

# Internal lexicon

Source: Kess; Tallerman

The topic about ‘internal lexicon’ means to find out about words as they are stored in the mind.

It also concerns – what are they consist of and how do we find them, use them and relate them to one another.

We try to distinguish between the process of retrieving information about words and storing of the words in memory.

The distinction is similar to the one between the information about words that is contained in a dictionary and the processes (flipping the pages and so on) by which we find the information.

Psycholinguists refer to the representation of words in permanent memory as the **‘internal lexicon’**.

An interesting thing happens to the WORD, once that word has been found in our lexicon.

The linguistic and non-linguistic properties that we associate with the word become available for us to be used in variety of contexts.

These properties include the meaning of the word, its spelling, pronunciation, its relationship to other words and related information.

Most of the linguistic properties of the word are also the part of the dictionary, but many of the non-linguistic properties of the words are uniquely given only to the 'internal lexicon' .

An example is that elephants are said to never forget things, this piece of information is not a linguistic property of the word.

So, to make things simple, what we should do is to divide the presentation in two parts;

part one will talk about the way words are stored in the 'internal lexicon' and the theories that explain the phenomenon;

part two will demonstrate the way we access the lexical items from the 'internal lexicon' .

## **Storage of the Words in Internal Lexicon:**

**Aspects of Meaning:** This deals with the aspects of meaning of a word that we need to know in order to retrieve that word in our mind.

Linguists, Philosophers, and Psycholinguists have identified several important aspects of word meaning;

and the first very important aspect is: **Sense and reference**

Let's first understand 'reference': the relationship between words and things in the world is termed as the 'reference' of a word;

In other words, things that exist in the world are re-called the referents of the word.

This aspect of meaning determines the 'truth' and 'false' values of the utterance.

**For example: There is a brown cow grazing in the field.**

In order to meet the semantic conditions of 'truthfulness' of the sentence, there must be a cow, it must be brown, and it must be grazing in the field.

In other words, we must evaluate whether the events in the world correspond to the referents of the words cow, brown, grazing and field.

References unfold the facts what the world should be like if a given utterance is true.

However, not all references/referents are so easy.

Some words have very clear meaning but it is difficult to know what they refer to, such as love, hate, justice, possibility and relativity.

Nevertheless, there are words and they are meaningful but have no real referents, such as 'unicorn' 'rabbit's horn' and 'UFO'

What is the punch line, well, whether the referents of the words are unclear in some cases and do not exist in other cases, they all seem to communicate meaning in the language.

And this is so, because besides the real world, we can also have possible world, world that does not exist but might possibly exist.

So, reference is a part of the meaning, but there is more to meaning than reference ONLY.

Two different words or expressions may have the same reference but may not mean the same thing.

For example:

**The course in-charge of L-20 (Linguistic Stylistics) and the HOD of Dept of linguistics came late to the meeting.**

The present case and the time when RG will not be the HOD.

The part of the meaning which is not its reference is termed as its SENSE.

The sense of a word means, 'its place in a system of relationships which it contrasts with other words in the vocabulary.

The **sense** of an expression is the thought it expresses, while its **reference** is the object it represents.

The thought expressed by 'course-in-charge' and 'HOD' are different senses of the words.

Linguists have identified several such important relationships:

**Synonymy:** two words or expressions that mean the same thing, such as *fear* and *panic*.

**Antonym:** it refers to opposition of meaning as in *big* and *small*.

**Hyponymy:** it deals with the notion of class inclusion: that is a *dog* is a subordinate of animal, coordinate of *cat* and superordinate of German *shepherd*.

**Homophony:** when two or more written forms have the same pronunciation, but have different meaning as in meat-meet, bear-bare.

**Homonymy:** when one form (written and spoken) has two or more unrelated meaning as in bank, bat, mole and pupil.

**Polysemy:** when one form (written or spoken) has more and two or multiple meaning as in head: - a. HOD, Father, body part

**Metonymy:** a relationship that exists between the words as container-contained( can-juice/coke) a whole-part (car –wheels) and a symbol relationship (king-crown, Whitehouse-US president).

