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ИНОСТРАННЫХ ЯЗЫКОВ И ПЕРЕВОДОВЕДЕНИЯ**

КАФЕДРА ТЕОРИИ И ПРАКТИКИ ПЕРЕВОДА

**LANGUAGE AND THINKING
IN MODERN LINGUISTICS**

*Учебное пособие
по курсу «Современные направления в лингвистике»*

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Учебное пособие адресовано студентам языковых ВУЗов, обучающихся по специальностям «Лингвистика. Перевод и переводоведение». Учебное пособие посвящено вопросам современного языкознания и содержит теоретический материал по некоторым аспектам нейролингвистики, психолингвистики, генеративной лингвистики. Теоретические положения сопровождаются практическими заданиями, нацеленными на развитие и формирование навыков критического подхода в научной дискуссии.

Для студентов, аспирантов, преподавателей филологических и других факультетов вузов, начинающих языковедов и переводчиков и всех, кто интересуется вопросами лингвистики.

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FOREWORD

Настоящее учебное пособие предназначено для студентов 2-4 курсов, обучающихся по специальности «Лингвистика. Перевод и переводоведение», а также всех заинтересованных в изучении современных вопросов языкознания. Пособие разработано в соответствии с требованиями Федерального государственного образовательного стандарта, а также в соответствии с учебной программой по дисциплине «Современные направления в лингвистике».

Учебное пособие имеет целью формирование у студентов критического подхода в научной дискуссии. С этой целью в пособии применяется принцип единства теории и практики. Теоретическая часть освещает некоторые вопросы современного языкознания, в частности, нейролингвистики, психоллингвистики, генеративной лингвистики, их базовые понятия, положения и направления. Весь теоретический материал сопровождается вопросами для контроля полученных знаний. Практическая часть содержит вопросы и задания, построенные на конкретном языковом материале, и предназначенные для практической работы, а также отрывки из работ (статьи, диссертации) ученых-лингвистов современности, нацеленные на критический анализ изложенного теоретического материала.

Пособие сопровождается библиографическим списком литературы, который может применяться студентами для дальнейшей самостоятельной работы в области современной лингвистики.

CHAPTER ONE

NEUROLINGUISTICS

PART ONE: THEORETICAL ASPECTS

WHAT IS NEUROLINGUISTICS?

Neurolinguistics is the study of the connections between language and brain.

Although “neurolinguistics” is a relatively recent term, the field of study dates back to the nineteenth century. Establishing the location of language in the brain was an early challenge, but one event incidentally provided a clue.

In September 1848, near Cavendish, Vermont, a construction foreman called Phineas P. Gage was in charge of a construction crew blasting away rocks to lay a new stretch of railway line. As Mr. Gage pushed an iron tamping rod into the blasting hole in a rock, some gunpowder accidentally exploded and sent the three-and-a-half-foot long tamping rod up through his upper left cheek and out from the top of his forehead. The rod landed about fifty yards away. Mr. Gage suffered the type of injury from which, it was assumed, no one could recover. However, a month later, he was up and about, with no apparent damage to his senses or his speech. The medical evidence was clear. A huge metal rod had gone through the front part of Mr. Gage’s brain, but his language abilities were unaffected. He was a medical marvel.

The point of this rather amazing tale is that, while language may be located in the brain, it clearly is not situated right at the front.

Since that time, a number of discoveries have been made about the specific parts in the brain that are related to language functions.

The study of the relation between language and brain was begun in the mid-nineteenth century by the Frenchman Paul Broca and the German Carl Wernicke. What they did was to study and characterize the aphasia (disturbed language) of people who had suffered brain damage, and then, after the sufferers’ deaths, to conduct post-mortem examinations in order to find out which areas of the brain had been damaged.

In this way, they succeeded in identifying two specific areas of the brain, today called Broca’s area and Wernicke’s area, each of which is responsible for specific

aspects of language use. These findings confirmed the reality of the localization of language in the brain; moreover, since these areas are nearly always located on the left side of the brain, they also confirmed the lateralization of the brain.

In the mid-twentieth century, the American neurologist Norman Geschwind elaborated the view of the brain as consisting of a number of specialized components with connections between them, and he also provided the basis of our modern classification of the several language areas in the brain and of the types of aphasia resulting from damage to each.

More recently, the introduction of sophisticated brain scanners has allowed specialists to examine the activity in the brains of healthy, conscious subjects who are performing specific linguistic tasks like reading, speaking and listening. The new data have both confirmed and extended our understanding of the location and functions of the several language areas.

Neurolinguistics is truly interdisciplinary, involving, for example, neuroscience, psychology, linguistics, speech pathology and biology. It also involves the use of a multitude of research methods, such as experimental research, neuroimaging, simulation of brain processes and video recording of spoken interaction. Traditionally, the study of people with brain damage, especially acquired brain damage, which causes a language disorder, has dominated the field.

Neurolinguistics can, however, also be about how the brain and human language and communication developed during evolution and how they develop in children and adults; it can also be about making computer simulations of linguistic processing by the brain; and it can be about localizing activity in parts of the brain involved in language processing by using neuroimaging methods. Neurolinguistics can be focused on any of these aspects or on combinations of them.

LANGUAGE AREAS IN THE BRAIN: CLASSICAL VIEW

The left hemisphere and the right hemisphere. If we put the right hemisphere aside for now, and place the left hemisphere down so that we have a side view, we'll

be looking at something close to the accompanying illustration (adapted from Geschwind, 1991).

The shaded areas as in this illustration indicate the general locations of those language functions involved in speaking and listening. We have come to know that these areas exist largely through the examination, in autopsies, of the brains of people who, in life, were known to have specific language disabilities. That is, we have tried to determine where language abilities for normal users must be by finding areas with specific damage in the brains of people who had identifiable language disabilities.

The part shown as (1) in the illustration (Fig. 1) is technically described as the “anterior speech cortex” or, more usually, as Broca’s area. Paul Broca, a French surgeon, reported in the 1860s that damage to this specific part of the brain was related to extreme difficulty in producing speech. It was noted that damage to the corresponding area on the right hemisphere had no such effect. This finding was first used to argue that language ability must be located in the left hemisphere and since then has been treated as an indication that Broca’s area is crucially involved in the production of speech.

The part shown as (2) in the illustration is the “posterior speech cortex,” or Wernicke’s area. Carl Wernicke was a German doctor who, in the 1870s, reported that damage to this part of the brain was found among patients who had speech comprehension difficulties. This finding confirmed the left hemisphere location of language ability and led to the view that Wernicke’s area is part of the brain crucially involved in the understanding of speech.

The part shown as (3) in the illustration is the motor cortex, in which originate the nerve impulses that initiate voluntary muscular activity.

The part shown as (4) in the illustration is a bundle of nerve fibers called the arcuate fasciculus. This was also one of Wernicke’s discoveries and is now known to form a crucial connection between Wernicke’s and Broca’s areas.

