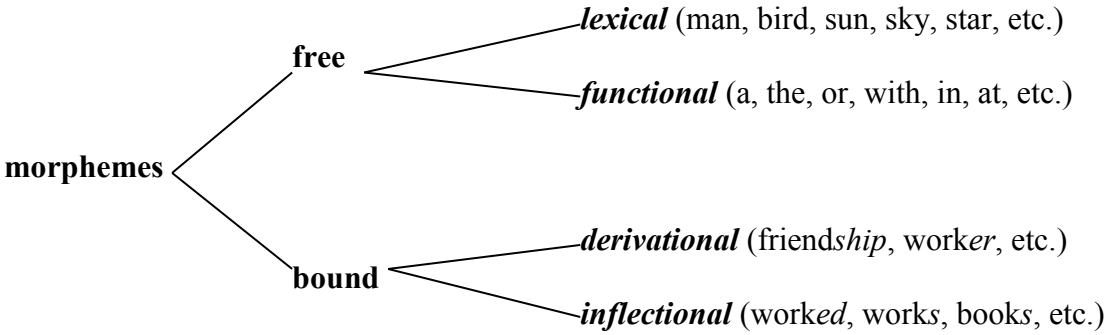
Bound morphemes are of two main kinds: ***inflectional*** and ***derivational***. The difference between them is that ***inflectional bound morphemes*** simply ***inflect*** *(modify)* ***the form of the same word***, to make it fit in with the other words in the sentence, whereas ***derivational bound morphemes*** create an entirely new word, related to (or '*derived*' from) the original one. Look at this sentence:

*The old dog <u>yawn**ed**</u> and <u>wink**ed**</u> sly**ly** at the <u>help**less**</u> and <u>sleep**y**</u> bat.*

All four underlined words seem to have similar structures, consisting of a free morpheme followed by a bound morpheme. Yet the bound morphemes are different in what they do:

⇒ ***-ed*** simply indicates that the actions verbs name (to yawn/ wink) happened in the past; the morpheme *-ed modifies* the meaning of the same words, whereas
⇒ ***-ly, -less*** and ***–y*** created new words, which behave in the sentence quite differently from the original words.

In order to get the overall picture, let us now draw a 'family tree' of the different kinds of morphemes. They fall into two main groups – **free** and **bound**:



<u>Free morphemes</u> can be

1. ***Lexical:*** those that by themselves represent independent concrete concepts (lexical morphemes are called an 'open' class of words, because we coin new words all the time, to refer to new concepts, i.e., blog, download, PMV, etc.)

or

2. ***Functional:*** function words, like auxiliary and modal verbs, conjunctions, prepositions, pronouns, and articles. Because we almost never add new functional morphemes to the language, we call them a 'closed' class of words.

<u>Bound morphemes</u> may be

1. ***Derivational*** (if they create a new word) or
2. ***Inflectional*** (if they create just another syntactic form of the same word).

So:

An inflectional morpheme never changes the grammatical category of a word.

For example, both *old* and *older* are adjectives. The *–er* inflection simply creates a different version of the adjective (comparative).

Derivational morphemes can change the grammatical category of a word.

The verb r*ead* becomes the noun *reader* if we add the derivational morpheme *-er.* So, the suffix form ***–er*** is an inflectional morpheme in adjectives, and derivational in

nouns. These bound morphemes may look like identical twins (*-er* : *-er*), but that doesn't mean that they act the same.

Morphological Description

Now that we know the different types of morphemes, we can break most English words into their 'elements,' and name them appropriately.

Take, for example, the sentence 'The company's management sacked the workers':

The company - 's manage -ment sack -ed the work -er - s.

(functional) (lexical) (inflectional) (lexical) (derivational) (lexical) (inflect.) (funct.) (lexical) (derivational) (inflectional)

Activity 6.4

In a similar manner, analyse the morphological composition of this line from Mandelstam's poem *The Swallow* (1920):

> But I forget what I to say so wanted
> And fleshless thought fades out and joins the other shadows…

Problems in Morphological Description

Nothing is always so 'black and white,' though – what, for example, is the 'plural morpheme' in *sheep, men, mice, geese,* or *deer*? And what about the inflection of *go* into *went*, *be* into *am/ is/ are* and *was/ were,* or *good* into *better*/ *best* and *bad* into *worse*/ *worst*?

We shall look at all these and other interesting cases in the next unit, dealing with variation in the forms of morphemes, or allomorphy. Right now, let us look at how we use morphemes to build word-meanings. A brief look at the structure of English words will give us an idea of the general principles of word formation.

6.5 Principles of English Word Structure

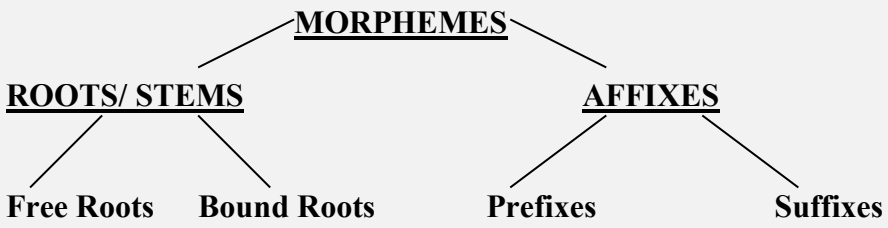
Two different *types* of morphemes – **stems** (or r**oots**) and **affixes –** act as building blocks that make up English words. Each of these classes can be further subdivided:

- ⇒ **Roots** can be **free** or **bound**
- ⇒ **Affixes** (bound morphemes by definition) can be divided into **prefixes** and **suffixes**.

Roots and affixes affect both **meaning** and **structure** (form) of a word in very different ways – let us take a closer look at the behaviour of these two classes of morphemes.

Stems & Affixes

Stem (or *root*) is the basic morpheme to which other morphemes (typically, *affixes*) are added. (A root is always unanalysable, or *monomorphemic*).



Stems differ from **affixes** in two ways:

(1) Stems usually have a specific meaning, which tends to be relatively constant across all the words that use the root. Stems also contribute the greatest conceptual content to the overall meaning of the word. Since roots are doing most of the work of conveying meaning, they are **indispensable word elements: every word has at least one root.** For example, **pter** is a root meaning 'wing'. It appears in words like:

pterodactyl	'**wing**-fingers'
helico**pter**	'spiral **wing**'
a**pter**ous	'lacking **wing**s'

The form **pter** retains the specific meaning 'wing' in each word. Also, the meaning 'wing' is the central part of the overall meaning of the word.

Affixes are morphemes which **attach** to roots or a combination of roots and other affixes. They **modify the meaning of the root(s)**, but do not change it completely.

Remember our examples with 'sea' + 'horse' = 'seahorse,' as opposed to 'sea' + '-s' = 'seas,' and 'horse' + '-s' = 'horses'?

Now consider the affix **pro-** meaning 'before, for, forward' in words like:

propel	'to push forward'
pronoun	'substituting **for** a noun'
prologue	'something spoken **before** (something else)'

Although the different senses of **pro-** are clearly related, the exact meaning shifts somewhat from word to word. As a rule, affix meanings tend to be more vague, and more variable, than root meanings. Learning to deal with the 'shiftiness' of affixes is an important skill in word analysis.

(2) Stems have freer distribution, i.e., they can occur almost anywhere in the word. Look back at the examples we just discussed: we find **pter** at the beginning, in the middle, and at the end of the word. **Affixes**, on the other hand, are restricted to certain positions within a word. *Pro-* (as in *pro*-choice) is a ***prefix***, and so must always come *before* the stem.

Types of Stems

Free Stems *can* occur by themselves, as whole words. Many native words, such as **blue** and **berry**, are free roots, because they can stand alone as single words. Free stems can also combine with other roots or affixes to form more complex words, as **blueberry** and **bluish.** Some other examples of ***free stems***:

un+***happi***+ness ***walk***+ed ***eat***+er+y pre+***cook*** ***winter***+ize

Bound Stems can *never* occur alone as whole words. For example, the roots *cran* and *fer* cannot stand alone; they must occur in combination with other morphemes, such as *cranberry* or *transfer.* Other examples of *bound stems/ roots*:

re+***fer*** in+***fer*** pre+***fer*** de+***fer*** con+***fer***
re+***ceive*** de+***ceive*** con+***ceive*** per+***ceive***
phob+ia ***phob***-ic, etc.

Compounds are words constructed from two or more roots (they may or may not have affixes):

blackberry a compound of two free roots
anthropol**og**y a compound of two bound roots

Types of Affixes

Affixes by definition are always bound, or 'affixed' to a root. They fall into two groups, depending on *where* they attach to the root:

- **Prefixes** occur before a root (although several prefixes can be strung together before a single root): ***dis+in***+fect+**ant**, ***in+dis***+crimin+ate, etc.

- **Suffixes** occur after a root (multiple suffixes can also occur at the ends of words), i.e., un+believ+***abil+ity***, pre+par+***at+ion+s***, un+pre+dict+***abil+ity***, etc.

Infix: The third group of affixes, **infixes**, may be whole words *embedded in the root.* They are rare in standard English and occur mostly in conversational/vulgar speech):

un+***frigging***+believable abso+***bloomin'***+lutely fan+***bloody***+tastic, etc.

Some other languages use **infixes** routinely, for example, in **Bontoc** (Philippines):

fikas	'strong'	***fum****ikas*	'to be strong'
kilad	'red'	*k**um**ilad*	'to be red'
fusul	'enemy'	***fum****usul*	'to be an enemy'

Circumfix: We can see just how amazingly diverse human languages are in yet another type of affixes: ***circumfix***. As the name suggests, it 'surrounds' the root – part of it precedes the root, and part of it follows it. In the **Chicasaw** language (Oklahoma),

chokm-a	→ 'he is good'	***ik***-chokm-***o***	→ 'he isn't good'
lakn-a	→ 'it is yellow'	***ik***-lakn-***o***	→ 'it isn't yellow'

Activity 6.4

While English usually marks location with prepositions (i.e. ***in*** *a house* or ***at*** *a place*), Turkish has postpositions (i.e. *house-**in*** or *place-**at***). After studying the following examples, you should be able to identify the three versions of the 'location' suffix and the conditions for their use.

('book')	*kitap*	- *kitapta*	('in a book')
('chair')	*koltuk*	- *koltukta*	('in a chair')
('room')	*oda*	- *odada*	('in a room')
('restaurant')	*lokanta*	- *lokantada*	('in a restaurant')
('house')	*ev*	- *evde*	('in a house')
('place')	*yer*	- *yerlerde*	('in places')
('hand')	*el*	- *ellerimde*	('in my hands')
('road')	*yol*	- *yollarta*	('in roads')

(Source: Yule: 1996, p. 83)

6.5 Creating new words: Some General Word Formation Processes

New words appear in our lexicon all the time – people make them up to reflect new concepts and realities. One of the relatively recent developments, for example, is amateur journalism on the net – people write on issues they feel strongly about and post their thoughts and comments on their web pages (in itself a new concept ☺). They are *bloggers*, or *'web loggers'*; where did the name come from? You know the word for an official written record of events during a ship's voyage, or an aircraft's flight – '***log***', also '*logbook*' – 'a detailed record of things done, experienced, etc., as in '*keep a logbook*'? That is exactly what bloggers do – they give a detailed written account of their experiences and thoughts, and post them on the web – that is why their writings are called *weblogs / blogs*, their occupation – *weblogging / blogging*, etc. We have no trouble in understanding all those derivative words – why, do you think?

Or take *morphing,* for example. According to the Collins Gem Computer Jargon list, it is the technique of blending one image smoothly into another to create a radical transformation. Now, would you be confused, if you heard of a bear being *morphed*

into a cat, or of *morphing software,* which brings such effects to the average computer? I guess even '*morphers*' is possible… I have also heard people talking recently about *rascality*, and having been *rascalled*… Although you, like me, may not have heard some of these terms before, we 'catch on' with no problem – why is it so?

We can understand new words and form new ones, because ***we know the rules of word formation in the language that we use***. These are the so-called morphological rules that we have in our heads – they determine the grammaticality of the words we produce. We have already discussed derivational suffixes and prefixes that we use to form new words. Let us quickly revise those, and focus on some other basic ways in which new words are made. Here is a list and a brief discussion of the general word formation processes, which include:

- **Derivation**
- **Compounding**
- **Blending**
- **Clipping**
- **Backformation**
- **Conversion**
- **Acronyms**
- **Analogy**
- **Coinage**
- **Reduplication**
- **Multiple processes**
- **Borrowing**

Derivation

You remember that ***affixes*** (all *bound morphemes*) are used to '*add*' meaning to *word roots*. We also remember that affixes fall into two main groups*:

⇒ ***prefixes***, that come *before* the root, and
⇒ ***suffixes***, that come after the root

****infixes*** are not common in English and ***circumfixes*** are simply not there!

We also remember that the '*kind*' and '*amount*' of meaning that these bound morphemes add to the roots depends on the kind of affix:

⇒ ***prefixes*** and ***derivational suffixes*** change the overall meaning of the word, they help us form <u>*new words*</u>, whereas
⇒ ***inflectional suffixes*** add only <u>*grammatical meaning*</u> that helps us understand the relationships between words in a sentence, but they do not change the core meaning of the word.

English prefixes and derivational suffixes come from a variety of source languages, including Old French, Latin and Greek.

Affixes, whose meaning is obvious to the average English speaker (i.e., ***un-***+clean, or fear/***-less***, etc.), are sometimes called <u>*productive,*</u> whereas the more obscure ones,

whose meaning is not immediately obvious, are called *unproductive*. Why? Because the average English speaker, without the knowledge of classical Latin or Greek, would not know their meanings, and consequently will not use them to form new words! Here is

A Selected List of Some of the More Common ('Productive') English Affixes:

after- from the Old English preposition, giving compound nouns like *afternoon, afterbirth, afterlife, afterthought, aftermath, after-effects*, etc. A wide range of adjectives is also possible: *after-school, after-work, after-dinner, after-hours,* etc. (The adjectives usually take a hyphen, the nouns don't).

by- from OE 'by,' giving compounds like *bystander, bypass, bygones*, etc.

dis- /dif- /di- from Latin 'apart' or 'another': this prefix can elide ('fuse') with other consonants, giving words like *diffuse, divide, differ.* More importantly, it also combines with many existing verbs to give their opposites: *disagree, disappear, disapprove, dissociate, disconnect, disengage, disinfect, dislike, dislodge, disobey,* etc.

double- from Old French meaning 'two,' as in *double-glazing, double-locked, double-sided, double-jointed, double Dutch, double Scotch,* etc. There is also a meaning of deception in compounds like *double-dealing, double-talk, double-cross*, etc.

down- from OE, giving compounds like *downfall, downcast, downbeat, downturn, downgrade,* as well as vogue terms like *downsize, downturn*, etc.

ex- / ef- / e- from Latin 'out of,' as in *exhale, exceed, exhume, expatriate, expire, exonerate*. The prefix forms *ef-* and *e-* before certain consonants, as in *effusive, emerge, elapse, erase, evade, escape, educate,* etc. Words like *ex-lover, ex-husband, ex-boxer, ex-president,* etc., indicating people who 'used-to-be' something, are also from this prefix.

extra- from Latin for 'beyond,' as in *extraordinary, extra-special, extra-marital, extra-curricular, extravagant, extraneous*, etc. In many of its hyphenated constructions it act as 'intensifier' meaning 'very': extra-large, extra-bright, etc.

for- from OE preposition, usually meaning prohibition (*forbid*), abstention (*forbear, forgo*), or neglect (*forsake, forget, forlorn*).

fore- from OE 'before' or 'in front,' giving compounds such as *forecast, foretell, forewarn, forefather, foregoing, forehead, forestall*, etc.

hand- from OE, giving compounds such as *hand-made, handwriting, hand-grenade, handshake, handbag, handkerchief, handcuffs*, etc.

hyper- from Greek for 'over' or 'above' in the sense of 'excessively,' as in *hyperactive, hyper-critical, hypersensitive, hyperinflation, hypertensive, hyperbole*, etc. A prefix functioning as an intensifier, *hyper-* also functions nowadays as an independent word, meaning 'agitated' or 'keyed up': *hype, hyped-up.*

in- from OE preposition, giving compounds like *insight, inbred, inlet, income, inhale,* as well as *endear, enthral, embed / imbed, engrave*, etc.

inter- / intel- / enter- from Latin for 'between,' as in *interact, intercontinental, intercourse, intermarriage, interview, interrupt, intercom, inter-city, internet*, etc. Also: *intelligent, entertain, enterprise*, etc.

intra- from Latin 'within,' now used as an opposite of 'extra,' as in *intra-European, intravenous, intramuscular, intranet*, etc.

intro- from Latin 'to, towards' or 'within': *introduce, introvert, introspective,* etc.
low- productive contemporary compound, giving *low-key, low-profile, low-budget, low-grade*, etc.
mid- from OE 'middle': *midnight, midday, mid-week, mid-term, mid-semester,* etc.
mis- partly from OE for 'wrongly' or 'badly,' and partly from Latin 'minus' via Old French *mes*, which came to have a similar meaning, giving *misbehave, misjudge, misconstrue, mismanage, misspell, misplace, misdeed, mishap, mischief*, etc.
out- from OE, giving compounds meaning 'do better than': *outdo, outwit, outstrip, outmanoeuvre,* etc. Others, such as *outrage, outlaw, outside* have the prefix stressed, and mean 'outside of.'
over- from OE, giving compounds like *overcome, overtake, overeat, overreact, overdo,* etc.
un- from OE, meaning (1) 'not': *unkind, unfair, unsound, unlikely, unimaginable, unwise, untrue, uncool,* etc., and (2) 'back,' with the sense of 'reversal': *undo, untie, unfold, unbend,* etc.
up- from OE: *upright, uptight, upriver, upfront,* etc.
wel- / well- from OE adverb: *welcome, welfare, well-bred, well-trained*, etc.
with- from the OE preposition: *withstand, withhold, withdraw,* etc.

-dom OE abstract noun suffix, indicating (1) a state or condition: *freedom, boredom, martyrdom, stardom,* etc., and (2) a territory, as in *kingdom, Christendom,* etc.
-down English suffix giving (1) compound adjectives: face-*down, nose-down, top-down, hands-down, head-down,* etc., and (2) nouns: *breakdown, crackdown, showdown, touchdown, meltdown, sundown,* etc.
-en English suffix giving (1) diminutive nouns: *chicken, kitten, maiden*; (2) verbs denoting 'making like (a quality)': *broaden, shorten, lengthen, sweeten, fatten, lighten, frighten,* etc., and (3) adjectives indicating 'substance' something is made of: *wooden, woollen, silken, golden, leaden, waxen,* etc.
-ful English adjective suffix indicating: (1) quantity: *handful, bagful, mouthful, spoonful,* etc., and (2) characteristics: *beautiful, awful, thoughtful,* etc.
-head English noun affixed to other nouns, giving (1) a range of (usually pejorative) meanings: *egghead, fathead, sleepyhead, paw-paw-head, dickhead, thickhead,* etc. (2)indicating the top, or front of something: *letterhead, masthead, spearhead,* etc.
-ie / -y English diminutive suffix: *baby, dearie, doggy, Annie, Johnny, sweetie*, etc.
-ish English adj. Suffix indicating (1) 'diluted' quality: *bluish, reddish, greenish, boorish,* etc., or (2) nationality: *Irish, British, Scottish, Turkish, Kurdish,* etc.
-less English adjective-forming Suffix, indicating lack of (quality): *timeless, priceless, sleepless, lawless, toothless, thoughtless,* etc.
-like / -ly English adjective-forming suffix: *bird-like, fin-like, warlike, lifelike, businesslike, heavenly, manly, lovely, saintly, orderly, fatherly, ghastly,* etc.
-ly standard and most productive English adverb-forming suffix: *quickly, surely, squarely,* etc.
-most English adj. Suffix: *topmost, uppermost, utmost,* etc.
-ship English abstract noun suffix: *friendship, hardship, scholarship, workmanship,* etc.
-y Adj. Suffix: *hairy, moody, bloody, guilty, greedy, guilty,* etc.

The rules of 'derivational' morphology allow us to create a new word out of an old one. For example, the suffix *–able*, as in *lovable, movable, pronounceable, huggable*,

etc., converts a verb meaning 'to do X' into an adjective meaning 'capable of having X done to it.'

Compounding

In addition, English is very good at 'compounding, which 'glues' two words together to form a new one. This word-combining process is very common in all Germanic languages (less so in their Romanic 'cousins'): *bookcase, fingerprint, armchair, wallpaper, car-park, underground, flyover, expressway, maybe, thunderstorm, blackout, therefore, forehead, weekend, eyeball, birthday, gridlock, toothbrush, standstill, go-slow, touchdown, shutdown, takeoff, cyberstalking, to mailbomb somebody,* etc.