Many of the sense relations rest on the notion of 'IMPLICATION'.

Implication relation can exist between words when if one expression is true then another must be true.

Example: a. Peter is a bachelor. b. Peter is not married.

As we said, sense relations can be implicational, in that a synonymy has a bilateral implication.

But let's say that Fido is a dog and it implies that he is an animal.

However, this implication is unilateral because to be an animal does not imply that it has to be a dog.

Students must think of the other 'sense relation' in terms of implication.

(might be important from exam point of view ☹)

So, to sum up the section, sense and reference are 'Complementary' aspects of meaning as;

**Sense** pertains to the relationships that exist between a word and other words in the language.

**Reference** deals with the relationships between a word and what that word stands for in the world.

So, both these notions are needed badly in order to be able to use the language purposefully.

It is for this reason that despite there are so many exceptions that are found with these terms and thus there are explanations available to handle the exceptions, the importance of these terms never go away from the central theme of language use.

Before we wind up the first section of our discussion on 'internal lexicon', let us discuss some more terms that are useful for the meaning of words in the language.

## Denotation and Connotation:

**Denotation:** the denotation of a word is the objective or dictionary meaning of a word.

**Connotation:** a word might have a meaning which exists beyond the dictionary meaning of it and connotation suggests that aspect of the meaning of the word. For example: **Bachelor:** unmarried, eligible for marriage and **Spinster** : unmarried, not eligible for marriage

One more try to understand the difference:

**Denotation** refers to the literal meaning of a word i.e. the dictionary of a word.

For example, if we are to find out as to what a word *snake* denotes, we will find that it is a ‘cylindrical body, legless, sometimes venomous reptiles, and found in most tropical regions’.

**Connotation**, on the other hand, refers to the associations that are connected to a certain word.

The **connotative** meanings of a word exist together with the denotative meanings.

The connotations for the word *snake* could include evil or danger. 9

# Structure of the internal lexicon

In this section, we will look at the ways that may help us to examine the organization of the lexicon.

The most common experimental procedure is known as semantic verification task.

In this task, a person is given a statement such as ‘An apple is a fruit’ and is asked to determine quickly whether the sentence is ‘true’ or ‘false’.

The time that the subject takes in making the decision indicates the organization of the information in the internal lexicon and the ‘distance’ between different words in the internal lexicon.

This kind of test is used by ‘psycholinguists’ and others to determine several cognitive activities that may help to understand the organizational procedures that human mind uses to handle the complex systems of language and its structures.

# Hierarchical Structure

One can stop for a while and go on exploring as to what are the complex systems of language and its structures.

Complex system of language can also be viewed as a system of hierarchy in the structure of language.

This leads to what we know in linguistics as HS.

HS means that linguistic elements, having merged to one another or grouped together, must further 'nest' with one another like a spider web.

HS is good because it makes human life easier and simpler.

This has been proven by psychological experiments as well as common sense that human mind can ONLY deal with a small number of things at a time.

The number of things, human mind can deal with at one time, has been suggested to 'from four to six' at the most (Payne 2006).

Take an example of phone no. 9868608884, if this is given to us when we did not have anything to write it down, what would we do?

a. Repeat it many times, so that we remember it for quite some time.

An example of ‘short-term memory to long/permanent memory’ also known as ‘over-learning’.

b. We would unconsciously, however according to our idiosyncratic style/convenience, ‘group’ the No. into two, or more parts.

When we memorize these groups in a series like this, we convert the ‘groups’ into ‘units’ to ease our storage process in memory.

Once they become ‘units’, we group them again and again to make higher and higher units with some unique embedded structure.

Hierarchical Structure in languages is a natural consequence of the same fact of human cognition, where elements are grouped into parts and parts into units and units into bigger units and so forth ..

