

## What is Linguistics?

*-the scientific study of language, its structure and development;*

The primary goal of linguists is understanding the nature of the language by asking questions such as:

- What distinguishes human language from other animal communication systems?
- What features are common to all human languages?
- How are the modes of linguistic communication (speech, writing, sign language) related to each other?
- How is language related to other types of human behaviour?

The main goal of linguistics is to increase our knowledge and understanding of the world. Since language is universal and fundamental to all human interactions, the knowledge attained in linguistics has many practical applications. Linguists are prepared to seek answers to questions such as:

- How can a previously unstudied language be analyzed and written?
- How can foreign languages best be taught and learned?
- How can speech be synthesized on a computer or how can a computer be programmed to understand human speech?
- How can the language problems of people with speech abnormalities be analyzed and rectified?
- How are linguistic issues in legal matters to be handled?

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## The Sub-Fields of Linguistics

**Phonetics** (the study of speech sounds: they study both the production of the speech sounds by the human organs, and the properties of the sounds themselves)

The concern is about the following things:

- What are the sounds, from among all those that humans could make, that actually exist in the world's languages?
- What specially defines different "accents"?
- What are the properties of sounds that would apply in computerized speech synthesis?

It includes understanding how sounds are made using the mouth, nose, teeth and tongue, and also understanding how the ear hears those sounds and can tell them apart. A study of phonetics involves practicing producing (sometimes exotic) sounds, and figuring out which

sound you heard. The wave form of each sound can be analysed with the help of computer programs. In sign language, phonetics refers to the possible shapes, movements and use of physical space.

**Phonology** (the study of language sound systems; it makes use of the phonetics)

Linguists are concerned with such questions as:

- What sounds *contrast* in one language but not another?
- What sounds of a language can or cannot occur one after the other (for example, why can words begin in *st-* in English but not in Spanish)?
- How do poets or writers or song lyrics intuitively know how to match the rhythm of speech to the abstract rhythmic pattern of a poetic or musical meter?

In phonology, it matters whether sounds are contrastive or not, that is, whether substituting one sound for another gives a different, or "contrastive," meaning. For example in English, [r] and [l] are two different sounds - and the words "road" and "load" differ according to which of these sounds is used. But in some languages, [r] and [l] are variations of the same sound. Phonologists are also interested in syllables, phrases, rhythm, tone, and intonation.

**Morphology** (the study of the word structure, how individual words are formed from smaller chunks)

Linguists examine such questions as:

- To what extent are ways of forming words "productive" or not (e.g. why do English speakers say *arrival* and *amusement* but not *\*arrivement* and *\*amusal*)?
- What determines when words change form?
- How can humans program computers to recognize the "root" of a word separated from its "affixes" (e.g. how could a computer recognize *walk*, *walks*, *walking*, and *walked* as the "same" word)?

Many languages have a much more complex way of putting words together. Morphology interacts in important ways with both phonology (bringing sounds together can cause them to change) and syntax, which needs to pay attention to the form of a word when it combines it with other words.

**Syntax** (the study of how phrases clauses and sentences are constructed and combined in particular languages)

Linguists ask such questions as:

- How can the number of sentences that speakers can create be infinite in number even though the number of words in any language is finite?
- What makes certain sentences ambiguous?
- Why would English speakers judge a sentence like *colourless green ideas sleep furiously* to be “grammatical” even though it is nonsensical?
- How can languages express the same thoughts even though they construct their sentences in different ways?
- How can humans program a computer to analyze the structure of sentences?

Writing a grammar requires defining the rules that govern the structure of the sentences of the language. Such rules involve both the order of words, and the form of words in their various possible positions. There are common patterns among even unrelated languages, and many linguists believe this is the result of general principles which apply to most, if not all, languages. For example, languages where the direct object generally follows the verb have a lot of things in common, in contrast to the things in common held by languages in which the direct object generally precedes the verb.

### **Semantics** (the study of meaning)

Linguists answer such questions as:

- How do speakers know what words mean (e.g. How does one know where *red* stops and *orange* starts)?
- What is the basis of metaphors (e.g. Why is *my car is a lemon* a “good” metaphor but *my car is a cabbage* is not)?
- What makes sentences like *I’m looking for a tall student* or *the student I am looking for must be tall* have more than one meaning?
- In a sentence like *I regret that he lied*, how do we know that, in fact, he did lie?

It focuses on the relation between words, phrases and other bits of language and on how these words and phrases connect to the world

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Various branches of linguistics that combine other types of science:

### **Historical linguistics**

The study of how languages change over time, addressing such questions as why modern English is different from Old English and Middle English or what it means to say that English and German are “more closely related” to each other than English and French.

### **Sociolinguistics**

The study of how language is used in society, addressing such questions as what makes some dialects more sophisticated than others, where slang comes from and why it arises, or what happens when two languages come together in “bilingual” communities.

### **Psycholinguistics**

The study of how language is processed in the mind, addressing such questions as how we can hear a string of language noises and make sense of them, how children can learn to speak and understand the language of their environment as quickly and effortlessly as they do, or how people with pathological language problems differ from people who have “normal” language.

### **Neurolinguistics**

The study of the actual encoding of language in the brain, addressing such questions as what parts of the brain different aspects of language are stored in, how language is actually stored, what goes on physically in the brain when language is processed, or how the brain compensates when certain areas are damaged.

### **Ethnolinguistics**

It is concerned with the study of the interrelation between a language and the cultural behaviour of those who speak it. Several controversial questions are involved in this field: Does language shape culture or vice versa? What influence does language have on perception and thought?

### **Computational linguistics**

Learning and understanding a language involves computing the properties of that language that are described in its phonology, syntax, and semantics. The challenge of describing this process connects linguistics with computational issues at a very fundamental level. How could syntactic structures be computed from spoken language, how are semantic relations recognized, and how could these computational skills be acquired?

Sources:

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