Having identified these four components, it is tempting to conclude that

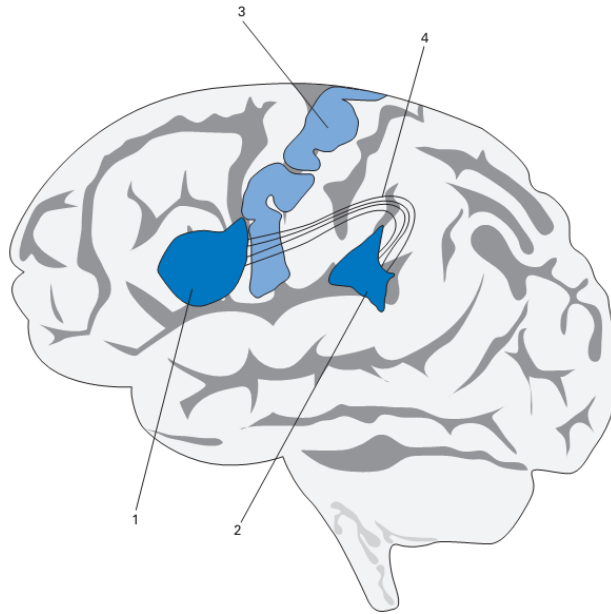


Figure 1

specific aspects of language ability can be accorded specific locations in the brain. This is called the localization view and it has been used to suggest that the brain activity involved in hearing a word, understanding it, then saying it, would follow a definite pattern. The word is heard and comprehended via Wernicke's area. This signal is then transferred via the arcuate fasciculus to Broca's area where preparations are made to produce it. A signal is then sent to part of the motor cortex to physically articulate the word.

This is certainly an oversimplified version of what may actually take place, but it is consistent with much of what we understand about simple language processing in the brain. It is probably best to think of any proposal concerning processing pathways in the brain as some form of metaphor that may turn out to be inadequate once we learn more about how the brain functions. The "pathway" metaphor seems quite appealing in an electronic age when we're familiar with the process of sending signals through electrical circuits.

In a sense, we are forced to use metaphors mainly because we cannot obtain direct physical evidence of linguistic processes in the brain. Because we have no direct access, we generally have to rely on what we can discover through indirect methods.

Most of these methods involve attempts to work out how the system is working from clues picked up when the system has problems or malfunctions.

TONGUE TIPS AND SLIPS

We have all experienced difficulty, on some occasions, in getting brain and speech production to work together smoothly. Minor production difficulties of this sort may provide possible clues to how our linguistic knowledge is organized within the brain.

There is, for example, the tip of the tongue phenomenon in which we feel that some word is just eluding us, that we know the word, but it just won't come to the surface. Studies of this phenomenon have shown that speakers generally have an accurate phonological outline of the word, can get the initial sound correct and mostly know the number of syllables in the word. This experience also mainly occurs with uncommon words and names. It suggests that our "word-storage" system may be partially organized on the basis of some phonological information and that some words in the store are more easily retrieved than others.

When we make mistakes in this retrieval process, there are often strong phonological similarities between the target word we're trying to say and the mistake we actually produce. For example, speakers produced *secant*, *sextet* and *sexton* when asked to name a particular type of navigational instrument (*sextant*). Other examples are *fire distinguisher* (for "extinguisher") and transcendental *medication* (instead of "meditation"). Mistakes of this type are sometimes referred to as malapropisms after a character called Mrs. Malaprop (in a play by Sheridan) who consistently produced "near-misses" for words, with great comic effect.

Another type of speech error is commonly described as a slip of the tongue. This produces expressions such as *make a long shory stort* (instead of "make a long story short"), *use the door to open the key*, and *a fifty-pound dog of bag food*. Slips of this type are sometimes called spoonerisms after William Spooner, an Anglican clergyman at Oxford University, who was renowned for his tongue-slips. Most of the slips attributed to him involve the interchange of two initial sounds, as when he

addressed a rural group as *noble tons of soil*, or described God as *a shoving leopard to his flock*, or in this complaint to a student who had been absent from classes: *You have hissed all my mystery lectures*.

Most everyday slips of the tongue, however, are not as entertaining. They are often simply the result of a sound being carried over from one word to the next, as in *black bloxes* (for “*black boxes*”), or a sound used in one word in anticipation of its occurrence in the next word, as in *noman numeral* (for “*roman numeral*”), or *a tup of tea* (“*cup*”), or *the most highly played player* (“*paid*”). The last example is close to the reversal type of slip, illustrated by *shu flots, which may not make you beel fetter if you’re suffering from a stickneff, and it’s always better to loop before you leak*. The last two examples involve the interchange of word-final sounds and are much less common than word-initial slips.

It has been argued that slips of this type are never random, that they never produce a phonologically unacceptable sequence, and that they indicate the existence of different stages in the articulation of linguistic expressions. Although the slips are mostly treated as errors of articulation, it has been suggested that they may result from “slips of the brain” as it tries to organize linguistic messages.

One other type of slip may provide some clues to how the brain tries to make sense of the auditory signal it receives. These have been called slips of the ear and can result, for example, in our hearing *great ape* and wondering why someone should be looking for one in his office. (The speaker actually said “*gray tape*”). A similar type of misunderstanding seems to be behind the child’s report that in Sunday school, everyone was singing about a bear called “*Gladly*” who was *cross-eyed*. The source of this slip turned out to be a line from a religious song that went *Gladly the cross I’d bear*. It may also be the case that some malapropisms (e.g. *transcendental medication*) originate as slips of the ear.

Some of these humorous examples of slips may give us a clue to the normal workings of the human brain as it copes with language. However, some problems with language production and comprehension are the result of much more serious disorders in brain function.

LANGUAGE DISORDERS

If you have experienced any of those “slips” on occasion, then you will have some hint of the types of experience that some people live with constantly. Those people suffer from different types of language disorders, generally described as “aphasia”. Aphasia is defined as an impairment of language function due to localized brain damage that leads to difficulty in understanding and/or producing linguistic forms.

The most common cause of aphasia is a stroke (when a blood vessel in the brain is blocked or bursts), though traumatic head injuries from violence or an accident may have similar effects. Those effects can range from mild to severe reduction in the ability to use language. Someone who is aphasic often has interrelated language disorders, in that difficulties in understanding can lead to difficulties in production, for example.

Consequently, the classification of different types of aphasia is usually based on the primary symptoms of someone having difficulties with language.

The serious language disorder known as Broca’s aphasia (also called “motor aphasia”) is characterized by a substantially reduced amount of speech, distorted articulation and slow, often effortful speech. What is said often consists almost entirely of lexical morphemes (e.g. nouns, verbs). The frequent omission of functional morphemes (e.g. articles, prepositions) and inflections (e.g. plural *-s*, past tense *-ed*) has led to the characterization of this type of aphasic speech as “agrammatic.” In agrammatic speech, the grammatical markers are missing. An example of speech produced by someone whose aphasia was not severe is the following answer to a question regarding what the speaker had for breakfast: *I eggs and eat and drink coffee breakfast.*

However, this type of disorder can be quite severe and result in speech with lots of hesitations and really long pauses (marked by ...): *my cheek ... very annoyance ... main is my shoulder ... achin’ all round here.* Some patients can also have lots of difficulty in articulating single words, as in this attempt to say

“steamship”: *a stail ... you know what I mean ... tal ... stail*. In Broca’s aphasia, comprehension is typically much better than production.