# Hierarchical Structure

As we saw that ‘human language’ is nothing but a matter of organizing the elements in different layers for the purpose of contextual retrievals.

Every language has some or other ‘conventionalized pattern or rules’ that must be obeyed in terms of constructing linguistic elements into units.

Human mind seems to compartmentalize elements of language into different sets for the sake of comfortable retrieval of these elements at need.

The need is the context when we want different items/elements to group together to make communication possible.

In grouping the elements together human mind makes use of ‘predictability’ over randomness in terms of the possibility of occurrence of next element.

# Hierarchical Network Models:

Network models are those which assume that our memory for word concepts that forms a system of interconnected elements.

A network shows hierarchy if some of these elements stand above and below to the other members of the network.

Collins and Quillian (1969, 70, 72) have proposed one of such models of HNM.

The key assumption of the model deals with the concept of 'cognitive economy'.

The researchers assume that the space available for the storage of the semantic information is limited.

Therefore, some information that could easily be stored in more than one place must be stored only at the highest possible node.

For example, the information that birds can breathe is stored at the animal level since it is true for all animals, rather than storing this piece of information at every subordinate level.

In Collins and Quillian model, individual words are represented discretely, as complete units.

An alternative approach is to represent words as bundles of semantic features. Smith, Shoben and Rips have developed a model known as 'Semantic feature models' .

They distinguish between two types of semantic features: Defining and Characteristic features.

**Defining feature:** a defining feature is one that must be present for an instance to be a member of the concept.

**Characteristic features:** Characteristic features on the other hand are those that are not necessary for category membership but are nonetheless typically associated with every individual word.

For example: two defining features for birds are that they must have feathers and must be animate, however, it is a characteristic feature of some bird that they can sing.

The model assumes that semantic verification decisions are made by a two stage process.

At the first stage, all the features of a word (or a sentence) are retrieved and compared.

This is done to derive an overall estimate of the similarity with other words (elements of the sentence).

If they are highly similar, we respond true but If they are highly dissimilar, we respond false.

However, if the degree of similarity is moderate, we go to a second stage, in which only defining features are considered and checked with other elements of the member.

### **Spreading Activation Model:**

This is an advanced form of model of Network model that we discussed earlier.

This has gained a lot of popularity in cognitive psychology and has helped the researchers in the field to carry out the research in the field of 'internal lexicon' .

This model has been put forward by [Collins and Loftus](#).

Collins and Loftus assume that words are represented in the internal lexicon within a network of relationships.

But the organization does not have to be hierarchical, rather Collins and Loftus thought this to be compared it with a web of interconnecting nodes.

The distance between nodes is determined by both *structural characteristics* (such as categorical relations) and *functional considerations* (such as typicality and the degree of association between various concepts).

Thus, this model has incorporated viable aspects of all the previous approaches.

This model retains the notion that concepts are stored as interconnected links, but revises the notion that all nodes are equally accessible.

The model aptly answers the question of frequency of use of the words by assuming that some nodes are more accessible than others and the degree of this accessibility is due to the frequency of use.<sup>17</sup>

The concept of 'cognitive economy' has also been modified in this model.

Collin and Loftus differentiated between a strong and weak version of cognitive economy.

As we have seen that the strong version of 'cognitive economy' states that all properties are stored just once in the network. However, we know that if this were the case, why is it the case that sometimes we find it almost impossible to gather the aptness of either the usage of a word or the apt word in a particular context.

It is therefore, that the notion of a weak version of 'cognitive economy' is evoked.

The version says that it might be the case that properties of a word are still not stored in other portions of the internal lexicon where they are most applicable and thus we have problems.