In English, a compound is often spelled with a hyphen, or as one word, but it can also be spelled with a space between the components, as in '*no one,*' for example. There is a simple way to tell whether you have a compound or a phrase: compounds generally have stress on the first element, and phrases – on the second. A *dark* ***room*** (phrase) is any room that is dark, but a ***dark*** *room* (a compound) is a photo lab. A ***black*** *board* (phrase) is a board that is black, but some ***black****boards* (compound) are green, or even white. Pronounced wrongly (or written without punctuation marks) some word strings can be ambiguous: ☺

Squad Helps Dog Bite Victim
Man Eating Piranha Mistakenly Sold as Pet Fish
Juvenile Court to Try Shooting Defendant

Blending

This is when we use two (or more) 'pieces' of different words and combine them into a 'blend' of both:

brunch < breakfast+lunch
modem <modulator-demodulator
breathalyser < breath+analyzer
electrocute < electro-+execute
sitcom < situation+comedy
slithy < slimy+lithe
televangelism < television+evangelism
ginormous < gigantic+enormous
Eurovision < European+television
smog < smoke+fog
motel < motor+ hotel
glitzy < glamour+ritzy
telecast < television+broadcast
biodegradable < biologically degradable
chortle < chuckle+snort,
blog < web log,
techsperts < technical + experts, etc.

Blending is popular with advertisers, with words like *informercials, twicicles, nicicles* and *Schweppervescence* ☺

Clipping

Clipping is a type of word formation which occurs when a word is abbreviated. The resulting terms are often colloquial, and found more often in spoken rather than written English (as the term suggests, 'clipping' means 'cutting short' the longer words). Who has the time to pronounce *laboratory*, when you can simply say *lab?* Or: *fax, bra, ad, gas, kilo, cab, perm, flu, porn, plane, pram, phone, synch* (in the phrase

'*to be out of synch with something'***),** etc. Names are also typically shortened: *Al, Kay, Ed, Dick, Mike, Ike, Tom,* etc.
There must be a 'lazy bug' present in educational environments, because here we see the blossoming of 'clippings': *exam, typo, chem., gym, math, Prof, doc, uni, varsity, admin*, *circs*: *in / under the* ***circs****, no bull* (for 'no bullshit'), etc.
Sometimes a whole phrase can be clipped: It *shorted* (it *short-circuited),* etc.

Amp < ampere
Bus < omnibus
Chimp < chimpanzee
Coke < cocaine, coca-cola
Demo < demonstration
Disco < discotheque
Fax < facsimile
Mob < *mobile vulgus* (< Latin: 'the masses')
Phone < telephone
Photo < photograph
Piano < pianoforte
Pram < perambulator
Pro < professional
Reps < representatives
Tacs < tactics (as in to 'change tacs')
Revs < revolutions
Spec < specification,
Prac < practical
Tute < tutorial, etc.

Backformation
Backformation is a process of forming a new word by removing an element from – rather than adding one to – an imagined root, or base. This is a specialized type of reduction process: typically, a word of one grammatical class (usu. a N) is reduced to form a word of another grammatical class (usu. a V): *television → televise; donation → donate; option → opt; emotion → emote; enthusiasm → enthuse; liaison → liaise; babysitter → to babysit; psychology → to psych ,obsession → to obsess* (on sth.), etc.
The word *permutation* has recently been observed attempting to *backform* a verb, *permutate*, when the verb has in fact existed for centuries, as *permute* (to *backform* is itself a backformation! ☺) A few other examples:

Automate < automation
Craze < crazy
Eavesdrop < eavesdropper
Vivisect < vivisection,
Sync < synchrony,
Psych (as in 'psych someone up'), etc.

Nouns ending in '–er' are often 'backformed' into verbs: *burglars burgle; swindlers swindle; peddlers peddle; editors edit; sculptors sculpt,* etc. – it stands to reason, doesn't it? ☺

Hypocorisms are a special type of backformation, typical of British and Australian English. A longer word is usually 'clipped' to a single syllable, and then the diminutive suffix '-y' or '-ie' is added to the 'tail': *telly, movie, Aussie, hankie, Barbie doll, bookie, cabbie, cookie, roadie*, etc.

Conversion
Conversion is a term we use to name a word-formation process, which 'converts' words from one part of speech to another, i.e., when we use familiar nouns as words, or adjectives (without any reduction):

He buttered his bread.
They import the wine in barrels, and bottle it here.
She likes to vacation in Australia.
It's expected to factor into that = it's expected to impact the outcome

Conversion is particularly productive in modern English: Prices are bottoming/leveling out. They downned their beer in one long gulp. School party, sea air, user-friendly, vacation time, etc., etc. – in fact, the use of nouns as adjectives is becoming the norm!

Acronyms

Acronyms are abbreviations pronounced as if they were words, and they are a fairly recent method of word formation. They have proliferated particularly in the past 100 years. Acronyms are made up of the first letters of constituent words (they are shorter, simpler, and more user-friendly! ☺):

CD for 'compact disc'
VCR for 'video cassette recorder'
MP for 'Member of Parliament'
AIDS for 'auto-Immune Deficiency Syndrome'
PIN for 'personal identification number'
ATM for 'automatic teller machine'
UFO for 'unidentified flying object'
laser for 'Light Amplification by Stimulated Emission of Radiation'
scuba for 'self-contained underwater breathing apparatus'
radar for 'radio detecting and ranging,'
DIME for 'Dense Energy Metal Explosive' (the new weapon Israel used in Gaza recently)
Q2 for 'second quarter,' etc.

Note that the first set of examples are spelled out as capital letters, while the second set are written as ordinary words (one of the earliest acronyms is found in both forms: OK, or okay, meaning 'ol korrekt' ☺)

Analogy

Another, and much more productive method of word formation is **analogy,** one of the driving forces of linguistic change. Many words and expressions are formed in this way, whether you describe a boring person as '*underwhelming*' by analogy with 'overwhelming,' or say that a person has '*hidden shallows*' by analogy with 'hidden depths,' or coin words like *motorcade* by analogy with cavalcade, *technobabble* by analogy with 'nukespeak,' *etopia* by analogy with 'utopia,' or *telethon / cleanathon* by analogy with 'marathon.' Some people, wanting to show off, extend the use of Latin affixes to new forms by analogy, i.e., *religiosity, criticality, systematicity, randomicity, insipidify, optimality, stereotypy*, etc. Such words have an air of heaviosity and seriosity about them, which clouds their meaning (a tactic used frequently by unscrupulous bureaucrats and politicians). ☺
Analogy is also used for humorous precision, not pomposity. Look at these items from *The New Hacker's Dictionary*:

ambimoustrous	capable of operating a mouse with either hand
barfulous	quality that would make anyone *barf*

bogosity	the degree to which something is bogus
depeditate	to cut the feet off (e.g., while printing the bottom of a page)
dimwittery	example of a dim-witted statement
geekdom	state of being a techno-nerd
marketoid	member of a company's marketing department
mumblage	the topic of one's mumbling
pessimal	the opposite of 'optimal'
wedgitude	the state of being wedged (stuck; unable to proceed without help)
wizardly	pertaining to expert computer programmers

Coinage

Because of so many other ways in which we can form new words, coining, or the *invention* of completely new terms is rather rare in English. Some words, however, like *aspirin, hoover, nylon, kleenex, xerox*, etc., that began as invented trade names, were quickly absorbed into the language and became common words that we use every day. With the IT revolution, so many new concepts entered our reality that new terms had to be invented for many of them, i.e., *kerning* (adjusting the spacing between the letters, so they look better), *modem* (short for Modulator-DEModulator), *dingbats* (a font consisting of graphical symbols), *website*, *weblog/blog,* etc.

Reduplication

Here words are created by partial or complete repetition (reduplication is particularly common among children): *abracadabra, puff-puff* (for train, in the days of steam engines), *wee-wee, teeny-weeny, bye-bye, tom-tom, tut-tut, tick-tock.* Many words formed this way have contrasting sounds, i.e., *hanky-panky, helter-skelter, okie-dokie, hocus-pocus, knick-knack, mish-mash, ping-pong, mumbo-jumbo,* etc.Most of these reduplicative words rhyme – that is what makes them memorable:

Rhyming		**Non-rhyming**
arty-farty	hi-fi	dilly-dally
backpack	hoity-toity	ding-dong
Delhi belly	namby-pamby	singsong
easy-peasy (-japaneasy)	pub grub	shilly-shally
fat cat	silly-billy, willy-nilly, etc.	flimflam, flip-flop

Repetative: *gaga, goo-goo, go-go, so-so, chin-chin, chop-chop, lik-lik, singsing, toktok, mu-mu* etc.

Multiple Processes

Thanks to all these word formation processes, the number of possible words we can build out of 'pieces' of words is immense. What makes their number infinite, is the fact that morphological rules can function together to create complex 3-D structures, not simple chains of morphemes stuck together. Remember?

The output of one morphological rule can be the input to another, or to itself: we can talk of *unmicrowaveability* of some 'Liberty' fries, a *floppy disk drive slot feature availability* in some computers, or a *get-down-to-business* speech, etc.

More often than not, several word-formation processes are at work:

delicatessen → *deli* (borrowing + clipping);
snow + ball → *to snowball* (compounding + conversion),
web+ log → *blog* (clipping + blending), etc.

This is another example of how grammar functions as a complex mechanism tailored to the transmission of propositional structures through a *serial interface*.

Borrowing (using words from other languages)

This is one of the simplest kinds of word formation: the word is simply 'lifted' from another language. Over 70% of all the words in the Miriam-Webster Unabridged Dictionary are borrowed from other languages (majority from Old French, Latin and Greek). The new word may be needed in English, because it describes something not previously known to English speakers. That is how the names of exotic plants and animals came into English: orange, lemon, paprika, avocado, yam, yak, kangaroo, pelican, etc. Walter Scott popularized in his novel *Ivanhoe* the realization that while many animals in their lifetime have English names (*ox, cow, calf, sheep, swine, pig, boar, deer*), they reach our table with French names (*beef, veal, mutton, porc, bacon, venison, brawn,* etc.). This is a relic from the time when Norman masters left the care of the living animals to the Anglo-Saxon lower classes, while the superior French *cuisine* was kept in the hands of Norman cooks and *chefs.* Many other borrowings testify to this superiority: *sauce, boil, fry, roast, toast, pastry, soup, sausage, jelly, dainty.* And while the humbler *breakfast* is English, the more sumptuous meals, *dinner, supper,* and *feasts* generally, are French. Most of these borrowings date from the Norman Conquest (1066 AD) and are no longer perceived to be foreign. We tend to be more aware of more recent borrowings, such as *glasnost, perestroika,* etc.

Loanwords are words that exist in one language and are imported into another language. Examples:

⇒ *bature* is a Hausa word for a 'white man' (*baturia* – a 'white woman'), along with numerous other Hausa words, are used extensively in Nigerian English
⇒ the words *tai tai* 'wife' and *gweilo* 'foreigner' were imported directly from Cantonese into Hong Kong English
⇒ *bilum* – which language does it come from? ☺ - is part of PNG English, as are *tokples, toksave,* etc.

As we know, *borrowing* is one of the most common sources of new words in English. English has 'soaked up' numerous loanwords from a multitude of languages through contact with other nations and cultures: *alcohol* (Arabic), *boss* (Dutch), *robot* (Czech), *yoghurt* (Turkish), etc. Here are a few other examples:

Dutch: *apartheid, bluff, brandy, bully, bumpkin, clamp, coleslaw, commando, dope, drill, sledge, slim, snoop, spook, spoor, stoop, trek, golf, frolic, yacht*, etc.

German: *frankfurter, hamburger, hamster, waltz, quartz, schnitzel*, etc.

Norse and the Scandinavian languages: *anger, blink, bloom, blunder, blur, crook, die, dirt, doze, dregs,egg, fellow, gaze, geyser, law, leg, meek, muck, nasty, odd, roof, scold, sky, slalom, sniff, squeal, take, kick, weak, ugly, want, window, etc.*

Indian languages: mango, bungalow, dungarees, crimson, nirvana, pariah, sapphire, shampoo, sugar, swastika, yoga, etc.

Russian: [tok ʃou] < talk show, [bai] < Bye!, etc.

A **loan-translation**, or ***calque***, is a special type of borrowing, which translates a foreign word, phrase, or idiom and adopts its meaning: French *un grate-ciel* → *sky-scraper*, English 'boyfriend' → Japanese *boyifurendo* (borrowing with sound modification), but a *calque* in Chinese: *nan pengyu.* [oxota na vedʲm] is the Russian calque of 'witch hunting.,' meaning 'hunt for witches', [ʃok i trʲepʲet] < 'shock and awe,' [osʲ zla] < 'axis of evil,' [avia ʃou] < air show (here we have a calque + borrowing), etc.

Summary

1. ***Morphemes*** are the ***smallest meaningful units of language***:
    a. They cannot be subdivided
    b. They add meaning to a word
    c. They are 'recyclable'
    d. They can have any number of syllables
2. Our mental dictionaries contain ***morphemes and instructions for combining them***.
3. Morphological rules can create complex *three-dimensional* structures: this makes the number of possible combinations infinite.
4. Bloomfield's definition of ***word*** as ***a minimum free form*** is not always useful, because
    a. Words may be bound too tightly with their context (Cf. set phrases/idioms), or
    b. They can be homonyms/homophones – they can actually belong to different lexical items.
5. Word sound sequences are distinguished by ***uninterruptibility*** and ***mobility***.
6. Morphemes can be isolated through comparing sound sequences.
7. Morphemes can be *free* or *bound*; *free morphemes* can be *lexical* or *functional,* and *bound morphemes* can be *inflectional* or *derivational*.
8. Two different *types* of morphemes act as building blocks that make up English words – ***Roots*** and ***Affixes***. Each of these classes can be further subdivided:
    a. ***Roots*** can be ***free*** or ***bound***
    b. ***Affixes*** can be divided into ***prefixes*** and ***suffixes***
        i. Infixes and circumfixes may be common in other languages

Self-Assessment Exercises

Q 1 **What is a word?** How do you know?

Q 2 **What's a word in a foreign language?** How do you know?

Q 3 More than one process was involved in the formation of each of the forms below. Can you identify them?

a. I have a new *car-phone*.
b. John wants to be a *footballer*.
c. The negotiators *blueprinted* a new peace proposal.
d. Another *carjacking* has been reported.

Think of 5 examples of multiple word formation processes at work.

Q 4 **Identify the affixes in:**

Unfaithful, carelessness, refillable, disagreement, scholarship, referee, impossible, scholarship, clearly, thankfully, unprecedented, disinterested, pleasant, nation, increment, exploding, interpreter, international, handbook and *increasingly*

Analyse 10 words of your choice.

Q 4 **Identify affixes in these Nali (Manus) utterances; give their meanings, and say whether they are prefixes, suffixes, infixes or circumfixes:**

maran	his/her eye	ndrio	my stomach
moro	my eye	ndriam	your stomach
maram	your eye	ndrian	his/her stomach
poyo	my head	seu(a)tou	my house
payam	your head	seu(a)tam	your house
imo	my arm	seu(a)tan	his/her house
imam	your arm	seu tahu	their house
ndriko	my leg	seu torou	our house
ndrikam	your leg	seu tawawu	your (pl.) house
ndrikan	his/her leg	payatou	our head

Q 5 **What word-formation processes can you identify in the sentences below? Give your own examples.**

When I am ill, I want to see a doc, not a vet.
I was a deejay before, but now I am an emcee in a nightclub.
That's a-whole-nother problem!
He is always taking pills, either uppers or downers.
Live reporting is very popular nowadays, so we bring you Jenny – live! ☺

Q 6 Think of at least 10 new words that have recently entered the language you speak, and identify the word formation process(es) that have taken place in their creation.

Q 7 How do you form new words? How do you know how to?

Q 8Do a complete morphological analysis of the following utterances from the Maninka language; fill the blank spaces with the proper Maninka forms:

bugo	'hit'	bugoli	'the hitting'
dila	'repair'	dilali	'the repairing'
don	'enter'	donni	'the entering'
dumu	'eat'	dumuli	'the eating'
gwen	'chase'	gwenni	'the chasing'
da	'lie down'	dali	'the lying down'
famu	'understand'	famuli	'the understanding'
men	'hear'		'the hearing'
sunogo	'sleep'		'the sleeping'

Q 9 Assess the following statements as 'True' or 'False':

1. A word is always bigger than a morpheme.
2. Affixes are bound non-roots.
3. A morpheme is the smallest possible unit of meaning.
4. The word 'unrealistically' contains 4 morphemes.
5. The plural '-s' is a derivational morpheme
6. The ending '-ly' is a functional morpheme
7. The suffix '-ment' is an inflectional morpheme
8. 'Flamingo' is a free lexical morpheme.
9. '-ful' is a bound derivational morpheme.
10. 'Pregnant' is made up of 2 morphemes.

Q 10 Identify word formation processes at work:
Decentring, universalists / substratists, to input data into computer system, interactional processes, systematicity, describably, stick-to-it-ness, webisodes.

Reading

8. On Morphology

References

Yule, George (1998) The Study of Language. Cambridge University Press
Fromkin, V. & Rodman, R. (1993). An Introduction to Language, Fifth Edition.

Unit 7. Allomorphy & Morphological Types

Objectives

After completing this unit, you will be able to

1. Define and describe allomorphs
2. Describe different morphological types of languages
    a. Analytical (isolating)
    b. Synthetic (agglutinating, inflectional, fusional)

7.0 Introduction

In this unit, we will discover more proof of the changing nature of language – morphemes can, and do, change, depending on their history and the neighbouring speech sounds.

7.1 Allomorphs – Variant Forms of the Same Morpheme

One of the main discoveries of modern linguistics, in the words of the American linguist Steven Pinker, is that 'a morpheme may be stored in the mental dictionary in a different form from the one that is actually pronounced.' Compare, for example, the sounds of the

- Past Tense morpheme –***ed*** in the following verbs: play**ed**, pass**ed**, watch**ed**, clean**ed**, etc.
- 3rd Person Singular ending –***s*** in He sits; She watch**es**; It figure**s**; Time pass**es**; etc.

Why do they sound different? The answer is simple: our tongues are not fast enough to keep up with the complex strings of sounds we want to make, and sometimes it is either difficult or even impossible to produce certain sounds in combination; try, for example, to say *Time passe**s*** or *He watche**s*** without inserting that [i] sound before the final [s]! In Unit 10, we will learn more about our Organs of Speech and speech sounds, but, basically, there are two interrelated factors at play here:

- The physical limitations of our articulators (when we speak, the movement and position of our organs of speech are not always precisely the same, which naturally affects the *quality* of the sounds we produce), and
- The actual sounds we make are influenced by other sounds that come before and after them.

Language-specific phonological rules adjust the *features* of the sounds we make, not *phonemes*. When communicating, we are not sidetracked by the differences in the actual sounds we hear (allophones) – we still perceive them to be the distinctive sound intended by the speaker. Communication generally would become impossible, if we could not match speech sounds with the '*footprint images*' of targeted phonemes.

Morphemes are made up of phonemes, which in turn are represented by their variant forms (allophones). It is logical to suppose that forms, which made up of varying

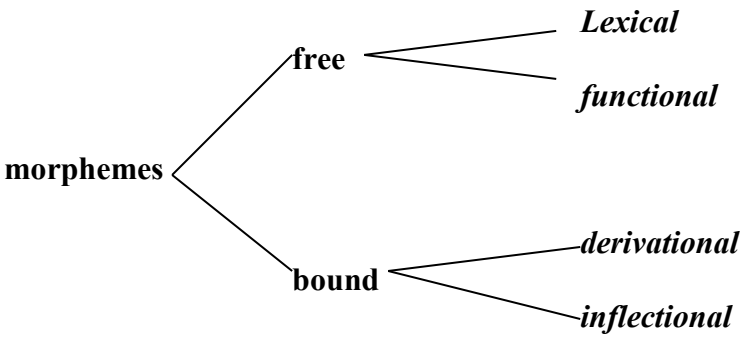
constituent parts, will also vary. Therefore, our speech sounds form strings of *allomorphs* (variant forms of morphemes), which we still *perceive* to be the same morpheme, i.e.:

He play**s** [z], she watch**es** [iz]**,** and it all make**s** [s] sense.

Allomorphy processes, then, are largely due to some *natural tendencies* in the way we make speech sounds.

Some Problems of Our Morphological Description

There are also some other puzzling issues which sometimes make it difficult to identify morphemes. Remember our neat diagram representing different types of morphemes? (Re: Unit 6)



Well, sometimes it is impossible to separate the morpheme from the word; remember also that morphological rules do not just 'glue' morphemes together in a chain, where they could be easily identifiable as separate 'meaningful units.' The output of one morphological rule could be the input to another, including the rule that created it. Through their interaction, these rules can create complex three-dimensional structures that are not always easy to understand without an insight into language change over time. Why, for example, is the plural of *sheep, sheep?* And what about all those other 'exceptions to the rule' like *mice, men, geese,* or *deer*, not to mention all those hundreds of irregular verbs?