The type of language disorder that results in difficulties in auditory comprehension is sometimes called “sensory aphasia,” but is more commonly known as Wernicke’s aphasia. Someone suffering from this disorder can actually produce very fluent speech which is, however, often difficult to make sense of. Very general terms are used, even in response to specific requests for information, as in this sample: *I can’t talk all of the things I do, and part of the part I can go alright, but I can’t tell from the other people .*

Difficulty in finding the correct word, sometimes referred to as anomia, also happens in Wernicke’s aphasia. To overcome their word-finding difficulties, speakers use different strategies such as trying to describe objects or talking about their purpose, as in the thing to put cigarettes in (for “ashtray”). In the following example (from Lesse & Milroy, 1993), the speaker tries a range of strategies when he can’t come up with the word (“kite”) for an object in a picture: *it’s blowing, on the right, and er there’s four letters in it, and I think it begins with a C – goes – when you start it then goes right up in the air – I would I would have to keep racking my brain how I would spell that word – that flies, that that doesn’t fly, you pull it round, it goes up in the air.*

One other, much less common, type of aphasia has been associated with damage to the arcuate fasciculus and is called conduction aphasia. Individuals suffering from this disorder sometimes mispronounce words, but typically do not have articulation problems. They are fluent, but may have disrupted rhythm because of pauses and hesitations. Comprehension of spoken words is normally good. However, the task of repeating a word or phrase (spoken by someone else) creates major difficulty, with forms such as *vaysse* and *fosh* being reported as attempted repetitions of the words “*base*” and “*wash*”. What the speaker hears and understands can’t be transferred very successfully to the speech production area. It should be emphasized that many of these symptoms (e.g. word-finding difficulty) can occur in

all types of aphasia. They can also occur in more general disorders resulting from brain disease, as in dementia and Alzheimer's disease.

Difficulties in speaking can also be accompanied by difficulties in writing. Impairment of auditory comprehension tends to be accompanied by reading difficulties. Language disorders of the type we have described are almost always the result of injury to the left hemisphere. This left hemisphere dominance for language has also been demonstrated by another approach to the investigation of language and the brain.

DICHOTIC LISTENING

An experimental technique that has demonstrated a left hemisphere dominance for syllable and word processing is called the dichotic listening test. This technique uses the generally established fact that anything experienced on the right-hand side of the body is processed in the left hemisphere, and anything on the left side is processed in the right hemisphere. So, a basic assumption would be that a signal coming in the right ear will go to the left hemisphere and a signal coming in the left ear will go to the right hemisphere.

With this information, an experiment is possible in which a subject sits with a set of earphones on and is given two different sound signals simultaneously, one through each earphone. For example, through one earphone comes the syllable *ga* or the word *dog*, and through the other ear phone at exactly the same time comes *da* or *cat*. When asked to say what was heard, the subject more often correctly identifies the sound that came via the right ear. This is known as the right ear advantage for linguistic sounds.

In this process, the language signal received through the left ear is first sent to the right hemisphere and then has to be sent to the left hemisphere (language center) for processing. This non-direct route takes longer than a linguistic signal received through the right ear and going directly to the left hemisphere. First signal to get processed wins.

The right hemisphere appears to have primary responsibility for processing a lot of other incoming signals that are non-linguistic. In the dichotic listening test, it can be shown that non-verbal sounds (e.g. music, coughs, traffic noises, birds singing) are recognized more often via the left ear, meaning they are processed faster via the right hemisphere. So, among the specializations of the human brain, the right hemisphere is first choice for non-language sounds (among other things) and the left hemisphere specializes in language sounds (among other things too).

These specializations may actually have more to do with the type of processing, rather than the type of material, that is handled best by each of the two hemispheres.

The essential distinction seems to be between analytic processing, such as recognizing the smaller details of sounds, words and phrase structures in rapid sequence, done with the “left brain”, and holistic processing, such as identifying more general structures in language and experience, done with the “right brain”.

THE CRITICAL THINKING

The apparent specialization of the left hemisphere for language is usually described in terms of lateral dominance or lateralization (one-sidedness). Since the human child is not born as a fully articulate language-user, it is generally thought that the lateralization process begins in early childhood. It coincides with the period during which language acquisition takes place. During childhood, there is a period when the human brain is most ready to receive input and learn a particular language. This is sometimes called the “sensitive period” for language acquisition, but is more generally known as the critical period.

Though some think it may start earlier, the general view is that the critical period for the first language acquisition lasts from birth until puberty. If a child does not acquire language during this period, for any one of a number of reasons, then he or she will find it almost impossible to learn language later on.

(After G. Yule. “Language and the Brain” in *The Study of Language*, 2010)



? Answer the questions and comment on the following:

1. What is neurolinguistics?
2. Describe the areas in the brain which can be considered as language areas.
3. What is a more common name for the posterior speech cortex?
4. What is the motor cortex?
5. What are tongue tips and slips? Describe their types.
6. Is the use of “*fire distinguisher*” instead of “*fire extinguisher*” a spoonerism or a malapropism?
7. What is aphasia?
8. Which type of aphasia is characterized by speech like this: ... *two time s ...read ... wr ... ripe, er, rike, er, w rite ...* ?
9. What happens in a dichotic listening test?
10. What is the critical period?



PART TWO: PRACTICAL TASKS

Task 1. *Analyse the following:*

1) We made no distinction between the left and right hemispheres in terms of shape or size, assuming they were symmetrical. However, on closer inspection, there is some asymmetry in the lateralization of the brain. What seems to be the main source of this difference between the physiology of the two hemispheres? Should this difference be treated as support for the phrenology model of human brain function?

Key words and phrases:

2) What is meant by the “bathtub effect” in descriptions of features of speech errors?

Key words and phrases:

3) What happens to the language of an individual after damage in the right hemisphere?

Key words and phrases:

4) How would you go about analyzing the following extract from Radford et al (2009) as more likely to be indicative of agrammatism or paragrammatism?

(The speaker is trying to talk about a lady's shoe.)

Now there there I remember. I have you there what I thought was the ... a lady one. Another. With a very short. Very very clever done. Do that the one two. Go. But there's the liver. And there is the new. And so on .

Key words and phrases:

5) The following extract from Buckingham and Kertesz (1976) is discussed in Opler and Gjerlow (1999) as an illustration of "neologistic jargon aphasia." Can you identify any characteristics of this condition that show up in the language used by this speaker? Is the syntax badly impaired? Are morphological features such as inflections used normally or not? Does the speaker have word-finding difficulties? Would you say that this aphasia is more likely to be associated with Broca's area or Wernicke's area? (The speaker is responding to the question, "Who is running the store now?")