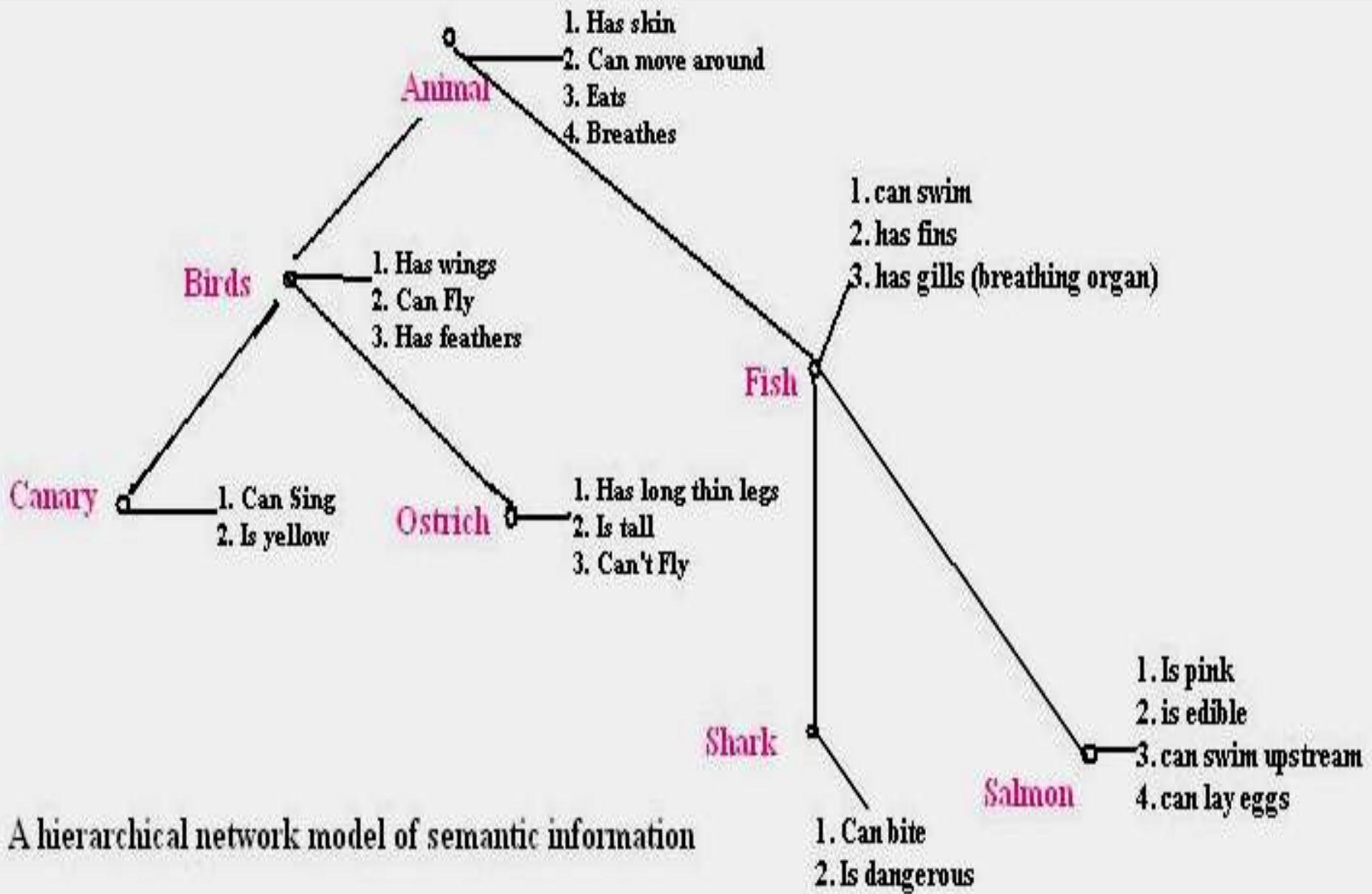
The process of retrieval of the semantic information is also modified in this model.

Instead of an intersectional search, they advocated for a process of spreading activation by which the retrieval of the semantic information happens.

Activation begins at a single node and then spreads in parallel form throughout the network.

The activation attenuates over distance, thus ensuring that closely related concepts are more likely to be activated than the ones that are at far distance.

that's all 😊



A hierarchical network model of semantic information