Sometimes a morpheme has only one phonological form – but often it has a number of variants known as ***allomorphs***. Totally dissimilar forms may be allomorphs of the same morpheme: *cats, dogs, horses, sheep, oxen, geese, feet* – all contain the English plural morpheme.

An **allomorph** is said to be ***phonologically*** **conditioned** when its form is dependent on the adjacent sounds.

An **allomorph** is said to be ***lexically*** **conditioned** when its form *seems* to be purely accidental, linked to a particular vocabulary item.

Let us now look at the English plural morpheme, because it is a good example of both types of conditioning:

Phonological Conditioning

Morphophonology is the study of different phonemic shapes of allomorphs; it is sometimes abbreviated to ***morphonology.***

/-z/ /-s/ /-iz/ are all phonologically conditioned allomorphs of the English plural morpheme. That is, each allomorph occurs in a predictable set of environments:

/-z/ occurs after most voiced sounds, as in *dogs, lambs, bees*, etc.

Lexical Conditioning

Down at the level of word roots, we also find messy patterns in irregular plurals like *oxen, feet, sheep, mice*, etc. and in irregular past tense forms like *think – thought, bring – brought, seek – sought, fight – fought; drink – drank, shrink – shrank, sing – sang, sink – sank; know – knew, blow – blew, fly – flew, and throw – threw.* This is because Proto-Indo-European had rules which replaced root vowels with others to form plurals and past tense forms. This explains why we have irregular (strong) verbs in English – they still obey those old rules, though they no longer apply in present day English. Most words have 'moved with the times' and now obey new rules, but a few stubborn words always remain. These 'fossils,' then, are considered to be ***lexically conditioned***. They do not follow any specific modern rule, and so have to be learnt separately. Linguists have thought of ways of analysing them, such as: o*xen, sheep, geese* each contain 2 morphemes, which cannot be separated: *ox* + plural; *sheep* + plural; *goose* + plural; etc.

Irregular Verbs, such as *went, took*, etc., receive a similar explanation:

Go + past tense *Take* + past tense

Activity 7.1

Look at the words in **bold**: What is the point of this humorous poem?

> Sally Salter, she was a young teacher who taught,
> And her friend, Charlie Church, was a preacher who **praught**,
> Though his enemies called him a screecher, who **scraught**.
> His heart, when he saw her, kept sinking, and sunk;
> And his eye, meeting hers, began winking, and **wunk**;
> While she in her turn, fell to thinking, and **thunk**.
> In secret he wanted to speak, and he spoke,
> To seek with his lips what his heart long had **soke**,
> So he managed to let the truth leak, and it **loke**.
> The kiss he was dying to steal, then he stole;
> At the feet where he wanted to kneel, then he **knole**;
> And he said, 'I feel better than ever I **fole**.' ☺

7.2 Morphological Type

Languages can be grouped according to their ***morphological type,*** i.e. the way in which they combine morphemes into words. We generally distinguish three main types of languages:

1. ***Isolating*** (also called ***analytical***) languages typically have only one morpheme per word; this means that most of their morphemes are free, and thus function as word-meanings. Many Asian languages, such as Vietnamese, Korean, and Chinese (Mandarin) are the isolating type, as do English and Hiri Motu. If you examine the Hiri Motu sentence below, you will see that each word expresses only one meaning:

Lauegu	sinana	gwarume	ta	ia	hoia	Koki	dekenai.
My	mother	fish	one	she	bought	Koki	at

'My mother bought a fish at Koki.'

2. ***Agglutinating*** languages typically have words made up of many separate morphemes, all 'glued' together to make up larger words. The boundaries between morphemes in an agglutinating language are easy to recognise, because they are just 'strung' together into longer words. Turkish and Swahili are well-known examples. The Sye language (spoken in Vanuatu) also belongs to this type:

ov-nevyarep	ɣu-tw-ampy-oɣh-or	u-ntoɣ
plural-boy	they-will-not-want-to-see-them	in-sea

'The boys will not want to see them in the sea.'

and

3. ***Fusional (Inflectional, or Synthetic)*** languages. These languages also typically have many morphemes in a single word, but the boundaries between different morphemes are not always clear. The morphemes are 'glued' together so tightly, that they 'fuse,' or 'blend' together, resulting in a single morpheme having several different meanings, all wrapped up in one (Latin is a good example, as are also many other Indo-European languages, such as Slavic (Polish, Czek, etc.), Baltic and many others.

Agglutinating and fusional languages are sometimes called ***synthetic*** languages, because both agglutinating and fusional languages 'synthesize' /join or *connect* morphemes together, even though in different ways.

Activity 7.2

What morphological type is Russian?

Ya dumayu chto eto xorosho ...

Ya	duma	-yu	chto	eto	xorosho ...
I	/ think /	1st person sg., present, indic. mood / that /		it /	good/ ...

For an example of the agglutinating type of language, look at these words from ***Swahili***, the *lingua franca* of East and Central Africa:

Nitakupenda	= I will love you:	**ni**	**ta**	**ku**	**penda**
		'I'	'will'	'you'	'love'
Ninakupenda	= I love you:	**ni**	**na**	**ku**	**penda**
		'I'	present	'you'	'love'
Nilikupenda	= I loved you:	**ni**	**li**	**ku**	**penda**
		'I'	past	'you'	'love'

We should remember, though, that no language is of one 'pure' morphological type, because languages are 'live' structures that change over time – word-meanings tend to get 'glued' or later 'fused' together, foreign words enter the lexicon, etc.

Practice Exercise

Label each of the following language samples as monosyllabic (or, isolating), inflectional, agglutinative, or incorporating (or, polysynthetic). What morphological type are these languages?

a. **Ona chitayet knigu**. – 'She is reading a book' in **Russian**.

Ona	chita-	-yet	knig-	-u
she	read (stem)	3rd pers., sg., pres. tense, indic. mood	book (stem)	Feminine gender, Singular number, Accusative case

b. **Es ceru, ka tu esi laimiiga**. – 'I hope you are happy' in **Latvian**.

Es	cer	-u	ka	tu	es	-i	laimig	-a
I	hope	1st person singular present tense, indicative mood	that	you (sg.)	are	2nd pers. Singular Present tense Indicative mood	happy	Feminine gender, singular

Summary

1. Morphemes have variant forms (allomorphs)
2. Morphemes change, depending on
   - their history (lexical conditioning) and
   - the neighbouring speech sounds
3. There are three major types of language morphology:
   a. Isolating (free morphemes)
   b. Agglutinating (morphemes 'strung' together)
   c. Fusional /inflectional (morphemes fused together, forming 'portmanteaus')

Reading

8. On Morphology

References

Yule, George (1998) The Study of Language. Cambridge University Press

Self-Assessment Exercises

Ex. 1 Examine the following data from the Nakanai language of the west New Britain Province, PNG and then answer the questions below:

gutu	*cook*	gulutu	*cooking*
taga	*be afraid*	tilaga	*fear* (noun)
pou	*sit*	pulou	*residence*
muga	*lead*	muluga	*the first*
peho	*die*	pileho	*death*
tuga	*to walk*	tuluga	*journey*
sapa	*sweep*	silapa	*broom*
voku	*make*	vuloku	*something made*

(a) The verbs in the left column appear in the right-hand column with an infix. What is the function of the infix?

(b) The infix has 2 allomorphs. State whether the conditioning factor is phonological or lexical and, if phonological, state precisely the phonological factors involved.

Ex. 2: Look at the data from Motu (Central Province, PNG) and answer the questions below:

nahodomu	*I stoned you*	narakatanimu	*I left you*
ehodogu	*he stoned me*	erakatanigu	*he left me*
ohodoa	*you stoned him*	orakatania	*you left him*
eutugu	*he cut me*	nahamasemu	*I killed you*
nautumu	*I cut you*	ohamasegu	*you killed me*
outua	*you cut him*	nahamasea	*I killed him*
eitamu	*he saw you*	ehadikagu	*he abused me*
naitaia	*I saw him*	ohadikaia	*you abused him*
oitagu	*you saw me*	nahadikamu	*I abused you*

1. List the prefixes and state what they mean: _____
2. What is the suffix meaning ‘me’? _____
3. What is the suffix meaning ‘you’? _____

4. The suffix meaning 'him' has 2 allomorphs. What are they, and what is their distribution?

Ex. 3. In Fijian, when a verb has an object, it takes a suffix. The verbs on the left have no objects, but the verbs on the right have objects following them. Examine the data and answer the questions below:

ʁai	*look, see, look at*	raiða
ðabe	*sit, sit on*	dabeða
ʏadra	*guard*	ʏadrava
ðre	*pull*	dreta
ðudru	*be angry (at)*	ðudruva
kaba	*climb*	kabata
koti	*cut*	kotiva
dresu	*tear*	dresuka
viri	*throw*	virika
moku	*kill*	mokuta
ŋunu	*drink*	ŋunuva

The transitive suffix has a number of allomorphs. List them, stating whether the conditioning factor is phonological or lexical, and if phonological, state precisely the phonological factors involved.

Ex. 4: The verb in Futunese (Futuna, Vanuatu) takes a suffix when followed by an object. Examine the list of intransitive (left column) and transitive (right column) verbs below, then list the allomorphs and state their conditioning and distribution.

tau	*hang*	tauria
fonu	*be full, fill*	fonua
waru	*scrape*	warusia
siki	*nurse*	sikina
foro	*swallow*	foromia
visau	*speak*	visaua
tanu	*bury*	tanumia
furu	*wipe*	furuna
suki	*sew*	sukia
toro	drag	toroʃa
tako	kick	takofia
toto	catch	totomia

Ex. 5 Examine the following data from French, then answer the questions below:

ʒəvwɑː	*I see*	tʊnevwɑː	*You don't see*
ʒəmavwɑː	*I see myself*	tʊnətəvwɑː	*You don't see yourself*
ʒətəvwɑː	*I see you*	tʊnəməvwapɑ:	*You don't see me*
tʊməvwɑ:	*You see me*	ʒənətəvwapɑ:	*I don't see you*
tʊtəvwɑ:	*You see yourself*	ʒənəməvwapɑ:	*I don't see myself*
tʊvwɑ:	*You see*	ʒənəvwapɑ:	*I don't see*
ʒəlav	*I wash*	ʒənəməlavpɑ:	*I don't wash myself*
ʒətəlav	*I wash you*	tʊnəlavpɑ:	*You don't wash*
tʊtəlav	*You wash yourself*	tʊmənəlavpɑ:	*You don't wash me*
tʊməlav	*You wash me*	ʒənətəlavpɑ:	*I don't wash you*
tʊlav	*You wash*	ʒənəlavpɑ:	*I don't wash*
ʒəməlav	*I wash myself*	tʊnətəlavpɑ:	*You don't wash yourself*

1. What are the verb roots?

Wash _____ See _____

2. What are the affixes marking Subject? What type of affixes are they, and what does each mean? _____

3. What are the affixes marking object? What type of affixes are they, and what does each mean? _____

4. What is the affix marking negative? What type of affix is it? _____

_____

Unit 8. The Atoms of Language: Speech Sounds

Objectives

After completing this unit, you will be able to

1. Explain the object of phonetic study, and how it is different from phonology
2. Use the International Phonetic Alphabet to describe speech sounds
3. Describe the human Organs of Speech
4. Explain the classification of Speech Sounds
5. Explain the concept of ***assimilation***

8.0 Introduction

Unit 10 will examine the physical substance of language – sounds. Speech sounds are the building blocks of morphemes and word-meanings, the 'molecules' of Language – just like nitrogen bases, phosphate and sugar make up the nucleotides of DNA, the molecules of Life.

8.1 Phonetics vs. Phonology

Linguistics, we remember, is concerned primarily with *spoken* language.
Phonetics is the study of *speech sounds*. Its aims are to describe and to explain these sounds. Phonetic description is based on *observable* facts about sounds: how they are produced, what they sound like, and what measurable physical properties they have.

Articulatory phonetics (our primary interest in this course) focuses on how we make or '*articulate'* speech sounds. It looks at the movements of the muscles and other bits of our anatomy during speech, and at how we actually make, transmit and perceive speech sounds.

Acoustic phonetics looks at speech sounds as physical events with measurable properties such as duration, energy, wavelength, etc. It relies on instrumental analysis to extract these properties, and applies statistical and other techniques to the measurements obtained. This approach does not concern us in this course.

Phonology, on the other hand, deals specifically with the sounds and *sound patterns* of individual languages.

While ***phonetics*** is the study of all human speech sounds, ***phonology*** is the study of a subset of the sounds human throats are capable of producing; it looks at how these characteristic speech sounds combine to create meaning in a particular language.

Our goal in this unit is to learn about:

⇒ what *speech sounds* are,
⇒ how speech sounds are produced,
⇒ how we can write them down, and
⇒ how they combine and *interact in connected speech*.

This knowledge will help you speak more clearly (and therefore *effectively*), understand the speech of others more easily, and overcome problems with the spelling and pronunciation of unfamiliar words. Knowing how to write (transcribe) sounds will also make it possible for you to write down the sounds of yet unwritten languages, and in so doing maybe even save some of them from dying.
What visual symbols can we use to represent the flow of speech?

8.2 Sound Symbols: International Phonetic Alphabet (IPA)

All sciences require the ability to record and classify data/ideas. People have invented many ways of writing down their thoughts. The majority of written languages today use *alphabetic* writing, which is, essentially, a set of written symbols, each representing a different sound of the language. This correspondence, however, is not always so straightforward – in English, for example,

⇒ ***a single sound can have many different spellings:***

he, she	e	One sound:
believe	ie	
Caesar	ae	
see	ee	[ɪ]
people	eo	
seize, receive	ei	
seas	ea	
amoeba	oe	
key	ey	
machine	i	

⇒ ***a single spelling can correspond to many different sounds:***

dame	[deim]
dad	[dæd]
father	[faːðər)]
call	[kɔːl]
village	[vilidʒ]
many	[meni]

⇒ ***individual speech sounds are often represented by multiple letters:***

shoot	[ʃuːt]
either	[aiðə(r)]
character	[kærəktə(r)]
deal	[diːl]
Thomas	[tɔməs]
physics	[fiziks]
rough	[rʌf]

⇒ ***letters in spelling are often not pronounced:***

mnemonic	[ni'mɔnik]
pneumatic	[nju:'mætik]
psychology	[saikɔlədʒi]
resign	[ri'zain]
ghost	[gəʊst]
island	[ailənd]
whole	[həʊl]
debt	[det]
thumb, bomb	[θʌm] [bɔm]
knot, know	[nɔt] [nəʊ]

⇒ ***individual letters sometimes correspond to two speech sounds:***

cute, universe	[kju:t] [ju:nivɜ:s]
ax, fax, exam, exactly	[æks] [fæks] [igzæm] [igzæktli]

Confusing, huh? Yet, investigating speech sounds we must have a way of writing them down. Maybe there are languages more consistent than English? Indeed, the so-called 'phonetic' languages (like Russian, Latvian, etc.) show more regular spelling-sound correspondences, but they still do not provide us with a universal way of writing sounds, because the sounds of different languages vary. For example, 'Jesus' is pronounced differently in Spanish ('j' is pronounced as a velar fricative), in German and Latvian ('j' is pronounced as a palatal glide), and in English, where 'j' is pronounced as a palato-alveolar fricative [dʒ].

That is why linguists had to abandon conventional alphabets and devise special systems of notation, in which one symbol represents only one speech sound. Perhaps the best known of these is the International Phonetic Alphabet (IPA), which provides a one-to-one mapping from sounds to written symbols, and can be used for any dialect of any language. Symbols representing sounds are put into square brackets, so that a word such as *cat* is transcribed [kæt] and a phrase such as *'Don't you lose me now'* may be transcribed as [dəʊntʃə lu:zmi naʊ]! See the chart of IPA symbols at the end of these notes

A number of IPA symbols are borrowed from the conventional written alphabet:

[b] as in ***b***ird
[d] as in ***d***og

Other symbols are modifications of alphabet letters:

[ŋ] as in ba***ng*** is a combination of *n* and *g,*

[ɪ] as in h***i***t is a small-size capital I, etc.

Sometimes obsolete letters are used:

[ʃ] as in di***sh***

Some symbols are from the Greek alphabet:

[θ] as in ***th***in,

and a few symbols are inventions, i.e., the so-called 'dark /ɬ/'

[lʌɬ] as in lu*ll* [lʌɬ] where [l] is a 'clear /l/' and [ɬ] is a 'dark /ɬ/'

In English RP, clear /l/ occurs before a vowel, while dark /ɬ/ occurs after a vowel. However, this is a language-specific rule: in Scottish English, initial /l/ is dark, in German, the final /l/ is clear.

Sometimes supplementary marks ('*diacritics*') are added to the symbols. For example, two dots indicate length:

long /uː/ as in b***oo***t.

By such means the IPA has built up a store of well over a hundred symbols which can, in theory, represent any sound in any language.

IPA is useful to more than academic linguists: people, familiar with the symbols, have no problem in pronouncing unfamiliar words when they look them up in a dictionary featuring phonetic transcription. Among other groups that make extensive use of the IPA are musicians, who wish to sing the lyrics of songs written in languages they do not speak, and actors and secret agents, who regularly use IPA as a guide in learning to imitate unfamiliar voices and accents.

8.3 IPA Symbols for the Sounds of English

We already know that none of the world's alphabets represent *sounds* exactly as we speak them - that is why linguists use IPA, which has symbols for all the sounds of world's languages. Unfortunately, we cannot learn them all due to the constraints of this course. Since you are a speaker of English, we shall limit ourselves to learning only the 44 symbols for the familiar to us sounds of RP English.

Although the phonetic script used to represent sounds looks complicated, many of the characters used are those found in the regular English alphabet. 15 letters of the English alphabet are used in a very similar way in the phonetic alphabet; they are all consonants [kɔnsənənts]:

/b/ as in **b**ag	/l/ as in **l**ap	/s/ as in **s**ap
/d/ as in **d**og	/m/ as in **m**ap	/t/ as in **t**ap
/f/ as in **f**at	/n/ as in **n**ap	/v/ as in **v**et
/g/ as in **g**ap	/p/ as in **p**ap	/w/ as in **w**et
/h/ as in **h**at	/r/ as in **r**ap	/z/ as in **z**ip

Two more letters found in the English alphabet are used in the phonetic script: ***k*** and ***j***, but they are used in different ways:

1. Both letters ***k*** and ***c*** – will often be pronounced and transcribed in a similar way*: /**k**/ as in *k*eep, *k*in, *k*een, or *c*reep, *c*ream, s*c*reen, *c*lip, *c*ap, etc. (* Letter ***c***, however, will often be pronounced like /s/, as, for example, in *receive, proceed, conceive, perceive*, etc. – this happens only if it is followed by the [ɪ:] sound).

2. The /j/ symbol is used in a completely different way to the ***j*** in *j*am or *j*og; it is used to represent many of the sounds we associate with the letter ***y***:

   /j/ as in bo***y***, so***y***, jo***y***, etc.

3. There is also <u>one vowel</u> that has the same symbol in English as in the phonetic script, and that is:

   /e/ as in ***e***gg, b***e***g, etc.

IPA Symbols Different from Those Found in the English Alphabet

/ ʃ /	as in **sh**ip	/ θ /	as in **th**ink
/ tʃ /	as in **ch**ip	/ ð /	as in **th**is
/ dʒ /	as in **j**eep	/ ŋ/	as in ha**ng**
/ ʒ /	as in mea**s**ure		

Pure Vowels [pjʊə vaʊəlz]

/ æ /	as in **a**pple	/ ɒ /	as in c**o**t
/ ʌ /	as in c**u**t	/ɔ/	as in b**o**y
/ i /	as in b**i**t	/ɔ:/	as in p***ou***r
/ ɪ:/	as in f***ee***t	/e /	as in b**e**d
/ ə /	as in th**e**	/a:/	as in c***ar***
/ ʊ /	as in b**oo**k	/ɜ: /	as in f***ur***
/u:/	as in sh***oe***		

Diphthongs [difθɔŋz]

/ei/	as in bay	/aʊ/	as in **ou**t	/eə/	as in b**ea**r
/ai/	as in buy	/əʊ/	as in b**oa**t	/ɛə/	as in f**ai**r
/ɔi/	as in boy	/ɪə/	as in b**ee**r	/ʊə/	as in d**oe**r

The following signs are not strictly used in British English but are commonly understood by R.P. speakers:

/ʍ/ as in **w**histle where the /w/ is very weak

/X / as in lo**ch**

/ʔ / as in bu**tt**er where /t/ is replaced by the glottal stop: [bʌʔə]

Activity 8.1

Transcribe: nation, scholarship, ambiguous, symbol, treasure, singularity, pot & hat.