I don't know. Yes, the bick, uh, yes I would say that the mick days is nosis or chpickters. Course, I have also missed on the carfterteck. Do you know what that is? I've, uh, token to ingish. They have been toast sosilly . They'd have been put to myafa and made palis and, uh, myadakal senda you . That is me alordisdu. That makes anacronous senda .

Key words and phrases:

6) What happens in "brain imaging" procedures such as CAT scans, fMRI scans and PET scans that might help in the study of language and the brain?

Key words and phrases:

7) One aphasia patient was asked to read aloud the written words on the left below and, in each case, actually said the words on the right. Is there any pattern to be found in these errors? Does this type of phenomenon provide any clues to the way words may be stored and accessed in the brain?

ambition → *career*
anecdote → *narrator*
applause → *audience*
apricot → *peach*
arithmetic → *mathematics*

commerce → *business*
mishap → *accident*
parachute → *balloon*
thermometer → *temperature*
victory → *triumph*

Key words and phrases:

8) The story of Genie is full of remarkable episodes. In 1970, a girl who became known as “Genie” was admitted to a children’s hospital in Los Angeles. She was thirteen years old and had spent most of her life tied to a chair in a small closed room. Her father was intolerant of any kind of noise and had beaten her whenever she made a sound as a child. There had been no radio or television, and Genie’s only other human contact was with her mother who was forbidden to spend more than a few minutes with the child to feed her. Genie had spent her whole life in a state of physical, sensory, social and emotional deprivation. As might be expected, Genie was unable to use language when she was first brought into care. However, within a short period of time, she began to respond to the speech of others, to try to imitate sounds and to communicate. Her syntax remained very simple. The fact that she went on to develop some speaking ability and understand a fairly large number of English words provides some evidence against the notion that language cannot be acquired at all after the critical period. Yet her diminished capacity to develop grammatically complex speech does seem to support the idea that part of the left hemisphere of the brain is open to accept a language program during childhood and, if no program is provided, as in Genie’s case, then the facility is closed down. In Genie’s case, tests demonstrated that she had no left hemisphere language facility. So, how was she able to learn any part of language, even in a limited way? Those same tests appeared to indicate the quite remarkable fact that Genie was using the right hemisphere of her brain for language functions. In dichotic listening tests, she showed a very strong left ear advantage for verbal as well as nonverbal signals. Such a finding, supported by other studies of right brain function, raises the possibility that our capacity for

language is not limited to only one or two specific areas, but is based on more complex connections extending throughout the whole brain. When Genie was beginning to use speech, it was noted that she went through some of the same early “stages” found in normal child language acquisition.

The following extract is from Rymer (1993), quoting Susan Curtiss, a linguist who worked with Genie for many years. *How would you explain events like this?* “Genie was the most powerful nonverbal communicator I’ve ever come across,” Curtiss told me. “The most extreme example of this that comes to mind: Because of her obsession, she would notice and covet anything plastic that anyone had. One day we were walking – I think we were in Hollywood. I would act like an idiot, sing operatically, to get her to release some of that tension she always had. We reached the corner of this very busy intersection, and the light turned red, and we stopped. Suddenly, I heard the sound – it’s a sound you can’t mistake – of a purse being spilled. A woman in a car that had stopped at the intersection was emptying her purse, and she got out of the car and ran over and gave it to Genie and then ran back to the car. A plastic purse. Genie hadn’t said a word.”

Key words and phrases:

(after G. Yule, The Study of Language, 2010)

Task 2. *Read the following extract and present the problem in your own way:*

Modern cognitive neuroscience promises to provide windows to the brain, but the interpretation of neuroscientific data in terms of representations and processes is far from established. The application of explicit computational models to neuroscientific data is still a great challenge. If one were to adopt Marr’s definition of a mental representation as ‘a formal system for making explicit certain entities or types of information, together with a specification of how the system does this’ (Marr, 1982), then the specification of computations and processes is a central part of mental representations themselves. This leads to the question of how we can relate representations to our observables, such as behavioural reaction times and error rates or brain activations and patterns. In particular, there are still very different views on the usefulness of neuroimaging for cognitive scientists.

Embick and Poeppel (2015) propose ways of combining computational representational (CR) and neurobiological (NB) domains. They distinguish among three approaches: the correlational approach, which uses CR to inform NB; the integrated approach, in which NB can be used to test hypotheses of CR; and the explanatory approach, which combines the former two and in which the computations

and representations of CR can be derived from principles of NB. While the explanatory approach is clearly the most powerful, it is currently hampered by the lack of strong linking hypotheses between the two domains, and so it ‘remains something like a shadowy possibility on the horizon’. Possible reasons for this are discussed, such as the ontological incommensurability problem and the different levels of coarseness of linguistic structure on the one hand and brain function on the other hand. The authors advocate an approach that unifies the CR and NB domains, rather than reduces one to the other, and provide some suggestions for this endeavour.

Woollams (2015) highlights the necessity of explicit computational models to clarify the concept of ‘lexical representations’, which is ubiquitous in the word recognition literature, but rarely specified in detail. Effects of lexical variables are often interpreted as evidence for the existence of a distinct level of lexical representation, but it is not yet clear to what degree this level is independent from semantics. Woollams contrasts two computational approaches to lexical representations, the localist structural view and the distributed functional view. She favours the distributed functional view due to its greater efficiency and flexibility. However, rather than reducing lexical representations to semantics, she proposes that lexicality is a flexible concept that can describe several levels of representation between form and meaning. Woollams uses this framework to interpret recent neuropsychological, fMRI and EEG/MEG results on word recognition.

Two papers discuss novel methodologies for neuroimaging analysis with respect to the possibility to test computational models on brain data: multivariate pattern analysis and representational similarity analysis.

Charest and Kriegeskorte (2015) present a novel approach to use information from patterns in brain activation, rather than just a more-of-less of activation, to inform models of brain function. Representational similarity analysis can test whether similarity structures predicted by computational and neural models match those observed for activation patterns in specific brain regions. The concept of neuronal population codes provides a link between multi-variate activation patterns and the representation of stimulus and task information.

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A highly debated question about semantics is whether it is embodied or grounded in sensorimotor brain systems.

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The paper by Louwrese, Hutchinson, Tillman , and Recchia (2015) provides empirical support for this view. The authors performed a meta-analysis of behavioural studies that reported evidence for perceptual simulation in language processing. The effect sizes associated with perceptual simulation were smaller than or at best similar to those associated with effects of language statistics. While the evidence suggests that perceptual simulation may play a role in language processing, this role is not more important than other factors such as task or individual differences. The authors discuss their findings within the framework of their Symbol Interdependency Hypothesis.

Key words and phrases:

(after Olaf Hauk, “Representing mental representations – Neuroscientific and computational approaches to study language processing in the brain”, 2015)

Task 3. *Read and analyse the given extracts and render the information in English:*

Нейролингвистика – это научная дисциплина, занимающаяся изучением внутренних мозговых процессов, лежащих в основе речевой деятельности человека. К области интересов нейролингвистики относится исследование механизмов распознавания речевых стимулов, таких как отдельные слова или предложения. Также эта дисциплина изучает процессы генерации устной или письменной речи, усвоения и использования родного или иностранного языка, так называемой квазиязыковой символики (математические и химические формулы, нотные записи, языки программирования и т.д.).