8.4 Phonetics: Organs of Speech

The sounds of speech – they are so distinct from all the other sounds we hear. Have you ever wondered what makes them so different? Let us first see what makes the sounds of different musical instruments so distinct: the drums, the guitar, or the piano – they all make their own sounds because of their different shapes and structures. Is this the answer? The special features of our speech organs must determine the quality of the sounds we produce! A look at the special 'design' features of our speech mechanism will help us understand how it can make all the sounds of world's languages.

Our description of human speech organs will necessarily contain some references to the sounds they make, so please make sure you know these basic terms:

⇒ **consonant**: a speech sound produced by completely or partly stopping the air breathed out through the mouth: *p, b, m, k,* etc.

⇒ **vowel**: a speech sound produced by free flow of air through the speech tract (no contacts or strictures there that you can feel with any precision): *a, o, e, u*, etc.

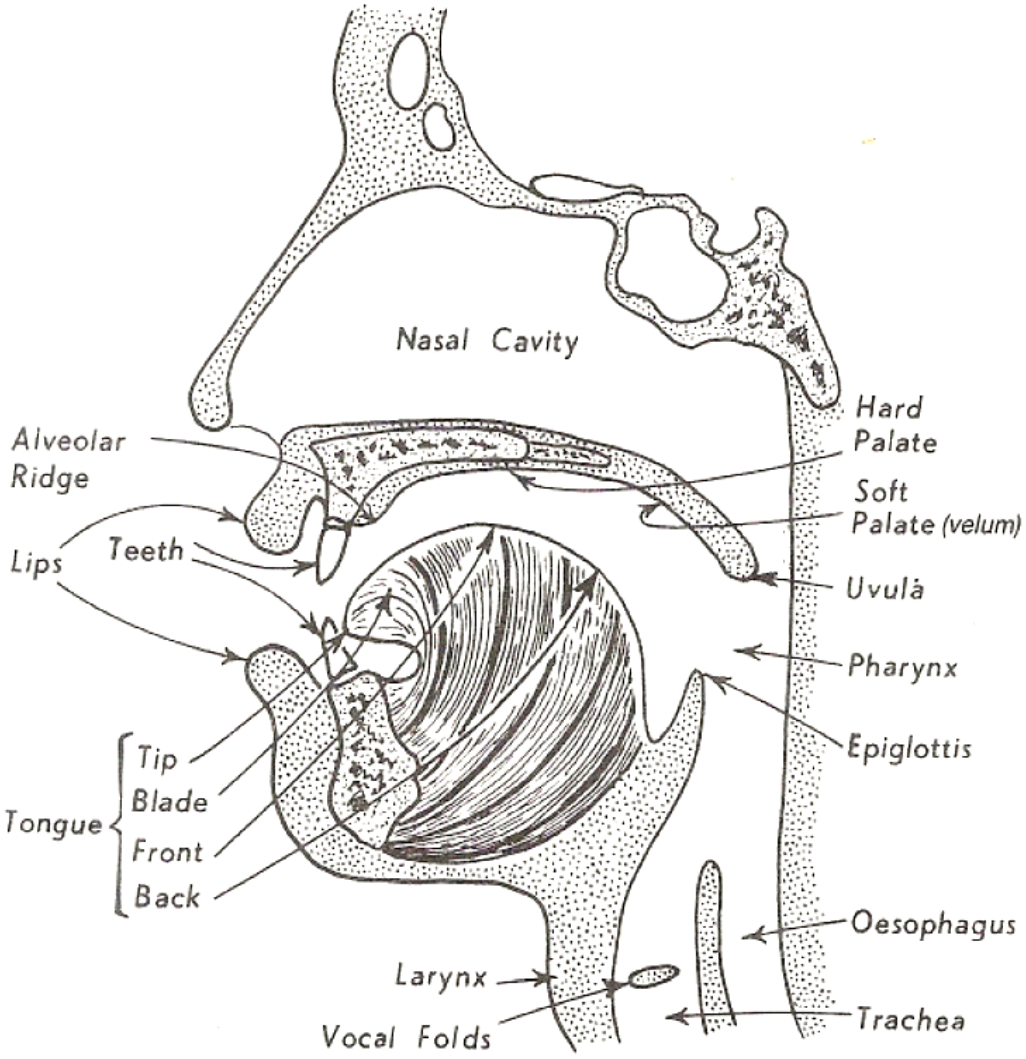
⇒ **diphthong**: a union of two vowel sounds, as in p*i*pe, *ou*t, *a*te, *tour,* etc.

'Organs of Speech' – the Speech Mechanism

The first requisite of speech is breath: it provides the ***energy*** needed for sound production. During the act of normal healthy breathing, air comes from the lungs up through the windpipe (***trachea***) and out either through the nose or through the mouth. Normally, breath is silent and in order to convert it into speech we must make some kind of intentional modification of the stream of breath air. This can be done at a great number of different points on its way out of the lungs, through the respiratory tract and through the mouth and nose. These points at which the breath stream can be modified to produce sounds are called organs of speech or speech organs:

⇒ The vocal cords (vocal folds)
⇒ The lips
⇒ The tongue
⇒ The roof of the mouth

The first three speech organs are movable, while the last is fixed, except for the soft palate (Re: Fig. 1):



(Source: Gimson, A.C.: 1975, p.10)

Fig. 1 Organs of Speech (a schematic diagram)

The Vocal Folds

The first point at which the breath stream can be modified is the ***larynx*** (commonly called the '*Adam's apple'*). It is at the upper end of the windpipe; it is a bony structure rather like a box which contains two lip-like structures, stretched from the front to the back of the larynx: they are called the *vocal cords* (or, rather, *folds*). They are fixed in the front but in the back each of them is attached to *movable* cartilages.*

* **cartilage**: the tough white flexible tissue attached to the bones of animals

The whole of the larynx containing the vocal folds can also be raised or lowered. The space between the vocal cords is called ***glottis*** (See Fig. 2 below).

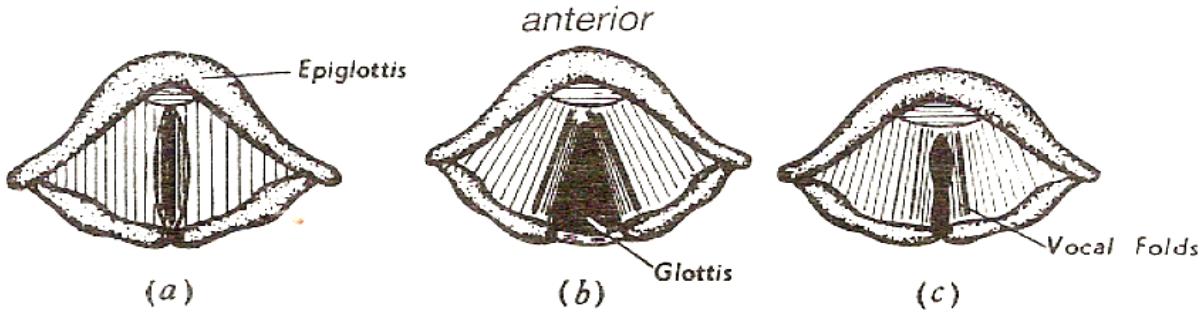


FIG. 2.—Diagrams of the vocal folds as seen from above: (*a*) tightly closed as for [ʔ]; (*b*) wide open as for breath; (*c*) loosely together and vibrating as for voice.

(Source: Gimson, A.C.: 1975, p. 11)

Basically, the vocal folds can take **four (4) different positions**:

1. ***Open glottis***: In this position the vocal folds are wide apart and the breath stream passes between them without being modified in any way. This is the position of the vocal folds during normal breathing. This is also the position they are in when we pronounce certain sounds which are said to be *voiceless,* such as /p/, /f/, /s/, etc.
2. ***Closed glottis***: In this position the vocal folds are tightly closed, with the lung air pent up below it. This is the position of the vocal folds when we are holding our breath and also it is the first stage of a cough. If the folds are suddenly released, the breath stream rushes out, making an explosive sound called the ***glottal stop*** **[ʔ].** Although this sound is very common in many varieties of BE pronunciation, no letter of the English alphabet represents it and therefore we are not conscious of its existence. In standard English speech this sound precedes the energetic articulation of a vowel, especially when a long vowel appears in initial stress position, e.g. ['aːmfʊl], ['ɔːfʊl].
3. ***Position for whisper***: In this position the vocal cords are still tightly closed except at one point where a little gap is left. When we speak with the vocal cords in this position, the breath forces itself through the small gap with audible friction. The greater the force of the breath stream, the louder the whisper.
4. ***Position for voicing***: In this position, the vocal folds are fairly close together, but not touching. As the air pushes between them, they open and suddenly close again. This happens repeatedly at a great speed, resulting in *vibration*. The effect of this vibration is a wave of sound that emerges from the larynx and out through the mouth and nose. When it enters the hearer's ear, it is recognised as voice. Voice does not mean speech. Speech is talking. If we are not using the vocal cords as in whisper, we still have speech but no voice. Voicing is the position the vocal cords take up in the pronunciation of all voiced sounds.

The vocal cords play an important role in the pitch, loudness and sonority of the sounds. When the sound is higher in pitch, the vocal cords vibrate more rapidly, and vice-versa – the lower the voice, the slower the vibration of the vocal cords. The rate

of vibration mainly depends on the length of the vocal cords. The longer they are, the slower the vibration (and therefore, the lower the voice). In a man, the length of the vocal cords is about 23 mm, and in a woman - about 18 mm.

Activity 8.2

Put your fingers on your larynx and check out the four positions of your vocal folds. Say zzzzzzz and then sssssssss and feel the vibration stop when your glottis opens up.

Then pronounce the name *Fa'afo* and feel the movement of your larynx when it closes between the two *a* sounds. Notice how vibration stops when you whisper.

From the larynx, the breath stream is now further modified in the **resonating cavities** through which it passes: the pharynx, mouth and/or nose.

The **pharynx** connects the larynx to the mouth cavity. It has almost fixed dimensions, but its length may be changed slightly by raising or lowering the larynx at one end and the soft palate at the other end. The soft palate also isolates or connects the route from the nasal cavity to the pharynx. At the bottom of the pharynx are the epiglottis and false vocal cords to prevent food reaching the larynx and to isolate the oesophagus acoustically from the vocal tract. The epiglottis, the false vocal cords and the vocal cords are closed during swallowing and open during normal breathing.

The **oral cavity** is one of the most important parts of the vocal tract. Its size, shape and acoustics can be varied by the movements of the palate, the tongue and the lips. Especially the tongue is very flexible, the tip and the edges can be moved independently and the entire tongue can move forward, backward, up and down. The lips control the size and shape of the mouth opening through which speech sounds are radiated.

Unlike the oral cavity, the **nasal cavity** has fixed dimensions and shape. Its length is about 12 cm and volume 60 cm^3. The air stream to the nasal cavity is controlled by the soft palate, which makes it of a vital importance in determining whether the sound will be nasalised or not.

From the technical point of view, the vocal system resonating chambers may be considered as a single acoustic tube between the glottis and mouth.

The Roof of the Mouth

It can be divided into three sections: the alveolar ridge, the hard palate and the soft palate.

The alveolar ridge is a fixed speech organ whose chief function is to serve as a point of contact, for the tip of the tongue, in the production of some consonants. It also serves both as a place for narrowing the passage of the breath stream together with either the tip or the blade of the tongue, in the production of /s/, /z/ and /r/ and as

a place of vibration of the tongue for the trilled consonant /r/. Furthermore, together with the hard palate it takes part in the production of /s/, /z/, /tʃ/ and /dʒ/.

The hard palate is the hard section of the palate between the alveolar ridge and the soft palate. It is also a fixed speech organ. Its chief function is to serve as point at which the breath stream can be narrowed by the front of the tongue in the production of the single voiced palatal fricative /j/. The hard palate together with the alveolar ridge is used in the creation of /s/, /z/, /tʃ/ and /dʒ/. Finally, the hard palate is used as a place the front part of the tongue is raised towards in the production of the front vowels /i/, /i:/, /e/, /æ/, and some of the diphthongs such as: /ei/, /ai/, and /ɔi/.

The soft palate (***velum***) is a movable speech organ, which has three main functions:
It serves as a point of contact for the back of the tongue in the production of *velar* (< *velum*) consonants /k/, /g/ and /ŋ/.
It is used as a place towards which the back of the tongue is raised when the back vowels /a:/, /ɔ/, /ɔ:/, /ʊ/, /u:/, and the diphthongs /aʊ/ and /əʊ/ are formed.

It can be raised so that it touches the back wall of the pharynx. In this position the breath stream is prevented from escaping through the nose and it all goes through the mouth regardless of whether there is any obstacle or not. All English sounds produced with the soft palate in this position are known as oral sounds and they include all vowels and diphthongs and the majority of English consonants. When the soft palate is lowered and at the same time there is a complete obstacle in the mouth, which prevents the breath stream from escaping through the mouth, the breath stream rushes out freely through the nasal cavity. The consonants produced with the soft palate in this position are known as nasal consonants /m/, /n/ and /ŋ/. The soft palate can be lowered without having any obstacle in the mouth, in which case the breath stream escapes freely both through the mouth and nose. The nasalised vowels are formed in this way. The majority of French vowels are nasalised in front of nasal consonants.

The Tongue

The tongue is the most flexible and mobile speech organ - it is so vital in speech production that we sometimes refer to languages as 'tongues.' It is practically <u>four</u> speech organs in one:

- the **tip** of the tongue,
- the **blade**,
- the **front** and
- the **back**.

Because of its great elasticity, the tongue can raise or lower either its back or its front part to different heights in the mouth and thus change the shape of the mouth cavity. This results in production of vowels and diphthongs of different quality. When the front part of the tongue is raised to different heights towards the hard palate, the front vowels are formed. The back of the tongue is raised towards the soft palate in the production of the back vowels. When either the front or the back of the tongue glides

from one position to another, various diphthongs are formed. The tongue can also be used to produce consonants, either by blocking the breath stream at one or several points in the mouth (plosives, nasals), or by narrowing the breath passage so that audible friction is created (fricatives). Being able of great mobility the tip of the tongue can be set in vibration against a fixed speech organ (the alveolar ridge) and the result is what is known as lingual trill. The tongue takes part in the formation of all English sounds except /m/, /p/, /b/ and to some extent /a:/.

The Lips

As a moveable organ of speech, the lips are capable of producing sounds themselves, e.g. /p/. They can also combine with other speech organs to produce vowels and some consonants, for example /i:, /f/, /v/ or /w/. Since they are flexible, they can take up several positions:

⇒ **spread,**
⇒ **wide open,**
⇒ **close rounded,**
⇒ **open rounded,**
⇒ **neutral** and
⇒ **closed.**

Spread lips. The lips are slightly apart and energetically spread. The vowels produced in this position are: / i:/, /i/ and /e/.

Wide open lips: In this position the lips have no effect on the breath stream. The only vowel produced with lips in this position is /a:/.

Close rounded lips: They are rounded with a small gap between them. In this position they can be flat rounded /ʊ/ and protruded /u:/, /w/.

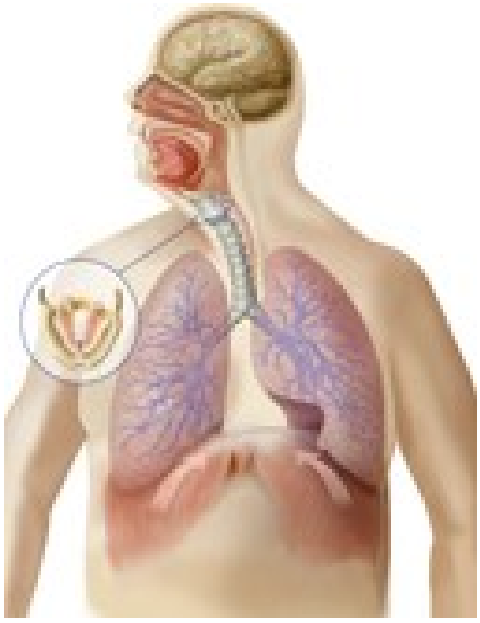
The lips are **rounded** with a rather large gap between them. When flat rounded, the vowel /ɔ/ is produced and when protruded the vowel /ɔ:/ is produced.

Neutral lips: The lips are held in a relaxed position with a medium distance between the jaws. This is the position of the lips in the production of /æ/, /ʌ/, /ɛ/ and /ə:/.

Closed lips: The lips are completely closed so that the passage of the breath stream is blocked altogether. Then either the lips suddenly open /p/ and /b/ or the soft palate lowers /m/.

The lower lip can be brought into contact with the upper teeth to form a narrow passage so that audible friction is created when the breath stream pushes its way through the passage /f/ and /v/.

How speech sounds are produced: Summary



1. Air is gradually expelled from lungs, through trachea (windpipe) and vocal tract

2. Flow of air is blocked or modified by articulators (the tongue, lips, etc.)

3. When airflow is wholly or partially blocked by vocal tract, **consonants** are produced; when airflow is unimpeded by the vocal tract, **vowel** sounds are produced. Therefore, the consonant/vowel distinction is really a very simple **articulatory** distinction.

4. Typically, air is expelled through the mouth (oral cavity).

✍ Activity 8.3 ~ Quick Revision Q&As

1. What are organs of speech? Name them. Lungs serve as an air reservoir and energy source. The air passes through the Larynx and the Vocal Cords and out through the Pharynx and oral/nasal cavities. The points at which the breath stream can be modified to produce sounds are called organs of speech or speech organs (the first three speech organs are movable, while the last is fixed, except for the soft palate): (1) The vocal cords (vocal folds), (2) The lips, (3) The tongue, and (4) The roof of the mouth

2. What are the 4 possible positions of vocal folds during speech?

1. **Open glottis:** In this position the vocal cords are wide apart and the breath stream passes between them without being modified in any way.
2. **Closed glottis**: In this position the vocal folds are completely closed, so that the breath stream is blocked below them.
3. **Position for whisper:** In this position the vocal cords are still tightly closed except at one point where a little gap is left. The greater the force of the breath stream, the louder the whisper.
4. **Position for voicing**: In this position, the vocal cords are close together, vibrating with the air stream, which produces a wave of sound that passes from the larynx and out through the mouth and nose.

3. Why is the tongue so vital in speech production that we sometimes refer to languages as 'tongues'? Because it is the most flexible and mobile speech organ - it is practically 4 speech organs in one: the tip of the tongue, the blade, the front and the back.

8.5 Classification of Speech Sounds

We remember that consonants are caused by obstruction of the flow of air through the mouth, whereas the vowels are never completely obstructed. In other words,

⇒ **Vowels** are sounds we make when our breath air passes freely through the vocal tract, and
⇒ **Consonants** are sounds we make when the air flow from the larynx meets some barrier on its way out.

Therefore, consonants and vowels have their own ***features/characteristics*** that we use to classify them. When talking about **consonants,** we can define

⇒ **Where** the obstruction takes place (***Place of Articulation***) and
⇒ **What** ***form*** of obstruction causes the sound (***Manner of Articulation***).
⇒ We can also describe consonants based on whether or not the vocal cords vibrate during the enunciation process (**voiced / voiceless** consonants).

It is not so in the case of **vowels**: since there is no contact between the articulators, we cannot talk of any *place of articulation* during their production. What then determines their quality?

Vowel Sound Quality: Tone & Stress (Pitch, Loudness, & Length)

Tone

The ***glottal tone*** is the basis of all normal vowels, but we can perceive a large number of vowel qualities, because **our perception of sound quality is determined by the way in which the speaker's vibrator and resonators function together** (i.e., *meet, mate, mute, mat, mail, mall, etc.*).

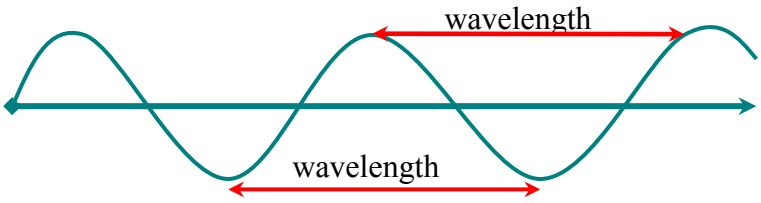
The ***glottal tone*** is the result of complex, but mainly regular vibrations of the vocal folds. The frequency of these vibrations depends on the length and tension of the vocal folds (male vocal folds are longer, hence the lower frequency of vibrations). The human voice is not a pure single frequency sound, but a rich, buzzy vibration with many sound frequencies blended together. In fact, the vocal folds vibrate in such a way as to produce, in addition to a basic vibration over their entire length (the *fundamental frequency*), a number of overtones with frequencies, which are *simple multiples* of the fundamental tone. Thus, if there is a fundamental frequency of vibration of 100 cycles per second (cps), the upper tones will be of the order of 200, 300, 400, etc., cps. There may even be no energy at the fundamental frequency, only the tones of higher frequency (for example, when a man tries to imitate a woman and starts speaking in a *falsetto* voice ☺) – nevertheless, we still perceive a pitch which is appropriate to the fundamental frequency of 100 cps. Why? Because the fundamental frequency is the highest common factor of all the frequencies present, whether it itself is present or not.

The number and strength of the component frequencies of this complex glottal tone differs from one individual to another, and this, in part, accounts for the uniqueness of our individual voices. What else could shape the one-and-only quality of our individual voices? It must be the singular shapes of our 'personal' resonance

chambers, tongues, teeth, alveolar ridges, lips, uvulas and palates! I have heard of some gifted singers refusing dental treatment for fear that it might alter the resonance of their oral cavities! ☺

We can all modify the glottal tone to produce at will vowels as different as /iː/ and /aː/, so that despite our differences of voice quality, we can all convey the distinction between two words such as *key* and *car*. What causes this variation in the quality/timbre ['tæmbə] of the sounds we pronounce and hear?
You know the sound of water filling a bottle: the pitch goes from low (when the bottle is empty) to high, as it gets filled up. Have you ever wondered, why? Physics explains it all! ☺:

We know that the vibrating air from the larynx runs through several resonance chambers before leaving our heads: the throat (*pharynx*) behind the tongue, the mouth region between the tongue and palate, and the opening between the lips. Alternative route (if the passage through your mouth cavity is blocked by your velum/soft palate) is through your nose. Each of these chambers has a particular length and shape, which affects the sound waves passing through them, through the phenomenon called *resonance.* Sounds of different frequencies have different *wavelengths* (i.e., the distance between the crests of sound wave):



A sound wave moving down the length of a tube bounces back when it reaches the opening at the end of it. If the length of the tube is a certain fraction of the wavelength of the sound, then each reflected wave will reinforce the next incoming one; if they are of different lengths, they will interfere with each other (similar to how you get the best effect pushing child on a swing if you synchronize each push with the top of an arc/'crest' of the wave'). Thus, a tube of a particular length will amplify some sounds and filter out others. When you are filling your bottle with water, the noise of the water gets filtered by the chamber of air between the water surface and the opening: the more water, the smaller the air chamber, the higher the resonant frequency of the chamber, and the higher the pitch of the sound you hear.

What we hear as different vowels are the different combinations of amplifications and filtering of the sound coming from the larynx. These combinations are produced by moving *five speech organs** around in the mouth to change the shapes and lengths of the resonant chambers that the sound passes through. For example, [iː] is defined by two resonances, one 200-350 cps produced mainly in the mouth, and one from 2100 to 3000 cps, produced mainly in the throat. The range of frequencies a chamber filters does not depend on the frequencies that enter it – that is why we can hear an [iː]whether it is spoken, whispered, sung high, sung low, screeched, moaned, wailed, giggled, burped, or twanged.

* These are: the ***tongue*** (the *three-in-one*: the tip, the hump/body, and the root, or the muscles that anchor it to the jaw), the ***velum***, and the ***lips***. The tongue is actually the

most important of the speech organs – the word 'tongue' for 'language' is well justified! ☺

Pronounce the vowels in b***et*** and b***u****t* repeatedly, [e / ʌ], [e / ʌ], [e / ʌ]. You should feel the body of your tongue moving forwards and backwards (you can feel it with your finger, if you put it between your teeth). When your tongue is in the front of your mouth, it lengthens the air chamber behind it in your throat and shortens the one in front of it in your mouth, altering their resonances.
Now pronounce the vowels in b***ee***t and b***a***t several times over: your tongue will jump up and down – you will even feel your jaw moving. This also alters the shapes of the throat and mouth chambers, and hence their resonances. The brain interprets the different patterns of amplification and filtering as different vowels.

So: variation of ***quality*** - or **timbre** ['tæmbə] - of the glottal tone is caused by the way we change the shapes of our resonators above the larynx – the pharynx, mouth, and nasal cavity. The frequencies of the glottal tone which coincide with the chamber's own resonance will be amplified, and others will be filtered out. Thus, certain bands of reinforced frequencies are characteristic of a particular arrangement of the resonating chambers, which produces a certain vowel sound. These bands of frequencies will be reinforced (amplified) whatever the fundamental frequency. In other words, whatever the pitch on which we say, for example, the vowel sound /a:/, the shape of the resonators and their resonances will be very much the same. This, except on extremely high or low pitches, makes it possible for us to recognize the quality intended.

Stress: Pitch, Loudness & Length

The next three *kinds* of variation in the ever-changing pattern of sounds**: pitch, loudness,** and **length**, all are important in determining *stress*. ***Stress*** is a term that we apply to ***words in isolation,*** which have more than one syllable*.

*Syllable ['siləbl] - n. any of the units into which a word may be divided, usually consisting of a vowel sound with a consonant before and/or after it: *'Arithmetic'* is a word of four syllables, or a four-syllable word (Oxford Dictionary definition).

Stress refers to the property that certain syllables carry which makes them stand out from the rest of the word. Stressed syllables are articulated more energetically than the unstressed ones. The prominence of the stressed syllables is usually attributed either to their pitch, length, or loudness, or to a combination of several of these factors. The notation for stress is the high mark you can see in the following examples:

['neivi] for stress on the first syllable

[di'miniʃ] for stress on the second syllable

[juni'və:siti] for primary stress on the third syllable

In some, usually longer words, it is possible to pick out a second, weaker stressed syllable from the primary stress. This is known as secondary stress, and it is notated with the low mark, e.g.:

[ˌfəʊtə'græfik]

In this example, the third syllable is more prominent than the first syllable, but the first syllable is still more prominent than the other syllables and so it carries the low mark, indicating secondary stress. In English and many other languages, it is usually the content words that will have one or more syllables stressed – function words (such as prepositions, auxiliary verbs, articles and particles) usually carry no stress in running speech. Generally, we know which syllables to stress (or half-stress), and which not to stress at all in the language we speak – it is part of our knowledge of the language.

Pitch is an auditory sensation that places sounds on a scale from high to low. Every syllable has pitch; however, any syllable that is articulated with a noticeably different pitch will appear to carry more stress. This can go either way: if all the syllables are said in a low pitch except one, then that higher pitch syllable will be deemed to carry the stress of the word. Pitch also plays a central role in intonation.

Loudness**:** some sounds or syllables sound 'louder' than others, and thus have greater prominence as compared to other syllables. This prominence would then make that syllable the stressed syllable. However, it is very difficult to make a sound louder without affecting the length, pitch, or quality of that syllable. If you could only change the loudness of a sound, then the perceptual change would not be as great as you might expect.

Length – some sounds will be appreciably longer to our ears than others. These acoustic variations of length, unlike those in *tone* languages like Chinese or Yoruba, are mostly relative to the length of the neighbouring vowel sounds and cannot be measured in absolute terms. Older stages of English differentiated words by whether their vowels were pronounced quickly or were a bit drawn out, a bit like the modern distinction between [bæd] meaning 'bad' and [bæːd] meaning 'good' ☺. But in the 15th century English pronunciation underwent a convulsion called the Great Vowel Shift. The vowels that had simply been pronounced longer now became 'tense': by advancing the tongue root (the muscles attaching the tongue to the jaw), the tongue becomes tense and humped rather than lax and flat, and the hump narrows the air chamber in the mouth above it, changing the resonances. Also, some tense vowels in modern English, like 'B***ye***!,' 'b***i***te' and 'br***ow***' are 'diphthongs' (two sounds pronounced in quick succession as if they were one). We shall refer later to the 'long' vowels of English, such as those in *bean* and *barn,* as compared with the short vowel in *bin*, but we must remember that these distinctions are made only *in relation to the neighbouring sounds* and depend on the rate of delivery. In English, we cannot measure the difference between long and short vowels in absolute terms, like, for example, in Latvian.*

*Latvian examples: plans – plaans (plan – thin), zeme – zemee (land – in the land), varda – vaardaa (toad – in the word), kazas – kaazas (goats – wedding), etc. – the long vowels in Latvian are about 2.5 times longer than the short ones.

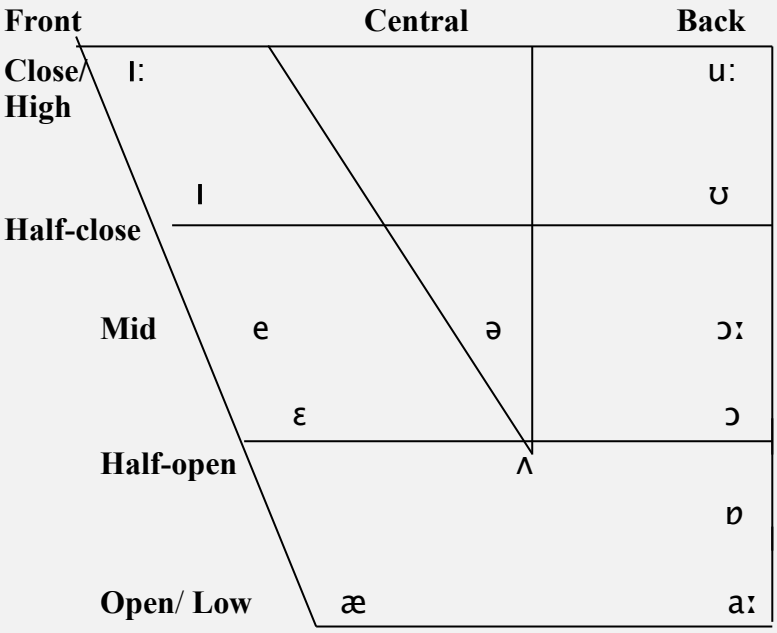
Length seems to play a role in stress. Generally, if one syllable has a longer length than the others in a word, then we hear it as the one carrying stress. Length is one of the more important determiners of stress.

The same general principles and terminology are used in classifying the sounds of all human languages. Let us use the sounds of the language we share – English – to see

how we can describe and classify them. This knowledge will help you study the sound systems of other languages and may even enable you to record some of the fast disappearing languages of Papua New Guinea.

Classification of English Vowels

Because no physical obstruction occurs in our vocal tracts when we pronounce vowels, it is quite difficult to determine exactly *where* each vowel is formed. The tongue clearly influences the flow of air, as does the shape of the mouth and even that of the lips. One of the ways we can plot the position of a vowel is through the **cardinal vowel diagram**:



The cardinal vowel diagram represents the shape of the oral resonating chamber which changes with tongue movement while articulating vowel sounds. This diagram indicates:

- **The tongue position in the mouth (front/central/back)** and
- **Which part of the tongue is raised the highest.**

Try saying /iː/, then /uː/ (as in *pee / pooh*). You should notice the change in the position of your tongue from front to back.
On the vertical axis, those sounds towards the top of the diagram represent those articulated with a relatively closed mouth, whilst those towards the bottom are far more open.

Try saying these sounds in the order they come: /iː/, /e/, /æ/, and /uː/, /ɔː/, /ɒ/, /aː/. You should feel the gradual opening of the mouth.

Vowel Quality (3-term classification)

According to the Cardinal Vowel Diagram, which tracks tongue position, English vowels may be classified as:

- open/close (low/high)
- front/back, and
- round/ unround (depending on the shape of the lips)

For example:

[u:] – close back round
[i:] – close front unround
[a:] – open back unround

We have already mentioned that English vowels may also be characterized by the *degree of **tension*** in the tongue (tense/ lax, or long/ short) vowels and by whether the vowel is a single sound or a diphthong (glide). Therefore, English vowels also fall into two types:

- short/ long (lax/tense), and
- monophthong / diphthong (triphthong).

Vowel Quality – 5-term classification

If we want to give a full description of any vowel sound, we would have to characterise it using the full **5-term classification**, indicating whether the sound is:

- close/half open/open
- front/central/back
- round/unround
- short (lax)/long (tense)
- monophthong/diphthong (triphthong)

Using the 5-term classification, we can describe English pure vowels in the following way:

/i:/ - close, front, unround, long (tense), monophthong

/i / - close, front, unround, short (lax), monophthong

/e/ - mid (half open), front, unround, short (lax), monophthong

/æ/- open, front, unround, short (lax), monophthong

/ə/- open, central, unround, short (lax), monophthong

/ɛ:/- mid (half open), central, unround, long (tense), monophthong

/ʌ/- mid (half open), central, unround, short (lax), monophthong

/ɒ/- open, back, round, short (lax), monophthong

/ɔ:/- open, back, round, long (tense), monophthong

/ʊ/- close, back, round, short (lax), monophthong

/u:/- close, back, round, long (tense), monophthong

/a:/- open, back, unround, long (tense), monophthong

Activity 8.3

Read to the words on the left and decide which is the correct symbol for the vowel:

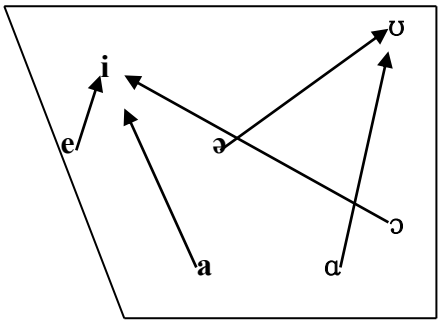
1	bird	/əː/	/ɛː/	/æː/
2	man	/ə/	/aː/	/æ/
3	put	/uː/	/ʊ/	/ʌ/
4	pit	/i/	/ɪ /	/ɪː/
5	head	/æ/	/ɛː/	/e/
6	caught	/ɔː/	/ɑ/	/ɛː/
7	car	/ɒ/	/ɑ/	/aː/

The Diphthongs ['dɪfθɔŋz]

In English, as in most languages, vowels can also glide into one another to form ***diphthongs*** and even (according to some classifications) ***triphthongs***. Diphthongs are those sounds that consist of a movement or glide from one vowel to another. The first part of a diphthong in English (unlike Latvian diphthong 'ie') is always longer and stronger than the second part; as the sound glides into the second part of the diphthong, the loudness of the sound decreases.
Diphthongs are classified according to the direction of the glide (toward closer or more central second element):

English *Closing* Diphthongs:

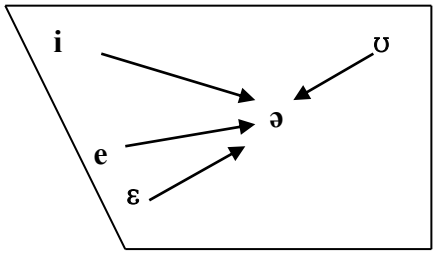
/i /-glides:	**/ei/**	as in 'face'	[f**ei**s]
	/**ai**/	as in 'nice'	[n**ai**s]
	/ɔi/	as in 'boy'	[b**ɔi**]
/**u/-glides:**	**/ əʊ/**	as in 'rope'	[rəʊp]
	/**aʊ**/	as in 'house'	[h**aʊ**s]



English *Centering* Diphthongs:

Schwa-glides:

/iə /	as in 'fierce'	[fiəs]
/eə/	as in 'hair'	[heə]
/ɛə/	as in 'fair'	[fɛə]
/ʊə/	as in 'tour'	[tʊə]



Phoneticians disagree on whether to consider vowel sounds containing three elements as *diphthongs* or *triphthongs*, depending on their understanding of the term *syllable.*

Each syllable can have only one vowel: If 'hire' and 'higher' are monosyllabic, /aiə/ is a triphthong. If they are bisyllabic, then the diphthong /ai/ is followed by schwa /ə/.

Vowels play an essential role in every language. They are far more difficult to transcribe than consonants and are also an extremely important area of English phonology, as they make up the greatest difference between English varieties.
As we know, vowels are determined by changes in the position of the lips, tongue and palate. Vowel sounds break up clusters of consonants by allowing air to pass through the mouth. Every word in the English language uses a vowel in some form or another – in fact, words have roughly as many syllables as they have vowel sounds.

We also have two ***semi-vowels***: /j/ and /w/. These sounds start with the tongue taking the position for the respective vowels, /ʊ/ and /u:/, but then further constriction of the air passage produces the qualitative change that places the resulting sounds half-way between vowels and consonants. We shall talk more about them, when considering English consonants:

English Consonants ['iŋgliʃ 'kɔnsənənts]: **Classification**

English consonants are classified according to **three criteria**: **manner, place and force of articulation.**

English consonants are classified according to **three criteria**: **manner, place and force of articulation.**

Manner of Articulation: English consonants can be classified into two basic types, differentiated by the type of obstruction that produces the sound (complete blockage, or a kind of constriction of the vocal tract); they fall into ***obstruents*** and ***sonorants.***

In the pronunciation of ***obstruents*** the air-stream is *obstructed*, which means that the air from the lungs meets an obstruction/ narrowing in the vocal tract that may block it for a moment. ***Sonorants*** are made without any such obstruction of the air-stream, and that means that they are relatively louder than other sounds (they are said to have greater *sonority*). **Obstruents** are further divided into:

⇒ **stops/plosives** are made by forming a complete obstruction – stop - to the flow of air through the mouth and nose and then suddenly releasing the pent-up air, making an explosion of air: /p/, /b/, /t/, /d/, /k/, /g/

⇒ **fricatives** which are characterised by incomplete obstruction to the flow of air; this allows the air to escape through a narrow stricture, producing audible friction: /f/, /v/, /θ/, /ð/, /s/, /z/, /h/, /ʃ/, /ʒ/, and

⇒ **affricates** – an affricate is a *plosive* immediately followed by a *fricative* in the same place of articulation: /tʃ/, /dʒ/. If you think about it, the /tʃ/ sound is made up from the plosive /t/ and the fricative /ʃ/ pronounced simultaneously: ***ch****urch,* ***ch****ip, etc.* The same applies to /dʒ/: /d/ + /ʒ/ = /dʒ/, as in ***j****udge,* ***j****eep,* etc.

Sonorants also have two main categories:

⇒ **Nasal stops** /m/, /n/, /ŋ/ - these are sonorant, because although the air is blocked in the mouth by lowering the soft palate, it continues to resonate and flow through the nose. If the nasal passage is blocked, as when you have a cold, or squeeze your nose tightly, these nasal stops will be realised as [b, d, g] – try it! ☺

⇒ **Approximants** (**liquids** /l/ and /r/, and **semi-vowels** /j/ and /w/) are sonorants - as well as all vowels – because when we pronounce them, the air resonates without being stopped.

Place of Articulation: After the air has left the larynx, it passes through the vocal tract. Consonants are produced by obstructing the air flow through the vocal tract. There are a number of places where the point of contact (or approximation) can take place. These places are called *articulators.* They include:

- Lips *(Labial)*: /p/ /b/ /m/
- Teeth *(Dental)*: /θ/, /ð/
- Lip + teeth *(Labio-Dental)*: /f/ /v/
- Alveolar Ridge *(Alveolar)*: /s/ /z/ /t/ /d/ /l/ /r/ /n/
- Hard Palate *(Palatal)*: /j/
- Hard Palate & Alveolar Ridge *(Palato-Alveolar)*: /ʃ/, /ʒ/, /tʃ/, /dʒ/
- Soft Palate *(Velar)*: /k/ /g/ /ŋ/
- Throat *(Glottal)*: /h/ /ʔ/

Force of Articulation: If we classify the two phonemes /f, v/ according to their *place* and *manner* of articulation, we shall see that they are both labio-dental fricatives. How can we distinguish between these two phonemes? We commonly refer to this difference as being 'voiced' and 'voiceless,' where *voiced* means that the vocal cords are vibrating. However, this is not an accurate term because voicing varies according to their position in the word. In initial and final positions the voiced stops /b, d, g/ are hardly voiced at all. In order to distinguish between the phonemes /p, f, t, θ, s, k/ and /b, v, d, ð, z, g/ phoneticians say that the first group is pronounced with more ***force*** than the second group, and this distinction is called ***fortis*** (meaning *strong*) and ***lenis*** (meaning *weak*), accordingly.

The ***fortis consonants*** are always ***voiceless***, while the ***lenis consonants*** are sometimes ***voiced.*** All the consonants mentioned above belong to pairs distinguished by the difference between fortis and lenis. The remaining English consonants are not paired in this way, so it is not necessary to include this distinction when classifying the other consonants:

Lenis / Fortis	Place of Articulation	Manner of Articulation

/p/	fortis	labial	Plosive
/b/	lenis	labial	Plosive
/t/	fortis	alveolar	Plosive
/d/	lenis	alveolar	Plosive
/t/	fortis	palato-alveolar	Plosive
/d /	lenis	palato-alveolar	Plosive
/k/	fortis	velar	Plosive
/g/	lenis	velar	Plosive
/f/	fortis	labio-dental	Fricative
/v/	lenis	labio-dental	Fricative
/θ/	fortis	dental	Fricative
/ð/	lenis	dental	Fricative
/s/	fortis	alveolar	Fricative
/z/	lenis	alveolar	Fricative
/tʃ/	fortis	palato-alveolar	Affricate
/dʒ/	lenis	palato-alveolar	Affricate
/h/	fortis	glottal	Fricative
/m/		labial	Nasal
/n/		alveolar	Nasal
/ŋ/		velar	Nasal
/l/		alveolar	Approximant
/w/		bilabial/velar	Approximant
/r/		alveolar	Approximant
/j/		palatal	Approximant

These three criteria (force, place, and manner of articulation) enable us to describe most consonants in human languages.