Нейролингвистика находит широкое применение в теоретической и практической медицине, т.к. позволяет установить влияние различных изменений в мозговой активности, возникающих в результате неврологических или психиатрических патологий, на особенности речевого поведения пациентов.

Роль языка в человеческом познании является предметом исследования когнитивной нейролингвистики. Когнитивная нейролингвистика акцентируется на участии речевых функций в мозговых процессах, связанных с накоплением, хранением, переработкой и использованием знаний. Кроме медицинского применения, когнитивная нейролингвистика имеет большое значение для педагогической психологии. Объединение медицинской и педагогической проблематики происходит при обследовании и лечении детей с отклонениями от нормы в их когнитивно-речевом развитии. Также когнитивная нейролингвистика применяется в исследованиях в области искусственного интеллекта, информационных технологий и общей теории познания.

Нейролингвистика является частью более общей научной дисциплины – психофизиологии, которая изучает зависимость поведения и мышления человека от физиологических процессов, происходящих в организме. В последние два десятилетия психофизиология переживает период появления и интенсивного развития новых методов для экспериментальных исследований. В первую очередь такие методы связаны с использованием техники магнитно-резонансной томографии, позволяющей осуществлять точную локализацию нейрофизиологических процессов внутри мозговых структур. Кроме того, интенсивное развитие получила старая методика электроэнцефалограммы,

впервые предложенная еще в 1928 г. Гансом Бергером. Современные компьютерные технологии обработки ЭЭГ-сигналов позволили по-новому подойти к применению этой методики в психофизиологии, что существенно изменило ранее сложившиеся представления о механизмах когнитивной деятельности. Таким образом, как психофизиология в целом, так и нейролингвистика в частности в настоящее время являются быстроразвивающимися дисциплинами, находящимися на переднем крае научного прогресса.

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В конце XIX в. французским антропологом и хирургом Полем Брока (1865) и немецким психиатром Карлом Вернике (1873) были открыты речевые центры головного мозга, которые у большинства людей находятся в левом полушарии. Известно, что зона Брока преимущественно обеспечивает моторную организацию речи и связана с фонологической и синтаксической кодификациями. Напротив, зона Вернике в основном обеспечивает речевую чувствительность и связана с семантической кодификацией.

Одним из основных выводов, сделанных лингвистами из работ медиков, было представление о частичной независимости механизмов, лежащих в основе распознавания и генерации фонологической, синтаксической и семантической структур речи. Так, пациенты с поражением зоны Брока могут демонстрировать нарушения грамматической связанности речи без изменения ее смысла, тогда как пациенты с поражениями зоны Вернике могут произносить длинные, грамматически верные предложения, не имеющие смысла. Эти данные послужили одним из оснований для построения общей теории структурной лингвистики.

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Применительно к современной нейролингвистике структурализм послужил основой для проведения серии исследований, направленных на сопоставление структуры воспринимаемой или генерируемой речи со структурой мозговых процессов, возникающих при обработке речевых стимулов. Основным методом определения мозговых отделов, вовлеченных в переработку речи, к настоящему моменту является функциональная магнитно-резонансная томография (фМРТ), позволяющая локализовать участок активности с высоким пространственным разрешением Однако следует оговориться, что под структурой мозговых процессов понимается не только их локализация в определенных участках коры или подкорковых отделов, но также их временная динамика, частотные составляющие реакций и отношения между реакциями в различных мозговых отделах.

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В исследованиях с применением фМРТ и ЭЭГ было показано, что распознавание речи происходит в несколько стадий – раннее распознавание в сенсорных участках коры,, а также семантическое и синтаксическое кодирование в височной коре Эти результаты в целом согласуются с результатами исследований структурной лингвистики, показавшими независимость разных стадий распознавания речи. Однако также были

получены данные о том, что смысл слова и предложения может распознаваться на ранних стадиях его восприятия на подсознательном уровне. Поэтому альтернативной гипотезой является наличие трех этапов мозговой обработки речи – быстрого распознавания, медленного синтаксического и медленного семантического распознавания Две альтернативные гипотезы в настоящее время активно обсуждаются и проверяются экспериментально. Какая из них будет принята, а какая отвергнута – станет известно в будущем.

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Говоря об экспериментальной нейролингвистике в первую очередь необходимо упомянуть работы советского исследователя А.Р. Лурия, который признается во всем мире в качестве одного из первых основателей и несомненных лидеров этой науки Базируясь на психологических идеях своего наставника Л.С. Выготского, он разработал оригинальный деятельностный подход к описанию речевых функций мозга. В своей работе «Язык и сознание» А.Р. Лурия предлагает разделить функции мозга на неречевые (автоматические, произвольные) и речевые (высшие, произвольные).

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В целом, деятельностный подход к развитию когнитивной нейролингвистики учитывает одновременно социальные условия, в которых происходит процесс познания, и человеческие интенции, определяемые потребностями и мотивациями субъекта. В зависимости от условий и мотиваций, мозговые процессы, связанные с речью, могут проходить принципиально по-разному у разных групп людей или даже у одного и того же испытуемого. С нашей точки зрения, деятельностный подход к нейролингвистике имеет большие перспективы для дальнейшего развития.

Key words and phrases:

(after А.Н. Савостьянов, Д.Е. Пальчунов “Когнитивные исследования и нейролингвистика: современное состояние и перспективы дальнейших исследований”, 2013)

CHAPTER TWO

PSYCHOLINGUISTICS

PART ONE: THEORETICAL ASPECTS

WHAT IS PSYCHOLINGUISTICS?

Psycholinguistics is the study of the connections between language and mind. Psycholinguistics began to emerge as a distinct discipline in the 1950s. To some extent, its emergence was promoted by the insistence at the time of the linguist Noam Chomsky that linguistics should be regarded as a part of cognitive psychology, but there were other factors as well, notably the growing interest in the question of language acquisition by children.

There is no doubt that the study of acquisition has so far been the most prominent and successful area of psycholinguistics. But a number of other topics have also been explored, with varying degrees of success. Many of these are aspects of language processing, the steps involved in producing and comprehending speech. Others include the links between language use and memory, the linguistic examination of reading, and more recently possible links with perception and cognition.

We now possess a great deal of data in most of these areas, but progress in developing theoretical interpretations has been slow. The enthusiastic early attempts at understanding mental processing of language in terms of transformational grammar proved a failure, and contemporary theorizing tends to be less ambitious: grand schemes are out, and psycholinguists now content themselves with trying to provide accounts of specific aspects of language behaviour. Psycholinguists would also like to link their findings to those of neurolinguistics, the study of language and brain, but this has not proved at all easy. Some psycholinguists are also contributing to the development of cognitive linguistics and of cognitive science generally.