Activity 8.4

Do the exercises at the end of Ch 5 of 'The Study of Language' by George Yule (Re: Resource Book)

8.6 Sounds in Connected Speech

Discussing speech sounds, we have seen that their quality is determined by the shape of the resonance chambers and the position of the tongue and other articulators. When

we speak, we do not make pauses between words – we produce long strings of sounds, all blending into a stream of sounds.

Assimilation [əˌsimi'leiʃən]

Many factors affect sounds in running speech, most of them resulting from the physical limitations of our organs of speech: our tongues, lips and soft palates are not fast, or flexible enough, to cope with the flow of speech! They cannot move quickly enough to get from one position to another in order to articulate the next sound *precisely*. Many sound changes are due to the influence of one sound upon another, causing the other sound to become more like the 'influencing' sound itself. If a sound change results in more *shared phonetic features between two sounds*, this results in ***assimilation.*** **There are 3 main types of assimilation:**

1. **Assimilation of Place**: **/t/ → /p/** in *rat**b**ag* ['ræpˌbæg], *good boy* ['gʊpˌbɔi], or *oat**m**eal* ['əʊpmiːl], etc. This is because the alveolar plosive /t/ is simplified into the /p/ sound, which is closer to the bilabial plosive /b/ and to the bilabial nasal /m/.

2. **Assimilation of Manner**: occurs when two different manners of articulation influence each other to form a different manner of articulation: *Indian* ['indʒiən] and *soldier* ['səʊldʒə]. This is because the plosive /d/ combines with the approximant /j / to form an affricate.

3. **Assimilation of Voice**: have to ['hæftə] (voiced fricative followed by a voiceless consonant)

Assimilation of place will, of course, affect the manner of articulation, so these different types of assimilation usually occur together. ***Assimilation*** can be

⇒ **Partial,** when the changed sound retains at least one of its original features (p*artial regressive assimilation* examples: **in**divisible [ˌindi'vizəbl], **im**balance [im'bæləns], **in**credible [iŋ'kredəbl], **in**admissible [ˌinəd'misəbl], etc.

or

⇒ **Total**, when the two sounds end up identical (a *geminate*, or phonetically double sound; you can see many examples of ***total regressive assimilation*** in Modern English word formation, where the last prefix consonant becomes totally like the following sound:

abbreviate	**ag**gressive	**ap**peal	**at**tend
account	**al**leviate	**ar**rive	
affect	**an**nual	**as**sent	

But: **ad**mire, **ad**just, **ad**jacent, **ad**vance, etc. All the highlighted prefixes are adaptations of prefix '**ad-**' meaning 'to, toward.' The ***d*** in **ad-** always changes to the sound of any following consonant, except m, j, and v

The *direction* of assimilation can be

⇒ ***Regressive*** – operating backwards, i.e., when the ***preceding*** sound is changed (A < B), or
⇒ ***Progressive*** – operating forwards, when the ***following*** sound becomes more like the preceding one (A > B)

Voicing of intervocalic stops and ***devoicing*** of voiced consonants in word final positions are also a common type of assimilation in many languages:

Russian: [got] 'year' → [goda] 'of the year'; [boχ] 'god' → [boga] 'from god'
German: *Bad* [ba:t] 'bath'; *Tag* [ta:k] 'day'; *Hund* [hunt] 'dog', etc.

Under normal circumstances, apart from our rather clumsy articulators, our breathing also affects the sounds we make – try to say something after a race, a break dance, or even a waltz! ☺ In order to combine the two functions (breathing and speaking), every language has developed a rhythm of its own, largely determined by its stress patterns. A number of phonological adaptations occur in connected speech, particularly in the ***unstressed*** segments, where ***neutralisation*** is common.

Neutralisation [ˌnjuːtrəlaiˈzeiʃən] **of Weak Forms**
Weak forms are those words that are pronounced in an *unstressed* manner. Many of the most common words in English can come in either a strong form or a weak form. The *weak forms* are nearly all ***function words***, such as conjunctions, articles, pronouns, prepositions and some auxiliary and modal verbs.

Generally, the ***strong forms*** of these words are used when they are being directly quoted, when they are being contrasted, or if they appear at the end of a sentence.

The pronunciation of a weak form can be very different from the strong form of a word: if said in isolation, it could be all but unintelligible. It is usually the context that makes it understandable.

In connected speech, many sounds in unstressed positions get neutralised, blurred between the two distinct sounds. This intermediate sound is known as neutralisation. This occurs in both vowels and consonants.

Neutralisation results in the centering of vowels to the neutral schwa [ə], and sometimes in total omission of sounds and even whole syllables:

[stɒp] [ənd] [ʃɒp] → [stɒp ən ʃɒp]
[kʌp] [ɔv] [tiː] → [kʌpəti:], etc.

Elision [iˈliʒn], (***deletion*** [diˈliːʃn] or ***omission*** [əʊˈmiʃn]) particularly affects:

- Consonant clusters
- Weakly stressed syllables that are not especially missed
- Words that end in an alveolar consonant and that are immediately followed by a word beginning with a consonant (*Stop'n'Shop*, etc. ☺)

The sounds that are elided are those that are so weakly articulated that they become insignificant.

⇒ The loss of a weak vowel after the voiceless (fortis) plosives /p/, /t/, /k/: [p'teitəʊ] is an example of the schwa being elided after /p/. Other examples: ['sekritri] rather than [sekritəri], [præps] rather than [pə'hæps], [intrəstiŋ] rather than [intərəstiŋ]. Often [pə'li:smən] becomes [pli:smən], [medisin] → [medsin], etc.

⇒ Another cause of ***elision*** is when a weak vowel is elided before a syllabic consonant (/l/ or /n/: [lesn] – *lesson, lessen*; *session* [seʃn], etc.

⇒ Complex consonant clusters are usually elided in running speech: *George the VIth throne*: [dʒɔːdʒ ðə siks θrəʊn], we say [mʌsnt] for [mʌstnt], [igzækli] for [igzæktli]; *christening* [krisniŋ], *listening* [lisniŋ], etc. /v/ is often elided before a consonant: ['ləʊdz ə 'mʌni] '*loads of money*,' *cup of coffee* [kʌpə 'kɒfiː], etc.

⇒ Contracted forms are caused by elision: [aim] instead of [ai əm], [dəʊnt] instead of [du: nɒt], [wəʊnt] instead of [wil nɒt], [kɑːnt] instead of [kæn nɒt], etc.

⇒ Sometimes we swallow even whole syllables: we say [prɔbli] for [prɔbəbli], [lə'bɔrətri] for [lə'bɔrətəri]; ['laibri] for ['laibrəri], [ˌmɔ:fə'nɒlədʒi] for [ˌmɔ:fəfə'nɒlədʒi], [prə'pɒstrəs] for [prə'pɒstərəs], etc.

N.B.:

- When a vowel sound is elided, it is usually a weak vowel, typically, the schwa. The schwa is a weak sound because we do not need much energy to pronounce it. Many vowels sound like schwa when they are neutralised in unstressed positions.
- When a consonant is elided, it is usually because it occurs in consonant clusters, or is in an environment with other consonants.

Some elided syllables are represented in standard punctuation (for example, we write *I'm* for *I am*, *don't* for *do not, isn't* for *is not,* etc.). In standard speech, the missing vowel is understood, and so meaning does not suffer from this contraction.

Elision is particularly common in connected speech, when the speech sounds we make are so open to the influence of the neighbouring sounds. It stands to reason, that the faster the speech, the more likely we are to 'swallow' some of the sounds / syllables.

Energy conservation / economy of effort is often the underlying principle of the various forms of assimilation, neutralisation and elision: people always tend to choose the path of least resistance. The same principle applies in the seemingly contrary to it ***sound insertion***:

Linking [liŋkiŋ]

If you have ever listened to people speaking a foreign language that was unknown to you, you may have noticed that it was impossible to pick out individual words from the string of sounds that you heard. This is because in real, connected speech, words *are* linked to one another. This is especially significant in RP, where the phoneme **/r/** does not occur in syllable-final position, unless the word with a final '**r**' is followed by a word beginning with a vowel. Say, in '*fear*' [fiə] / '*fear of God*' [fiər əv gɒd], etc.

So one example of linking is the **re-activation** of an **/r/** sound:

For better or worse: [fə 'betər ɔ: w3:s]

Father or aunt: [fa:ðər ɔ:r 'a:nt]

There are oranges or apples in the cupboard:
[ðeəra:r ɔrindʒiz ɔ:r æplz in ðə 'kʌbəd]

Father of three: [fa:ðər əf θri:]

Another example of linking is when two vowels meet over a word boundary: we find it easier to articulate them, if we insert an extra phoneme in order to help the transition. So, another example of linking is to ***insert*** /r/ between two vowels, for example:

That's the idea of it	→	[ðæts ði aidiər əv it]
The pilot saw an explosion	→	[ðə pailət sɔ:r ən eksləʊʒn]
They're withdrawing their troops	→	[ðej r wiðdrɔ:riŋ ðeə tru:ps]
Pretty awful	→	[pritirɔ:fʊl]

/j/ and /w/ may also link words, for example:

How often? → [ˌhaw 'ɔfn] is easier to articulate than [ˌhaʊ 'ɔfn]
They are → [ðej 'a:] is usually said, rather than [ˌðei 'a:]

We have seen how the principle of economy (energy conservation) results in most of the phonological conditioning in connected speech. Are there any general tendencies in sound change that are common to all languages?

Other Natural Tendencies in Sound Change

Sound change, both in connected speech, and changes accumulated over time, is one of the driving forces of language evolution. Explaining language diversity, Prof. John McWhorter of the University of California at Berkeley said in a 2002 NewsHour interview:
'…it's the nature of language to evolve in any number of different directions in the various parts of whatever our language is. And so each word, each grammatical structure, each sound, there are all sorts of directions that it might go. If all human beings lived as this great teeming mass of humanity out in some parking lot or some forest, then presumably that wouldn't happen, and we would still all have one language. But once you get an offshoot population, then the changes that happen in the language go in different directions, and the changes that are going on back in the homeland. As a result, after a while, you've got two different languages. Multiply that by all the different peoples that have you in the world, and you see that today we have 6,000 languages. Many would say that at other points in human history there were a great many more languages at any given time.'

In answer to a question about the possibility of us ending up with one, or just a handful of languages as a result of increased travel and communication, which tend to simplify, and to collapse languages into each other, McWhorter said:

'Well, it looks like we are going to wind up with a handful, depending on what you call a handful. By many estimates, we are going to have 500 out of today's 6,000 languages alive after 100 years. Basically, the big bad Berlitz languages like English, and French and Portuguese and Russian and Arabic and Chinese are gobbling up most of the other languages. It's the linguistic consequence of what you might call globalisation. And so many linguists are involved in either trying to keep these languages alive or at least to write down what they were like. So certainly there was a time when probably there were about 100,000 languages in the world, and we are going to get to a point where we will have lost 90% of the ones that are alive today. Some people say that we lose a language every two weeks, for example. …
…You cannot revive it [language]. And it's even worse, because if that language was not written down, there is no such thing as a fossil. You know, language… an individual language is not in our DNA, and most languages around the world are only spoken. Only about 200 are written and read on a regular basis. And so that means that if a language dies without being recorded, it is most certainly unrecoverable forever.'

Online NewsHour: 'The Power of Babel' – February 22, 2002
Wysiwyg://38/http://pbs.org/newshour/conversation//jan-june02/babel_2-22.html

Transformation, as we remember, is one of the three characteristics of any living structure (the other two being *wholeness* and *self-regulation*. Tracking sound change in language makes one *feel* the *breath* of language. Speakers constantly re-create language, just like metabolic processes are constantly renewing our bodies. In the process of 'language metabolism' all kinds of changes and transmutations are also possible – they 'can go in any number of different directions in the various parts of whatever our language is' (McWhorter).

However, as we noted in the previous section, people are clever - they tend to avoid *unnecessary* difficulties ☺. Therefore, despite the diversity of human languages, we can still talk of some **natural tendencies**, based on the fact that certain types of sound change are very common, whereas others are unlikely. A few types of sound change that shaped the development of many languages are:

- **Final vowels often disappear:** ME [naːmə] → Modern English [neːm] → [neim]
- **Voiceless sounds become voiced between vowels:** [ʃʌt] [ʌp] → [ʃʌd ʌp]
- **Consonants become voiceless at the end of words:** German *Hund*, Russian [got], etc.

Activity 8.5

Transcribe the sentence: *There are many books in the library* the way you pronounce it. Do you notice any assimilation of sounds there? Why? / Why not?

We have discussed speech sounds and their interaction in connected speech (mostly in English, but also in some other languages, i.e., Russian and German). We can now see that many of these rules express the more general, natural tendencies in the way people speak. These tendencies are due to the limitations of our anatomy (our tongues are not fast enough to enunciate each sound precisely in connected speech). This is one of the forces driving language change.

In Unit 9, we will look the distinctive sounds and patterns of sounds in individual languages. We will also learn the phonological rules that we can use to actually identify and record sound changes in connected speech.

Summary

- ✓ The kind of vowel you pronounce is determined by the shape of your resonance chambers
- ✓ Stress patterns, distinguished by the pitch, loudness, and length of vowel sounds, affect the quality of the sounds we hear.
- ✓ Consonants are classed according to the force, place, and manner of articulation.

- ✓ Vowels are classed according to the position of the tongue (front/back, high/mid/low), whether the lips are rounded or not when pronouncing them, whether they are long/short (tense/lax), and by whether they are monophthongs or diphthongs
- ✓ In running speech, sounds interact and influence each other, because
  - o our articulators are not fast or flexible enough to keep up with the flow of speech
  - o our speech has stress patterns, which influence sound quality, etc.
- ✓ The various phonological adaptations usually include:
  - o Assimilation of Place, Manner or Voice::
    - ▪ progressive / regressive,
    - ▪ partial / total
  - o Neutralisation, often leading to elision, and
  - o Linking, or sound *insertion* for the sake of ease of articulation.
- ✓ Sound change is one of the fundamental driving forces of language evolution
- ✓ Despite the diversity of human languages, we can still talk of some **natural tendencies** in their development, based on the fact that certain types of sound change are very common, whereas others are unlikely.

Reading

Reading 12. On Sounds of Language

International Phonetic Alphabet (IPA) Chart

See next page.

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

CONSONANTS (PULMONIC)

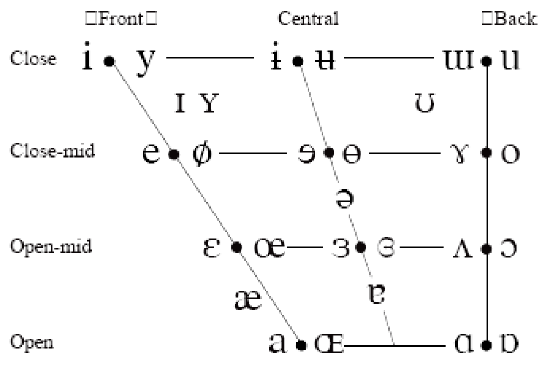
	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

CONSONANTS (NON-PULMONIC)

Clicks		Voiced implosives		Ejectives	
ʘ	Bilabial	ɓ	Bilabial	ʼ	Examples:
ǀ	Dental	ɗ	Dental/alveolar	pʼ	Bilabial
ǃ	(Post)alveolar	ʄ	Palatal	tʼ	Dental/alveolar
ǂ	Palatoalveolar	ɠ	Velar	kʼ	Velar
ǁ	Alveolar lateral	ʛ	Uvular	sʼ	Alveolar fricative

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

OTHER SYMBOLS

- ʍ Voiceless labial-velar fricative
- w Voiced labial-velar approximant
- ɥ Voiced labial-palatal approximant
- ʜ Voiceless epiglottal fricative
- ʢ Voiced epiglottal fricative
- ʡ Epiglottal plosive
- ɕ ʑ Alveolo-palatal fricatives
- ɺ Voiced alveolar lateral flap
- ɧ Simultaneous ʃ and x

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary. k͡p t͜s

SUPRASEGMENTALS

- ˈ Primary stress
- ˌ Secondary stress
  ˌfoʊnəˈtɪʃən
- ː Long eː
- ˑ Half-long eˑ
- ˘ Extra-short ĕ
- | Minor (foot) group
- ‖ Major (intonation) group
- . Syllable break ɹi.ækt
- ‿ Linking (absence of a break)

DIACRITICS Diacritics may be placed above a symbol with a descender, e.g. ŋ̊

◌̥	Voiceless	n̥ d̥	◌̤	Breathy voiced	b̤ a̤	◌̪	Dental	t̪ d̪
◌̬	Voiced	s̬ t̬	◌̰	Creaky voiced	b̰ a̰	◌̺	Apical	t̺ d̺
ʰ	Aspirated	tʰ dʰ	◌̼	Linguolabial	t̼ d̼	◌̻	Laminal	t̻ d̻
◌̹	More rounded	ɔ̹	ʷ	Labialized	tʷ dʷ	◌̃	Nasalized	ẽ
◌̜	Less rounded	ɔ̜	ʲ	Palatalized	tʲ dʲ	ⁿ	Nasal release	dⁿ
◌̟	Advanced	u̟	ˠ	Velarized	tˠ dˠ	ˡ	Lateral release	dˡ
◌̠	Retracted	e̠	ˤ	Pharyngealized	tˤ dˤ	◌̚	No audible release	d̚
◌̈	Centralized	ë	◌̴	Velarized or pharyngealized	ɫ			
◌̽	Mid-centralized	e̽	◌̝	Raised	e̝ (ɹ̝ = voiced alveolar fricative)			
◌̩	Syllabic	n̩	◌̞	Lowered	e̞ (β̞ = voiced bilabial approximant)			
◌̯	Non-syllabic	e̯	◌̘	Advanced Tongue Root	e̘			
˞	Rhoticity	ɚ a˞	◌̙	Retracted Tongue Root	e̙			

TONES AND WORD ACCENTS

LEVEL			CONTOUR		
e̋ or	˥	Extra high	ě or	˩˥	Rising
é	˦	High	ê	˥˩	Falling
ē	˧	Mid	e᷄	˦˥	High rising
è	˨	Low	e᷅	˩˨	Low rising
ȅ	˩	Extra low	e᷈	˧˦˧	Rising-falling
ꜜ		Downstep	↗		Global rise
ꜛ		Upstep	↘		Global fall

Unit 9. Phonology – the Study of Sounds of a Language

Objectives

After completing this unit, you will be able to

1. Define the concepts phoneme, minimal pairs, and minimal sets
2. Explain why assimilation of speech sounds occurs in connected speech
3. Write phonological rules

9.0 Introduction

This unit concludes our examination of the elements of language. It aims to give you a clearer understanding of:

- *Speech sounds* and *why they sound the way they do*,
- The *natural classes* of sounds: we'll get there through a practical look at the classification of English phonemes, and of
- Why and how speech sounds *interact in connected speech*.

We conclude our study of speech sounds by stressing, that language is a *living structure* which is constantly changing: we shall take a look at a few natural tendencies in sound change which underlie many of the phonological rules operating in world languages. We will also learn how to write down and interpret phonological rules.

9.1 Phonemes & Minimal Pairs/ Sets

Phonology, we remember, studies the characteristic sounds and patterns of sounds in a particular language. Part of our knowledge of a language is knowledge of its sound system. We must be able to use the sounds of the language, and know the ways in which they combine into *patterns.* The number of possible sound combinations determines the number of *phonemes* in a language.

There are many definitions of the term *phoneme*; I find these two most useful:

Phoneme is:

⇒ **the smallest unit of sound which may distinguish two words**
⇒ **the *contrastive* sound segment which both the speaker and the hearer perceive to be the same.**

N.B.: Phonemes are not sounds themselves, they are mental sound images – units, *representing* sounds. These mental images are like footprints of sounds, forming moulds that several similar sounds can fit into - that is why we may perceive several actual *phones* (sounds) to be the same ***phoneme***.

Minimal Pairs are **two words**

- ⇒ **with *different meanings***
- ⇒ **with *identical phonetic features*, except for a difference in *one phoneme* in exactly *the same position* in the word (*initial, medial*, or *final*)**.

For example, *p*it & *f*it; f*i*t & f*a*t; pi*ck* & pi*g*, etc. (note that the pairs of words are different only in one sound in the same position (initial, medial, or final).

Minimal sets: several minimal pairs make a minimal set:

pit, fit, git, shit, bit, sit, lit, wit, or
fit, fate, fat, foot, fought, feet, fart, or
pit, pick, pig, pin, piss, pish, etc.

Analysis of *minimal pairs* helps us identify the phonemes or the characteristic sounds of any language.
All people speak in their own peculiar ways: an Australian will speak English differently from an American, a British or an Indian. Remember, sociolinguists claim that 'You are what you say,' because we are all products of our different environments which shape our linguistic behaviour. Our speech reflects our individuality and background. Apart from basic physical differences, factors such as social class, age, sex, and occupation also leave a mark on the way we speak. Some people have high voices, some low, some voices are squeaky, some - melodious. Even the same person's voice and pronunciation vary depending on whether they have a sore throat, a blocked nose, or something else wrong (or right!) with them ☺.
Just imagine what would have happened, if we were unable to *perceive* all these different variations of the basic sounds as the same phonemes! Communication would have become impossible, because there are no two people on this planet that speak in exactly the same way – not even ONE person who ALWAYS pronounces words in the same way! The second definition of the term *phoneme* makes a very important point: a ***phoneme*** is the ***contrastive* sound segment which both the speaker and the hearer *perceive to be the same***.

The point I am making here is that speech communication works, because *despite* all the differences in our individual ways of pronouncing the basic sounds, we all still perceive them to be the same sound. It is only when the difference in pronunciation reaches a 'critical mass' that quantity changes the quality, causing miscommunication (remember the cause of that Indian lady's upset at the Aussie doctor telling her '*You are going home today*'? ☺). Here is another example of miscommunication, which reportedly took place in the 'diplomatic circles':

☺ When Charles de Gaulle decided to retire from public life, the American ambassador and his wife threw a gala dinner party in his honour. At the dinner table the Ambassador's wife was talking with Madame de Gaulle.
"Your husband has been such a prominent public figure, such a presence on the French and international scene for so many years! How quiet retirement will seem in comparison. What are you most looking forward to in these retirement years?"
"A penis," replied Madame de Gaulle.
A hush fell over the table. No one knew what to say next.
Finally, Le Grand Charles leaned over to his wife and said, "Ma cherie, I believe zee Americans pronounce zat word: 'appiness." ☺

Activity 9.1

Answer the following questions:

1. What is a phoneme? Give examples
2. What is a minimal pair, and how is it different from a minimal set? Give examples
3. These words come from the Lenakel language of Tanna, Vanuatu. Do the sounds [k] and [g] belong to different phonemes? Why?

[gən] *eat*	[gəs] *bite*	[kuri] *dog*	[kən] eat
[guri] *dog*	[gɛsi] *pawpaw*	[gahaw] *rat*	[agar] *talk*
[kahaw] *rat*	[kəs] *bite*		

9.2 Allophones – Variant forms of Phonemes

Allophones are the actual sounds we hear – they are variations of phonemes resulting from the influence of neighbouring phonemes in connected speech, or from the individual speaker's way of talking. Allophones are still perceived to be the same contrastive sound by both speaker and receiver; they do not cause communication problems, unless they deviate too much from the standard phoneme and begin to sound like another: co***p***y – co***ff***ee, etc.

When working on an unwritten language, we must list not only the phonemes of that language, but also their variant forms (*allophones*). In fact, an essential part of the phoneme identification process consists of finding out which variant sounds belong to which phoneme. Allophones are said to be:

⇒ In ***free variation*** when they occur randomly. No two sounds can ever be exactly the same, no matter how you try. When sounds vary randomly without changing the meaning of the word, they are in *free variation*.

⇒ In ***complementary distribution*** when the difference is caused by the neighbouring sounds. If sound varies in a specific phonetic environment, then the allophones are in *complementary distribution*, since one set of environments complements another (like yin & yang):

$$\mathbf{p} \longrightarrow \mathbf{p^h} \;/\; \#\_\_$$

⇒ This means, **p** changes into $\mathbf{p^h}$ in the following circumstances: after a word boundary (#), i. e., in the initial position, at the beginning of a word.

N.B.: the same pattern holds for the other voiceless stops of English: /t, k/

⇒ In Korean, however, they are separate *phonemes*:

[pul] 'fire' [p^{h}ul] 'grass'

This is because [p] vs. [p^{h}] *does* distinguish meaning in Korean; the same is true for the other voiceless stops in that language.

In Unit 8, we already talked about the way speech sounds influence each other, caused by the 'imperfection' of our organs of speech. Sound quality, we remember, is determined by the shape of the resonance chambers and the movement of the tongue and other articulators. When we speak, we do not make pauses between words – we produce long strings of sounds, all blending into a stream of sounds.

9.3 Phonological Changes in Connected Speech Revisited

Assimilation [əˌsimi'leiʃən]
Many factors affect sounds in running speech, most of them resulting from the physical limitations of our organs of speech: our tongues, lips and soft palates are not fast, or flexible enough, to cope with the flow of speech! They cannot move quickly enough to get from one position to another in order to articulate the next sound *precisely*. Many sound changes are due to the influence of one sound upon another, causing the other sound to become more like the 'influencing' sound itself. If a sound change results in more *shared phonetic features between two sounds*, this results in ***assimilation.*** **There are 3 main types of assimilation:**

4. **Assimilation of Place**: **/t/ → /p/** in *rat**b**ag* ['ræpˌbæg], *good boy* ['gʊpˌbɔi], or *oat**m**eal* ['əʊpmiːl], etc. This is because the alveolar plosive /t/ is simplified into the /p/ sound, which is closer to the bilabial plosive /b/ and to the bilabial nasal /m/.

5. **Assimilation of Manner**: occurs when two different manners of articulation influence each other to form a different manner of articulation: *Indian* ['indʒən] and *soldier* ['səʊldʒə]. This is because the plosive /d/ combines with the approximant /j / to form an affricate.

6. **Assimilation of Voice**: have to ['hæftə] (voiced fricative followed by a voiceless consonant)

Assimilation of place will, of course, affect the manner of articulation, so these different types of assimilation usually occur together. ***Assimilation*** can be

⇒ **Partial,** when the changed sound retains at least one of its original features (p*artial regressive assimilation* examples: **in**divisible [ˌindi'vizəbl], **im**balance [im'bæləns], **in**credible [iŋ'kredəbl], **in**admissible [ˌinəd'misəbl], etc.

or

⇒ **Total**, when the two sounds end up identical (a *geminate*, or phonetically double sound; you can see many examples of ***total regressive assimilation*** in

Modern English word formation, where the last prefix consonant becomes totally like the following sound:

abbreviate	**ag**gressive	**ap**peal	**at**tend
account	**al**leviate	**ar**rive	
affect	**an**nual	**as**sent	

But: **ad**mire, **ad**just, **ad**jacent, **ad**vance, etc. All the highlighted prefixes are adaptations of prefix '**ad-**' meaning 'to, toward.' The ***d*** in **ad-** always changes to the sound of any following consonant, except m, j, and v .

The *direction* of assimilation can be

⇒ ***Regressive*** – operating backwards, i.e., when the ***preceding*** sound is changed (A < B), or
⇒ ***Progressive*** – operating forwards, when the ***following*** sound becomes more like the preceding one (A > B)

Voicing of intervocalic stops and ***devoicing*** of voiced consonants in word final positions are also a common type of assimilation in many languages:

Russian: [got] 'year' → [goda] 'of the year'; [boχ] 'god' → [boga] 'from god'
German: *Bad* [ba:t] 'bath'; *Tag* [ta:k] 'day'; *Hund* [hunt] 'dog', etc.
Under normal circumstances, apart from our rather clumsy articulators, our breathing also affects the sounds we make – try to say something after doing frog-jump! ☺ In order to combine the two functions (breathing and speaking), every language has developed a rhythm of its own, largely determined by its stress patterns. Absence of stress, we remember, causes weakening and even elision of the ***unstressed*** segments:

Neutralisation [ˌnjuːtrəlaiˈzeiʃən] of Weak Forms

Weak forms are those words that are pronounced in an *unstressed* manner. Many of the most common words in English can come in either a strong form or a weak form. The *weak forms* are nearly all ***function words***, such as conjunctions, articles, pronouns, prepositions and some auxiliary and modal verbs.

Generally, the ***strong forms*** of these words are used when they are being directly quoted, when they are being contrasted, or if they appear at the end of a sentence.

The pronunciation of a weak form can be very different from the strong form of a word: if said in isolation, it could be all but unintelligible. It is usually the context that makes it understandable.

In connected speech, many sounds in unstressed positions get neutralised, blurred between the two distinct sounds. This intermediate sound is known as neutralisation. This occurs in both vowels and consonants.

Neutralisation results in the centering of vowels to the neutral schwa [ə], and sometimes in total omission of sounds and even whole syllables:

[stɒp] [ənd] [ʃɒp] → [stɒp ən ʃɒp]

[kʌp] [ɔv] [ti:] → [kʌpəti:], etc.

Elision [i'liʒn], (***deletion*** [di'li:ʃn] or ***omission*** [əʊ'miʃn]) particularly affects:

⇒ Consonant clusters
⇒ Weakly stressed syllables that are not especially missed
⇒ Words that end in an alveolar consonant and that are immediately followed by a word beginning with a consonant (*Stop'n'Shop*, etc. ☺)

The sounds that are elided are those that are so weakly articulated that they become insignificant.

⇒ The loss of a weak vowel after the voiceless (fortis) plosives /p/, /t/, /k/: [p'teitəʊ] is an example of the schwa being elided after /p/. Other examples: ['sekritri] rather than [sekritəri], [præps] rather than [pə'hæps], [intrəstiŋ] rather than [intərəstiŋ]. Often [pə'li:smən] becomes [pli:smən], [medisin] → [medsin], etc.

⇒ Another cause of ***elision*** is when a weak vowel is elided before a syllabic consonant (/l/ or /n/: [lesn] – *lesson, lessen*; *session* [seʃn], etc.

⇒ Complex consonant clusters are usually elided in running speech: *George the VIth throne*: [dʒɔ:dʒ ðə siks θrəʊn], we say [mʌsnt] for [mʌstnt], [igzækli] for [igzæktli]; *christening* [krisniŋ], *listening* [lisniŋ], etc. /v/ is often elided before a consonant: ['ləʊdz ə 'mʌni] '*loads of money*,' *cup of coffee* [kʌpə 'kɒfi:], etc.

⇒ Contracted forms are caused by elision: [aim] instead of [ai əm], [dəʊnt] instead of [du: nɒt], [wəʊnt] instead of [wil nɒt], [kɑ:nt] instead of [kæn nɒt], etc.

⇒ Sometimes we swallow even whole syllables: we say [prɔbli] for [prɔbəbli], [lə'bɔrətri] for [lə'bɔrətəri]; ['laibri] for ['laibrəri], [ˌmɔ:fə'nɒlədʒi] for [ˌmɔ:fəfə'nɒlədʒi], [prə'pɒstrəs] for [prə'pɒstərəs], etc.

N.B.:
⇒ When a vowel sound is elided, it is usually a weak vowel, typically, the schwa. The schwa is a weak sound because we do not need much energy to pronounce it. Many vowels sound like schwa when they are neutralised in unstressed positions.
⇒ When a consonant is elided, it is usually because it occurs in consonant clusters, or is in an environment with other consonants.

Some elided syllables are represented in standard punctuation (for example, we write *I'm* for *I am*, *don't* for *do not, isn't* for *is not,* etc**.**). In standard speech, the missing vowel is understood, and so meaning does not suffer from this contraction.

Elision is particularly common in connected speech, when the speech sounds we make are so open to the influence of the neighbouring sounds. It stands to reason, that the faster the speech, the more likely we are to 'swallow' some of the sounds / syllables.

Energy conservation / economy of effort is often the underlying principle of the various forms of assimilation, neutralisation and elision: people always tend to choose the path of least resistance. The same principle applies in the seemingly contrary to it ***sound insertion***:

Linking [liŋkiŋ]

If you have ever listened to people speaking a foreign language that was unknown to you, you may have noticed that it was impossible to pick out individual words from the string of sounds that you heard. This is because in real, connected speech, words *are* linked to one another. This is especially significant in RP, where the phoneme **/r/** does not occur in syllable-final position, unless the word with a final '**r**' is followed by a word beginning with a vowel. Say, in '*fear*' [fiə] / '*fear of God*' [fiər əv gɒd], etc.

So one example of linking is the **re-activation** of an **/r/** sound:

*For bette**r** or worse*: [fə 'betər ɔ: w3:s]

*Fathe**r** o**r** aunt*: [fa:ðər ɔ:r 'a:nt]

*There a**r**e oranges o**r** apples in the cupboard*:
[ðeəra:r ɔrindʒiz ɔ:r æplz in ðə 'kʌbəd]

*Fathe**r** of three:* [fa:ðər əf θri:]

Another example of linking is when two vowels meet over a word boundary: we find it easier to articulate them, if we insert an extra phoneme in order to help the transition. So, another example of linking is to ***insert*** /r/ between two vowels, for example:

That's the idea of it → [ðæts ði aidiər əv it]
The pilot saw an explosion → [ðə pailət sɔ:r ən eksləʊʒn]
They're withdrawing their troops → [ðej r wiðdrɔ:riŋ ðeə tru:ps]
Pretty awful → [pritirɔ:fʊl]

/j/ and /w/ may also link words, for example:

How often? → [ˌhaw 'ɔfn] is easier to articulate than [ˌhaʊ 'ɔfn]

They are → [ðej 'a:] is usually said, rather than [ˌðei 'a:]

Sound insertion can also be in the form of a vowel that 'breaks' a hard-to-pronounce consonant cluster:

Epenthesis [e'penθəsis]

The term *epenthesis* is used to describe the change by which a 'vowel is added in the middle of a word to break up two consonants in a cluster. This change is common in languages that don't like consonant clusters and final consonants (such as Japanese, for example). Speakers of some varieties of English often insert an epenthetic schwa [ə] between the final consonants of the word [film] 'film', to produce [filəm]. Epenthesis is also common in Tok Pisin, i.e.,

English		Tok Pisin	
blæk	→	bilak	'black'
blu:	→	bulu	'blue'
nɛkst	→	nekis	'next'
sɪks	→	sikis	'six'
skɪn	→	sikin	'skin'
plɛɪs	→	peles	'village'
film	→	pilum	'film'

We have seen how the principle of economy (energy conservation) results in most of the phonological conditioning in connected speech. Are there any general tendencies in sound change that are common to all languages?

From Unit 10, we remember that, despite the diversity of human languages, there are some general **natural tendencies**, based on the fact that certain types of sound change are very common, whereas others are unlikely. A few types of sound change that shaped the development of many languages are:

⇒ **Final vowels often disappear:** ME [na:mə] → Modern English [ne:m] → [neim]

⇒ **Voiceless sounds become voiced between vowels:** [ʃʌt] [ʌp] → [ʃʌd ʌp]

⇒ **Consonants become voiceless at the end of words:** German *Hund*, Russian [got], etc.

Having looked at all these sound changes, we now have to learn how to identify the phonological rules that operate in a language, as well as the rules for writing down those rules:

9.4 Phonological Rules & Rules for Writing Them

Phonological Rules are part of native speakers' knowledge of the language. Phonological rules express a *generalization,* or *pattern* of specific sounds in a language.

Steps in Finding Phonological Rules

⇒ Look for minimal pairs.
⇒ Make lists/tables of the surrounding sounds.
⇒ Look for a pattern.
⇒ Generalize the pattern you have discovered. Refrain from using mention of actual sounds (i.e, phonetic alphabets). Formulate your rule by using the properties that the sounds have, i.e., stops, nasals, fricatives, etc.

Illustration – English:

/t/ is pronounced as [tʰ]:
a) at beginning of a word;
b) at beginning of stressed syllable

/t/ is pronounced as [t] *elsewhere.*

*Remember: this is true of all voiceless stops of English: /p, t, k/.

State the *generalization* to cover all the cases = *Phonological Rule*:

Voiceless stops → { aspirated / #_____ ; unaspirated elsewhere }

Voiceless stops are pronounced as *aspirated*
a) at the beginning of a word;
b) at the beginning of a stressed syllable.
They are pronounced as *unaspirated* in all other contexts = *elsewhere*.

Phonemes and allophones:

Phonemes : /p, t, k/
Allophones: [pʰ, tʰ, kʰ] – beginning of word; beginning of stressed syllable;
[p, t, k] – elsewhere.

Phonological Rules should be as general as possible:

a) Review the classification of sounds into ***Natural Classes*** = general categories / groupings of sounds, i.e., stops, voiceless stops, vowels, nasals, fricatives, etc. Also *Sonorants* = sounds made with spontaneous voicing (nasals, liquids, glides, vowels) or *Obstruents* = sounds in which voicing contrasts (stops, fricatives, affricates).

b) Review the symbols that represent the phonemes of the language (underlying representation = abstract representation of sound in the brain = phoneme)

c) Look for **"simpler" sound** = *unmarked sound*, e.g. [p] is "simpler" than [p^h] in English

d) Look for most **"general" sound** = *sound in "elsewhere" environment,* e.g. [p^h] is found at the beginning of a word, or at the beginning of a stressed syllable [p] is found "elsewhere" = more "general"

Formulating & Writing Phonological Rules

a) Using words: In English, the phoneme /p/ is pronounced as the allophone [p^h] when it is found at the beginning of a word, or at the beginning of a stressed syllable; it is pronounced as the allophone [p] elsewhere.

b) Using the Phonological Rule Formalism: i.e., writing phonological rules. General format of a phonological rule:

A → B / C ___ D

A = underlying representation (phoneme; natural class of phonemes; phonological feature/s), e.g., *voiceless stops*

B = phonetic form – pronunciation (phone, specifically allophone of A; natural class of sounds; phonetic feature(s), e.g. *aspirated*

C and D = context/environment of the rule may be sounds, natural classes of sounds, phonological features or # (= word boundary).

Possibilities: only C present; only D present; both C and D present

→ = "is pronounced as" or "becomes"

/ = "in the context/environment…"

__ = location of target sound

Some of these symbols you already know, but repetition, they say, is the mother of learning ☺:

Phonemes are written between two forward slashes / /, and actual sounds (phones, allophones) – between two square brackets []: [r], [u:], [l], or [ru:lz].

You may also remember that

→ means 'is represented as,' 'is pronounced as,' or 'has the allophones.'

and that a single forward slash / means 'in the following circumstances,' or 'in the environment of,' and it is used in combination with the symbol '___' (the 'bar') to exactly specify the environment, for example:

/**p**/ → [b] / ___vowel

The bar shows where the phoneme occurs: ***immediately before*** a vowel (it is easier to draw the bar than write out the words!☺)

The reverse order shows that it is the *preceding* sound that conditions the allophone, i.e.:

/p/ → [b] / vowel___

This means that /**p**/ has the allophone [b] ***immediately after*** a vowel. Combinations of environments can also be expressed using the same symbols:

/p/ → [b] / vowel ___vowel,

which means that /p/ has the allophone [b] ***between*** two vowels.
The terms 'vowel' and consonant' are used so often in phonological analysis and description, that people indicate them simply as **V** and **C**, so the above rule will look like this:

/p/ → [b] / **V___V**

You may also remember that the symbol # indicates *word boundary*. Each word has a boundary at each end, so if you take the word *kiss* [kis], the boundaries will be at the beginning and at the end of it: #kis#. This allows us to indicate the phone's position in the word without wasting extra words:

/p/ → { [b] / #___ ; [p] / ___# }

This rule means that /**p**/ has the allophone [b] word-initially, and [p] – word-finally.

Where an allophone occurs in two different environments, these are normally separated by a comma (if they are not too long and complex), for example:

/p/ → [b] /___V, [m]

This means that the allophone [b] of the phoneme /p/ occurs before a vowel and also before [m]. If the environments are longer/more complex, it is better to use a bracket:

/p/ → { [b] / { #___**V** ; **V**___**C** } ; [p] elsewhere }

Here is one more useful symbol:

~ means 'in unrestricted free variation with.'

For example, we know that in Tok Pisin the phoneme /**p**/ may sound as [p], [f] or [ɸ] – these allophones are in free variation, it does not really matter which one you pronounce, you will be understood by Tok Pisin speakers. How can we write this in a short 'formula' way? Look:

/p/ → [p] ~ [f] ~ [ɸ]

Activity 9.2

1. Express this rule in words:

$$/l/ \rightarrow \begin{cases} [l] \,/\, \mathbf{C}\_\_\_ \\ [r] \,/\, \mathbf{V}\_\_\_ \end{cases}$$

2. Express this statement as a formal rule: /i/ has the allophones [iː] word-finally, [ɪ] before a vowel, and [i] in any other environment.