FIRST LANGUAGE ACQUISITION

First language acquisition is remarkable for the speed with which it takes place. Long before a child starts school, he or she has become an extremely sophisticated language-user, operating a system for self-expression and communication that no other creature, or computer, comes close to matching. In addition to the speed of acquisition, the fact that it generally occurs, without overt instruction, for all children, regardless of great differences in their circumstances, provides strong support for the idea that there is an innate predisposition in the human infant to acquire language. We can think of this as a special capacity for language with which each newborn child is endowed. By itself, however, this inborn language capacity is not enough.

The process of language acquisition has some basic requirements. During the first two or three years of development, a child requires interaction with other language-users in order to bring the general language capacity into contact with a particular language such as English. It is known that a child who does not hear or is not allowed to use language will learn no language. It is also important to identify of cultural transmission, meaning that the particular language a child learns is not genetically inherited, but is acquired in a particular language-using environment.

The child must also be physically capable of sending and receiving sound signals in a language. All infants make “cooing” and “babbling” noises during their first year, but congenitally deaf infants stop after about six months. So, in order to speak a language, a child must be able to hear that language being used. By itself, however, hearing language sounds is not enough. A crucial requirement appears to be the opportunity to interact with others via language.

Under normal circumstances, human infants are certainly helped in their language acquisition by the typical behavior of older children and adults in the home environment who provide language samples, or input, for the child. Adults such as mom, dad and the grandparents tend not to address the little creature before them as if they are involved in normal adult-to-adult conversation. There is not much of this: The characteristically simplified speech style adopted by someone who spends a lot of time interacting with a young child is called caregiver speech.

Salient features of this type of speech (also called “motherese” or “child-directed speech”) are the frequent use of questions, often using exaggerated intonation, extra loudness and a slower tempo with longer pauses. In the early stages, this type of speech also incorporates a lot of forms associated with “babytalk.” These are either simplified words (tummy, nana) or alternative forms, with repeated simple sounds and syllables, for things in the child’s environment (choo-choo, poo-poo, pee-pee, wa-wa).

Caregiver speech is also characterized by simple sentence structures and a lot of repetition. If the child is indeed in the process of working out a system of putting sounds and words together, then these simplified models produced by the interacting adult may serve as good clues to the basic structural organization involved. Moreover, it has generally been observed that the speech of those regularly interacting with very young children changes and becomes more elaborate as the child begins using more and more language. Several stages in the early acquisition process have been identified.

The acquisition schedule

All normal children develop language at roughly the same time, along much the same schedule. Since we could say the same thing for sitting up, crawling, standing, walking, using the hands and many other physical activities, it would seem that the language acquisition schedule has the same basis as the biologically determined development of motor skills. This biological schedule is tied very much to the maturation of the infant’s brain.

We could think of the child as having the biological capacity to cope with distinguishing certain aspects of linguistic input at different stages during the early years of life. Long before children begin to talk, they have been actively processing what they hear. We can identify what very young children are paying attention to by the way they increase or decrease “sucking behavior” in response to speech sounds or turn their heads in the direction of those sounds. At one month, for example, an infant is capable of distinguishing between sounds such as [ba] and [pa]. During the first

three months, the child develops a range of crying styles, with different patterns for different needs, produces big smiles in response to a speaking face, and starts to create distinct vocalizations.

The earliest use of speech-like sounds has been described as cooing. During the first few months of life, the child gradually becomes capable of producing sequences of vowel-like sounds, particularly high vowels similar to [i] and [u]. By four months of age, the developing ability to bring the back of the tongue into regular contact with the back of the palate allows the infant to create sounds similar to the velar consonants [k] and [g], hence the common description as “cooing” or “gooing” for this type of production. Speech perception studies have shown that by the time they are five months old, babies can already hear the difference between the vowels [i] and [a] and discriminate between syllables like [b a] and [g a].

Between six and eight months, the child is sitting up and producing a number of different vowels and consonants, as well as combinations such as *ba-ba-ba* and *ga-ga-ga*. This type of sound production is described as babbling. In the later babbling stage, around nine to ten months, there are recognizable intonation patterns to the consonant and vowel combinations being produced, as well as variation in the combinations such as *ba-ba-da-da*. Nasal sounds also become more common and certain syllable sequences such as *ma-ma-ma* and *da-da-da* are inevitably interpreted by parents as versions of “mama” and “dada” and repeated back to the child.

As children begin to pull themselves into a standing position during the tenth and eleventh months, they become capable of using their vocalizations to express emotions and emphasis. This late babbling stage is characterized by more complex syllable combinations (*ma-da-ga-ba*), a lot of sound-play and attempted imitations. This “pre-language” use of sound provides the child with some experience of the social role of speech because adults tend to react to the babbling, however incoherent, as if it is actually the child’s contribution to social interaction.

One note of caution should be sounded at this point. Child language researchers certainly report very carefully on the age of any child whose language

they study. However, they are also very careful to point out that there is substantial variation among children in terms of the age at which particular features of linguistic development occur. So, we should always treat statements concerning development stages such as “by six months” or “by the age of two” as approximate and subject to variation in individual children.

Between twelve and eighteen months, children begin to produce a variety of recognizable single-unit utterances. This period, traditionally called the one-word stage, is characterized by speech in which single terms are uttered for everyday objects such as “*milk*,” “*cookie*,” “*cat*,” “*cup*” and “*spoon*” (usually pronounced [pʌn]). Other forms such as [ʌsæ] may occur in circumstances that suggest the child is producing a version of *What’s that*, so the label “one-word” for this stage may be misleading and a term such as “single-unit” would be more accurate. We sometimes use the term *holophrastic* (meaning a single form functioning as a phrase or sentence) to describe an utterance that could be analyzed as a word, a phrase, or a sentence.

While many of these holophrastic utterances seem to be used to name objects, they may also be produced in circumstances that suggest the child is already extending their use. An empty bed may elicit the name of a sister who normally sleeps in the bed, even in the absence of the person named. During this stage, then, the child may be capable of referring to Karen and bed, but is not yet ready to put the forms together to produce a more complex phrase.

Depending on what we count as an occurrence of two distinct words used together, the two-word stage can begin around eighteen to twenty months, as the child’s vocabulary moves beyond fifty words. By the time the child is two years old, a variety of combinations, similar to baby chair, mommy eat, cat bad, will usually have appeared. The adult interpretation of such combinations is, of course, very much tied to the context of their utterance. The phrase *baby chair* may be taken as an expression of possession (= this is baby’s chair), or as a request (= put baby in chair), or as a statement (= baby is in the chair), depending on different circumstances.

Whatever it is that the child actually intends to communicate through such expressions, the significant functional consequences are that the adult behaves as if

communication is taking place. That is, the child not only produces speech, but also receives feedback confirming that the utterance worked as a contribution to the interaction.

Moreover, by the age of two, whether the child is producing 200 or 300 distinct “words,” he or she will be capable of understanding five times as many, and will typically be treated as an entertaining conversational partner by the principal caregiver.

Between two and two-and-a-half years old, the child begins producing a large number of utterances that could be classified as “multiple-word” speech. The salient feature of these utterances ceases to be the number of words, but the variation in word forms that begins to appear. Before we investigate this development, we should note a stage that is described as telegraphic speech. This is characterized by strings of words (lexical morphemes) in phrases or sentences such as this shoe all wet, cat drink milk and daddy go bye-bye. The child has clearly developed some sentence-building capacity by this stage and can get the word order correct. While this type of telegram-format speech is being produced, a number of grammatical inflections begin to appear in some of the word forms and simple prepositions (in, on) are also used.

By the age of two-and-a-half, the child’s vocabulary is expanding rapidly and the child is initiating more talk while increased physical activity includes running and jumping. By three, the vocabulary has grown to hundreds of words and pronunciation has become closer to the form of adult language. At this point, it is worth considering what kind of influence the adults have in the development of the child’s speech.

The acquisition process

As the linguistic repertoire of the child increases, it is often assumed that the child is, in some sense, being “taught” the language. This idea is not really supported by what the child actually does. For the vast majority of children, no one provides any instruction on how to speak the language. Nor should we picture a little empty head gradually being filled with words and phrases. A more accurate view would have the children actively constructing, from what is said to them, possible ways of

using the language. The child's linguistic production appears to be mostly a matter of trying out constructions and testing whether they work or not.

It is simply not possible that the child is acquiring the language principally through a process of imitating adult speech. Certainly, children can be heard to repeat versions of what adults say on occasion and they are clearly in the process of adopting a lot of vocabulary from the speech they hear. However, adults simply do not produce many of the expressions that turn up in children's speech.

One factor that seems to be important in the child's acquisition process is the actual use of sound and word combinations, either in interaction with others or in wordplay, alone.

By the time a child is two-and-a-half years old, he or she is going beyond telegraphic speech forms and incorporating some of the inflectional morphemes that indicate the grammatical function of the nouns and verbs used. The first to appear is usually the *-ing* form in expressions such as *cat sitting and mommy reading book*.

The next morphological development is typically the marking of regular plurals with the *-s* form, as in *boys* and *cats*. The acquisition of the plural marker is often accompanied by a process of overgeneralization. The child overgeneralizes the apparent rule of adding *-s* to form plurals and will talk about *foots* and *mans*. When the alternative pronunciation of the plural morpheme used in *houses* (i.e. ending in [-əz]) comes into use, it too is given an overgeneralized application and forms such as *boyses* or *footses* can be heard. At the same time as this overgeneralization is taking place, some children also begin using irregular plurals such as *men* quite appropriately for a while, but then try out the general rule on the forms, producing expressions like some *mens* and *two feets*, or even *two feetses*. Not long after, the use of the possessive inflection *'s* occurs in expressions such as *girl's dog* and *Mummy's book*.

Similar evidence against "imitation" as the basis of the child's speech production has been found in studies of the syntactic structures used by young children. One child, specifically asked to repeat what she heard, would listen to an adult say forms such as *the owl who eats candy runs fast* and then repeat them in the

form *owl eat candy and he run fast*. It is clear that the child understands what the adult is saying. She just has her own way of expressing it.

The anecdotes that parents retell about their child's early speech (to the intense embarrassment of the grown-up child) usually involve examples of the strange use of words. Having been warned that *flies bring germs into the house*, one child was asked what "*germs*" were and the answer was "something the flies play with." It is not always possible to determine so precisely the meanings that children attach to the words they use.

It seems that during the holophrastic stage many children use their limited vocabulary to refer to a large number of unrelated objects. One child first used *bow-wow* to refer to a dog and then to a fur piece with glass eyes, a set of cufflinks and even a bath thermometer. The word *bow-wow* seemed to have a meaning like "object with shiny bits." Other children often extend *bow-wow* to refer to cats, cows and horses.

This process is called overextension and the most common pattern is for the child to overextend the meaning of a word on the basis of similarities of shape, sound and size, and, to a lesser extent, movement and texture. Thus the word *ball* is extended to all kinds of round objects, including a lampshade, a door knob and the moon. Or, a *tick-tock* is initially used for a watch, but can also be used for a bathroom scale with a round dial. On the basis of size, presumably, the word *fly* was first used for the insect and then came to be used for specks of dirt and even crumbs of bread. Apparently due to similarities of texture, the expression *sizo* was first used by one child for *scissors*, and then extended to all metal objects. The semantic development in a child's use of words is usually a process of overextension initially, followed by a gradual process of narrowing down the application of each term as more words are learned.

Although overextension has been well-documented in children's speech production, it isn't necessarily used in speech comprehension. One two-year-old used *apple*, in speaking, to refer to a number of other round objects like a tomato and a

ball, but had no difficulty picking out the apple, when asked, from a set of round objects including a ball and a tomato.

One interesting feature of the young child's semantics is the way certain lexical relations are treated. In terms of hyponymy, the child will almost always use the "middle"-level term in a hyponymous set such as animal – dog – poodle. It would seem more logical to learn the most general term (animal), but all evidence indicates that children first use dog with an over extended meaning close to the meaning of "animal." This may be connected to a similar tendency in adults, when talking to young children, to refer to flowers (not the more general plants, or the more specific tulips).

It also seems that antonymous relations are acquired fairly late (after the age of five). In one study, a large number of kindergarten children pointed to the same heavily laden apple tree when asked *Which tree has more apples?* They just seem to think the correct response will be the larger one, disregarding the difference between more and less. The distinctions between a number of other pairs such as before/after and buy/sell also seem to be later acquisitions.

Despite the fact that the child is still to acquire a large number of other aspects of his or her first language through the later years of childhood, it is normally assumed that, by the age of five, the child has completed the greater part of the basic language acquisition process. According to some, the child is then in a good position to start learning a second (or foreign) language. However, most people don't start trying to learn another language until much later. The question that always arises is: if first language acquisition was so straightforward and largely automatic, why is learning a second language so difficult?

SECOND LANGUAGE ACQUISITION

A distinction is sometimes made between learning a "foreign language" (learning a language that is not generally spoken in the surrounding community) and a "second language" setting (learning a language that is spoken in the surrounding community).

A more significant distinction is made between acquisition and learning. The term acquisition is used to refer to the gradual development of ability in a language by using it naturally in communicative situations with others who know the language. The term learning, however, applies to a more conscious process of accumulating knowledge of the features, such as vocabulary and grammar, of a language, typically in an institutional setting. (Mathematics, for example, is learned, not acquired.)

Activities associated with learning have traditionally been used in language teaching in schools and have a tendency, when successful, to result in more knowledge “about” the language (as demonstrated in tests) than fluency in actually using the language (as demonstrated in social interaction). Activities associated with acquisition are those experienced by the young child and, by analogy, those who “pick up” a second language from long periods spent in interaction, constantly using the language, with native speakers of the language. Those individuals whose L2 exposure is primarily a learning type of experience tend not to develop the same kind of general proficiency as those who have had more of an acquisition type of experience.