9.5 Non-Segmental Phonemes

English phonemes are segments of sound, such as /b/, or /t/ or /e/. These are called **segmental** phonemes. Some languages, however, have not only segmental phonemes, but **non-segmental** phonemes also. In North Mandarin Chinese, for example, there are numerous words which are distinguished by the difference in the rise and fall of tone, as in the following minimal set:

Ma	———	(level tone)	mother
Ma	⟋	(rising tone)	hemp
Ma	ˇ	(dipping tone)	horse
Ma	⟍	(falling tone)	scold

These languages have one advantage: the tones and rhythms of speech can be imitated by instruments other than the human voice. This is the basis of the African talking drums (or, more accurately, talking gongs), in which the drumbeats reproduce the tones and rhythms of the language. However, because the drums are unable to reproduce the segmental phonemes, their messages work in a slightly different way: a single message may take much longer to convey. This is because whole phrases are used instead of single words of the ordinary language. For example, among the Lokele people of the Upper Congo, the word for 'dog' is *ngwa*, a single syllable spoken with a low tone. Because there are dozens of other single syllable words spoken with a low tone, the drum equivalent for 'dog' uses a whole phrase, meaning, 'giant dog, little one that barks kpei, kpei' ☺ The 'tune' of this phrase is distinct from any other drum phrase, and serves to distinguish the meaning 'dog' in the message.
The IPA Chart includes symbols for 'writing' tones and word accents:

THE INTERNATIONAL PHONETIC ALPHABET (revised to 1993)

CONSONANTS (PULMONIC)

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or Flap				ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

CONSONANTS (NON-PULMONIC)

Clicks		Voiced implosives		Ejectives	
ʘ	Bilabial	ɓ	Bilabial	’	as in:
ǀ	Dental	ɗ	Dental/alveolar	pʼ	Bilabial
ǃ	(Post)alveolar	ʄ	Palatal	tʼ	Dental/alveolar
ǂ	Palatoalveolar	ɠ	Velar	kʼ	Velar
ǁ	Alveolar lateral	ʛ	Uvular	sʼ	Alveolar fricative

SUPRASEGMENTALS

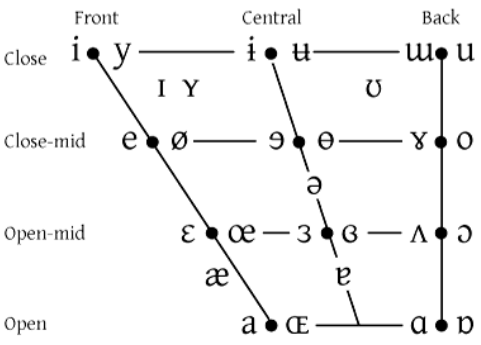
ˈ	Primary stress	ˌfoʊnəˈtɪʃən
ˌ	Secondary stress	
ː	Long	eː
ˑ	Half-long	eˑ
̆	Extra-short	ĕ
.	Syllable break	ɹi.ækt
‿	Linking (absence of a break)	
∣	Minor (foot) group	
‖	Major (intonation) group	

TONES & WORD ACCENTS

LEVEL		CONTOUR	
e̋ or e᷄	Extra high	ě	Rising
é	High	ê	Falling
ē	Mid	e᷌	High rising
è	Low	e᷅	Low rising
e̗	Extra low	e᷈	Rising-falling
↓	Downstep	↗	Global rise
↑	Upstep	↘	Global fall

etc.

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel

OTHER SYMBOLS

ʍ Voiceless labial-velar fricative
ɕ ʑ Alveolo-palatal fricatives
w Voiced labial-velar approximant
ɺ Alveolar lateral flap
ɥ Voiced labial-palatal approximant
ʢ Simultaneous ʃ and x
ʜ Voiceless epiglottal fricative
ʡ Voiced epiglottal fricative
ʡ Epiglottal plosive

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary

k͡p t͡s

DIACRITICS

Diacritics may be placed above a symbol with a descender, e.g. ŋ̊

◌̥	Voiceless	n̥ d̥	◌̤	Breathy voiced	b̤ a̤
◌̬	Voiced	s̬ t̬	◌̰	Creaky voiced	b̰ a̰
◌ʰ	Aspirated	tʰ dʰ	◌̼	Linguolabial	t̼ d̼
◌̹	More rounded	ɔ̹	◌ʷ	Labialized	tʷ dʷ
◌̜	Less rounded	ɔ̜	◌ʲ	Palatalized	tʲ dʲ
◌̟	Advanced	u̟	◌ˠ	Velarized	tˠ dˠ
◌̠	Retracted	i̠	◌ˤ	Pharyngealized	tˤ dˤ
◌̈	Centralized	ë	◌̴	Velarized or pharyngealized	ɫ
◌̽	Mid-centralized	e̽	◌˕	Raised	e̝ (ɹ̝ = voiced alveolar fricative)
◌̩	Syllabic	n̩	◌˔	Lowered	e̞ (β̞ = voiced bilabial approximant)
◌̯	Non-syllabic	e̯	◌̘	Advanced Tongue Root	e̘
◌˞	Rhoticity	ɚ	◌̙	Retracted Tongue Root	e̙
◌̃	Nasalized	ẽ	◌ⁿ	Nasal release	dⁿ
◌ⁿ			◌ˡ	Lateral release	dˡ
◌̚			◌̚	No audible release	d̚

http://www.u.arizona.edu/~HAWKLEY/Ipa-chart-all-1000px.png

This unit has outlined the major steps in analysing the sound structure of a language: collecting linguistic data and sorting out its phonemes and their allophones.

Summary

Part of our knowledge of a language is knowledge of its sound system. We must be able to use the sounds of the language, and know the ways in which they combine into *patterns.* The number of possible sound combinations determines the number of *phonemes* in a language.

A few definitions of *'phoneme'*:

- ⇒ *Phoneme* is what the speaker and the hearer regard as the same *contrastive* sound. It is not any actual sound, but a *mental representation* of it.
- ⇒ *Phoneme* is the smallest phonetic unit in a language that is capable of conveying a distinction in meaning, as the *m* of a *mat* and a *b* of a *bat*.
- ⇒ Also: (linguistic meaning) – one of a small set of speech sounds that are distinguished by the speakers of a particular language.

Each *spoken* phone is perceived as 'belonging' to a particular phoneme, depending on whether it affects meaning (*p*ail vs. *b*ail, *p*ig vs. *b*ig, etc. – these are referred to as *minimal pairs*).

Each language has a set of phonemes that are combined to form all the words of the language. English has 46 phonemes (R.P. – 44).

Speech sounds (phones) that are *variants of the <u>same</u> phoneme* are called *allophones.* <u>Allophones do not affect meaning</u>, although very divergent forms may cause misunderstanding occasionally, like in the case of that poor woman in an Australian hospital, who burst into tears upon hearing her doctor say, [jə ˈgəʊiŋ ˈhəʊm təˈdai]! ☺

Reading

12 On the Sounds of Language

Self-Assessment Q & As & Exercises

Q 1 What triggers phonological change?

A 1 The 'natural tendencies' are caused mostly by the limitations of our anatomy. This accounts for neutralisation/elision of unaccented vowels, assimilation of speech sounds due to anatomical restraints, reduction of consonant clusters, devoicing of word-final consonants, etc.). For example, if you do not like the sound sequence (or it is hard to pronounce) X Y, you do something to pronounce the sequence more easily.

Q 2 When is Assimilation said to be Complete or Total?

A 2 Assimilation is complete/ total, when the two sounds end up identical (a *geminate*, or phonetically double sound; you can see many examples of ***total regressive assimilation*** in Modern English word formation, where the last prefix consonant becomes totally like the following sound:

abbreviate	**ag**gressive	**ap**peal	**at**tend
account	**al**leviate	**ar**rive	
affect	**an**nual	**as**sent	

The examples above are all of *regressive assimilation* (the change works 'backwards' in the word, from right to left): A ← B

If, on the other hand, the direction of the change is reversed, and the preceding sound influences the sound that follows it, then we have *progressive assimilation*: A → B

Of the two types of assimilation, it is regressive assimilation that is by far the more commonly encountered in the world's languages.
Examples of regressive assimilation:

Italian:	***octo***	→	***otto***	'eight'
	septem	→	***sette***	'seven'

Q 3 What is Partial Assimilation?

A 3 Assimilation is ***partial*** when the changed sound retains at least one of its original features.

Examples of p*artial regressive assimilation*: **in**divisible [ˌindi'vizəbl], **im**balance [ˌim'bæləns], **in**credible [iŋ'kredəbl], **in**admissible [ˌinəd'misəbl], etc.

Q 4 What is Elision?

A 4 Elision is the deletion of sound segments, which affects particularly
- ⇒ Consonant clusters
- ⇒ Weakly stressed syllables that are not especially missed
- ⇒ Words that end in an alveolar consonant and that are immediately followed by a word beginning with a consonant (*Stop'n'Shop*, etc. ☺)

The sounds that are elided are those that are unstressed and therefore so weakly articulated that they become insignificant. Examples of Segment Deletion:

XY (Delete Y)	→	bomb
XY (Delete X)	→	knight

Q 5 What is Epenthesis?

A 5 Epenthesis is a particular type of sound insertion, when a vowel is used to break a consonant cluster. Examples:

English: bus -- buses
church - churches
consume - consumption

Tok Pisin: English [blæk] → Tok Pisin [bilæk], [blu:] → [bulu],

[nekst] → [nekis], [siks] → [sikis], [skin] → [sikin],
[plɛis] → [peles], [film] → [pilum], [plenti] → [pəlenti], etc.

Dutch: milk → [milək]

Q 6 What is Metathesis (Movement)?

A 6 Metathesis (movement – switching the sequence/order of sounds), i.e.,

Old English	Later English
wæps	wɒsp 'wasp'

Exercises

Exercise 1. A diphthong represents a glide between two different vowel sounds. Tick the box that matches the word with its appropriate diphthong:

	əʊ	ɑʊ	ɔi	ei	ai	ɛə	eə	ʊə
Voice								
Die								
Pray								
How								
No								
Cure								
Share								
Beer								
Bye								
Say								

Exercise 2. Transcribe the following:

Fear; foil; foal; fair; fate; foul; flow; file; mate; might; mare; pear; spear; ouch!

Exercise 3. Golin, Simbu Province, PNG. [n] and [ŋ] are in complementary distribution, conditioned by the <u>following sound</u>. State the conditioning factor, and express the statement of allophones in a formula.

[bansu]	short	[noŋgare]	kind of tree
[sigwine]	ant	[siŋge]	you hit
[suŋgwe]	he hit	[nenin]	your father
[guluŋgwe]	he is dead	[naale]	locust
[pirin]	salt	[nobe]	edible leaf

Rule: _____

Ex. 4 Lenakel, Tana, Vanuatu. [g] and [k^h] are in complementary distribution, conditioned by the position in the word. State the conditioning factor, and iexpress the statement of allophones as a formula

[gən]	eat	[n̥iɬgik^h]	my heart
[mɛnuk^h]	bird	[gəs]	bite
[agar]	talk	[nɬgbəs]	sandalwood
[tahak^h]	mine	[arɬk^h]	stay
[gɛygɛy]	nice	[nɔwanɔwga]	fishing-line

Formula:

_____

Ex. 5 Arosi, San Cristobal, Solomon Islands. Do [t] and [d] belong to the same phoneme or to separate phonemes? Why?

[gede]	pick at food	[arito]	sunshower
[tapuru]	cut hair	[dao]	lie down
[mamareda]	spread out	[udauda]	soft (of food)
[tao]	fine net	[uta]	rain
[huʔitaʔi]	turn over	[tewa]	tall
[ariheda]	kind of rope	[taiduru]	uncombed

Ex. 6 Provide the missing symbols/feature description:

/ / - close, front, unround, long (tense), monophthong
/ / - close, front, unround, short (lax), monophthong
/ / - mid (half open), front, unround, short (lax), monophthong
/ /- open, front, unround, short (lax), monophthong
/ /- open, central, unround, short (lax), monophthong
/ /- mid (half open), central, unround, long (tense), monophthong
/ /- mid (half open), central, unround, short (lax), monophthong

/ɒ/–

/ɔː/–

/ʊ/–

/u:/–

/a:/–

Ex. 7 What is the difference between the centering and the closing diphthongs? Name them all.

Ex. 8 Supply the missing features:

	Lenis / Fortis	Place of Articulation	Manner of Articulation
/p/			
/b/			
/t/			
/d/			
/t /			
/d/			
/k/			
/g/			
/f/			
/v/			
/θ/			
/ð/			
/s/			
/z/			
/tʃ/			
/dʒ/			
/h/			
/m/			
/n/			
/n/			
/l/			
/w/			
/r/			
/j/			

Ex. 9 Which are possible words in English?

[pæg]	[spɔŋk]	[mɔkst]
[pflk]	[vɔʊl]	[ŋalm]

Ex. 10 The 'Wug' Test: one wug → two /????/

a)	[wʌgs]
b)	[wʌgən]
c)	[wʌgz]
d)	[wʌgiz]

Q 11: How do we know that /w/ and /r/ are different phonemes in English?

Q 12: What is the relationship between [p] and [pʰ] in English?

Q 13: What is the missing symbol in each class of English phonemes? What is the class of phonemes?

a) /i:, ɪ, a/
b) /i:, u:, ʊ/
c) /p, t, k, d, g/
d) /f, θ, s, h/

Q 14: Analyse the following syllables in terms of regular/non-regular and occurring/non-occurring in English. For those that are not regular, explain why.

	Regular?	(Reason)	Occurring?
[beɪʒ]	_____	_____	_____
[skrɪfd]	_____	_____	_____
[pjæŋ]	_____	_____	_____
[krʌŋkt]	_____	_____	_____
[flɪntʃt]	_____	_____	_____

Unit 10. New Synthesis: Putting It All Together Again

Objectives

After completing this unit, you will be able to

1. Describe the complexity of Language and its 'behaviour', viewing it through the wide-angle lens of dialectics
2. Contrast this new understanding of Language with the traditional narrow focus of descriptive linguistics on 'fixed' aspects of Language (structures, functions, meaning, etc.)

10.0 Introduction

In the past weeks, we have studied Language on different levels:

1. We first examined it as a complex living structure of arbitrary symbols, a union of thought and physical form, the product and tool of thinking, living minds.
2. In order to understand this complex structure better, we identified its smallest units – word-meanings – and examined the ways in which *thinking* minds put them together into sentence mosaics (meaning-as-use).
3. We then 'zoomed in' on fixed parts of the physical structure of word-meaning (morphemes and phonemes) and examined the interphase between them.

In this final unit, we will put it 'all together again,' thus glimpsing **Language** '***live***,' rising to a higher level of our understanding of Language - a new 'synthesis on'! ☺

10.1 The Wide-Angle Lens of Dialectical Linguistics (Synthesis)

In our scientific examination of Language, we must view it through the wide-angle lens of dialectics, as well as through the narrow focus of metaphysical analysis – it is only then that we can rise to a higher level in the spiral of our understanding of its complex nature and behaviour.

- Every word of Language is already a generalization – an **act of thought**.

- Language is Verbal Thought (thought in words); therefore, if we understand how we think in words, we will understand how Language works.

- We think by connecting ideas by Resemblance, Contiguity, and Cause/Effect – these associations are the basis of **Generalization** (the ***Rational Mechanism of Language***).

- Word-meanings are the smallest units of the complex whole of language, because they have all its properties intact: ***psychological*** (meaning), ***physical*** (sounds, signs), ***social*** (communication), and ***historical*** (they are the products of minds, living in time).

- The Whole is more than the sum of its Parts. Language is more than the sum of its 'units and rules' – it is a social thinking tool, the 'spinning wheel' we use to spin our 'webs of significance.'

- The **language tool** consists of conventional ***word-meanings*** and ***rules*** for putting them together to form the composite meanings of ***sentence-mosaics***.

- In all languages, these 'rules' for building sentence mosaics (complex thoughts) out of word-meanings (and groups of word-meanings) are the natural principles of human understanding (associations by resemblance, contiguity in space/time, and cause/effect).

- The process of building a sentence mosaic involves the **Synthesis** and **Analysis** of word-meanings; these are the two principles of sentence structure that all languages share: (1) connecting what we speak about with what we say about it into the S/V/C nexus, and (2) adding color /detail to the sentence constituents through recursion, always based on the three natural principles of human understanding, required for all generalization.

- Denotative meanings (those that are usually 'fixed' in dictionaries) are our collective generalizations – products of the slowly turning wheels of the 'composite' social mind, they reflect the world as it is conceptualized by the society. The development of our social cognition can be traced through the study of etymology and grammaticalization.

- In live communication, individual speakers connect denotative word-meanings society gave them (as they would tiles of different colors) into sentence mosaics, each with its own complex, composite meaning, in which every tile acquires its own meaning, depending on how it is used (***meaning as use***).

- All meaning is the creation of human minds (collective, and individual). Individual verbal thought is impossible without the ***social means*** of thought – Language.

- We are born without verbal thought – society gives us its creation, this magnificent Language tool that we, individual speakers, use to spin our own 'webs of significance' and share them with others.

- We view all complex meanings (those 'webs of significance') through our own 'Mind's Eye' whose vision is relative – it varies, based on our level of cognitive development, experience, knowledge, physical and mental state, context of communication, and a multitude of other factors. This accounts for the fluid nature and ultimate '***indeterminacy of meaning'*** – we all make sense of things in our own heads.

The photo I took of the mosaic images on the Papua New Guinea Parliament House (below) shows how tiles of different colors were used by artists to create different 'composite meanings' – the Sun, the rivers and lakes, the fish, men and women, the pigs, the houses, the crocodiles and the butterflies, and everything else you see in it:

Mosaics on the National Parliament House, POM

- We, speakers, are just like those artists that created those images from different color tiles. How words of different colours (conventional meanings) are put together in the sentence determines, basically, the overall general meaning of the sentence mosaic, the 'image' it creates.

- The wide-angle lens of dialectics, however, has enabled us to see the third dimension of all meaning – it is an **act of *thought***, and all of us are ***actors***! We use the same universal principles of human understanding to connect the words of language into meaningful patterns, but we all see them only with our individual Mind's Eye. There is no 'Superior Eyeball' whose vision is the canon of Truth: '***Mind Is the Measure of All things,***' and each Mind's Eye has its own vision, unique to every individual at every time in their lives. That is why people can see or hear the same thing, yet understand it differently. This is also why **ambiguity** is so common in Language.

- Our Collective Mind's vision also changes over time – from the most concrete concepts, verbal thought can rise to the heights of abstraction; it is not the word that changes, it is the way reality is generalized in the mind of the society! All societies and people in them live in time, and in a constantly changing world. Our active, generalizing minds never stop thinking – this is what drives all kinds of semantic change, and the process of grammaticalization.

10.2 The Zoom-In Lens of Descriptive Linguistics (Analysis)

In Units 5-9, we changed our focus to close-up examination of word-meanings and parts of their physical structures, zooming in on

(1) Syntax, the interphase of complex structure & meaning:

- The various *techniques* different societies have developed for spinning their 'webs of significance' out of the smallest units of language (word-meanings). All societies use the same universal principles of generalization - **synthesis** (of word-meanings into the nexus of the sentence) and **analysis** (adding detail to the main sentence constituents, recursion); we call these 'web spinning techniques' *grammars*. The physical ***forms*** generalization takes in different languages are all united by its essence, the universal principles of human understanding.

- The lens of dialectics has revealed the natural logical relationships between words and groups of words in the sentence; making syntactic analysis easy and effective. Generalising sentence analysis (**G-nalysis**) is based on the dialectical, multidimensional view of every sentence mosaic as a complex generalization in the minds of the speakers who may make sense of it differently. It therefore has the flexibility to reflect and express a variety of different relationships between words and groups of words, as they may be perceived by different minds. It uses both synthesis and analysis in its approach, and is perfectly suited for structural analysis of ambiguous sentences.

(2) Morphology, Phonetics & Phonology:
Our close examination of 'bits and pieces' of words (morphemes), our study of the physical 'stuff' that verbal thought is made of (speech sounds), as well as an in-depth look at the mechanism of speech production and speech perception revealed that limitations of our anatomy and physical perception also cause language change over time. Our tongues, marvellous as they are, are too slow for 'digital precision' and begin to 'cut corners' when required to change position or the place of articulation too quickly. They also become 'sloppy' when required to articulate consonant clusters or different sounds with similar places of articulation. Coupled with the universal human tendency to conserve energy (the most general of the 'most natural development' principles), all these factors cause sound assimilation in running speech as well as phonological changes over time. These, in turn, lead to morphological and, ultimately, to syntactic change.

The social nature of language also plays a significant role in language change – the tastes, habits, and communication needs of the speakers underlie most of the word formation processes we discussed (including borrowing) and cause changes in the words they use, and how they use them.

The most awesome creations of human minds in the last two hundred years are the **creole languages**, which show the power of generalizing thought. When deprived of common 'currency' of thought exchange, people had to use isolated concrete word-meanings from their respective languages for basic communication. The generalizing minds of their children, growing up in a pidgin-speaking community, ***created*** brand new grammars – new languages have been born!

In conclusion: The wide-angle lens of dialectics, together with close-up analysis of the 'fixed' aspects of our most wonderful creation, Language, has revealed the continual, constant interplay of all its contradictory aspects and dualities. It is only in the indivisible union and interconnectedness of its psychological, physical, and social aspects that Language lives in time.

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