For most people, the experience with an L2 is fundamentally different from their L1 experience and it is hardly conducive to acquisition. They usually encounter the L2 during their teenage or adult years, in a few hours each week of school time (rather than via the constant interaction experienced as a child), with a lot of other things going on (young children have little else to do), and with an already known language available for most of their daily communicative requirements. Despite the fact that insufficient time, focus and incentive undermine many L2 learning attempts, there are some individuals who seem to be able to overcome the difficulties and develop an ability to use the L2 quite effectively, though not usually sounding like a native speaker.

However, even in ideal acquisition situations, very few adults seem to reach native-like proficiency in using an L2. There are individuals who can achieve great expertise in the written language, but not the spoken language. One example is Joseph Conrad, who wrote novels in English that became classics of English

literature, but whose English speech retained the strong Polish accent of his L1. This might suggest that some features of an L2, such as vocabulary and grammar, are easier to learn than others such as pronunciation.

Indeed, without early experience using the sounds and intonation of the L2, even highly fluent adult learners are likely to be perceived as having an “accent” of some kind.

This type of observation is sometimes taken as evidence that, after the critical period for language acquisition has passed, around the time of puberty, it becomes very difficult to acquire another language fully. We might think of this process in terms of our inherent capacity for language being strongly taken over by features of the L1, with a resulting loss of flexibility or openness to receive the features of another language.

Against this view, it has been demonstrated that students in their early teens are quicker and more effective L2 learners in the classroom than, for example, seven-year-olds. It may be, of course, that the effective learning of an L2 (even with a trace of an accent) requires a combination of factors. The optimum age for learning may be during the years from about ten to sixteen when the flexibility of our inherent capacity for language has not been completely lost, and the maturation of cognitive skills allows a more effective analysis of the regular features of the L2 being learned.

Communicative competence can be defined as the general ability to use language accurately, appropriately, and flexibly. The first component is grammatical competence, which involves the accurate use of words and structures. Concentration on grammatical competence only, however, will not provide the learner with the ability to interpret or produce L2 expressions appropriately.

The ability to use appropriate language is the second component, called sociolinguistic competence. It enables the learner to know when to say *Can I have some water?* versus *Give me some water!* according to the social context. Much of what is discussed in terms of pragmatics has to become familiar in the cultural context of the L2 if the learner is to develop sociolinguistic competence.

The third component is called strategic competence. This is the ability to organize a message effectively and to compensate, via strategies, for any difficulties. In L2 use, learners inevitably experience moments when there is a gap between communicative intent and their ability to express that intent. Some learners may just stop talking (bad idea), whereas others will try to express themselves using a communication strategy (good idea). For example, a Dutch L1 speaker wanted to refer to *een hoefijzer* in English, but didn't know the English word. So, she used a communication strategy. She created a way of referring to the object by using vocabulary she already knew, saying the things that horses wear under their feet, the iron things and the listener understood immediately what she meant (horse shoes). This flexibility in L2 use is a key element in communicative success. In essence, strategic competence is the ability to overcome potential communication problems in interaction



? Answer the questions and comment on the following:

1. What is psycholinguistics?
2. Can you describe four typical features of caregiver speech?
3. Why are some of the infant's first sounds described as "cooing"?
4. During which stage do children typically first produce syllable sequences similar to "mama" and "dada" and how old are they?
5. At about what age do children typically begin producing varied syllable combinations such as ma-da-ga-ba ?
6. Which of these two utterances was produced by the older child and why? (a) *I not hurt him;* (b) *No the sun shining.*
7. What is the term used to describe the process involved when a child uses one word like *ball* to refer to an apple, an egg, a grape and a ball?
8. What is the difference between language learning and language acquisition?
9. Is the experience with an L2 of the native speakers of L1 is the same with their L1 experience?

10. Is it possible in L2A to achieve great expertise in the written language, but not in the spoken language?



PART TWO: PRACTICAL TASKS

Task1. *Work at the following:*

1) There is a typical sequence in the acquisition of some functional and inflectional morphemes by English-speaking children. Try to create a chart, with stages 1-10, showing the typical sequence of acquisition of English morphemes (-ing), alongside appropriate examples (*cat sitting*), using the following examples from children's speech: *a cat, boys, cats, cat sitting, he came, he walked, in bag, it comes, it opened, it went away, Karen's bed, mommy reading book, mommy's book, not in that, on bed, she knows, that on top, the dog, this is no, you are look.*

Key words and phrases

2) What is meant by MLU ("Mean Length of Utterance") in child language studies? Can you work out the MLU of this small sample of utterances: *no big box, daddy eat red apple, daddy eats apples, no eating that, that mommy's book.*

Key words and phrases

3) The following examples are from the speech of three children. Identify which child is at the earliest stage, which is next in order, and which is at the most advanced stage. Describe those features in the examples from each child's speech that support your ordering.

- a) *You want eat? I can't see my book. Why you waking me up?*
- b) *Where those dogs goed? You didn't eat supper. Does lions walk?*
- c) *No picture in there. Where momma boot? Have some?*

Key words and phrases

4) Do boys and girls develop language differently in the early stages? Have any differences been documented in how they speak and how they are spoken to?

Key words and phrases

5) There are two distinct theoretical perspectives on how first language acquisition takes place, generally labelled the “rational” perspective and the “empirical” perspective. We can characterize each perspective with a number of tenets or principles, as illustrated in the following statements. Divide these statements into two sets, one representing the rational perspective and the other representing the empirical perspective. Which perspective do you prefer?

- a) Acquisition proceeds in a piecemeal fashion, building on what is already acquired.
- b) Acquisition takes places along a predetermined path.
- c) Children begin life with some knowledge of the possible units of language.
- d) Children learn to say things unrelated to input.
- e) General learning mechanisms account for language learning.
- f) It takes time to integrate new linguistic information with existing knowledge.
- g) Language learning is independent of other kinds of learning.
- h) New linguistic knowledge is acquired very quickly.
- i) Speech is perceived from the start as distinct from any other physical stimuli.
- j) There are only a few fixed possibilities of language structures to learn.
- k) There are many possible language structures to be learned.
- l) There is no initial distinction between speech and any other physical stimuli.
- m) There is no pre-programmed knowledge of language.
- n) What children learn to say is directly related to input.

Key words and phrases

6) In the following examples, a young child (age shown as year; month) seems to be using verbs in a way that is not based on typical adult uses and hence unlikely to be “imitations.” Is there any consistent pattern in these examples? Can you suggest an explanation for this child’s choice of words for the kinds of actions being described?

- (2;3) I come it closer so it won’t fall (= bring it closer)
- (2;6) Mommy, can you stay this open? (= keep this open)
- (2;8) Daddy, go me round (= make me go round)
- (2;9) I’m gonn a fall this on her (= drop this on her)
- (2;11) How would you flat it? (= flatten it)
- (3;1) I’m singing him (= making him sing)

Key words and phrases

7) Which of these three metaphors of first language acquisition (from Valian, 1999) would you agree with and why?

- a) According to the copy metaphor, “the child gradually aligns her speech with that of her language community” and “the focus is on an active role for input.”
- b) According to the hypothesis testing metaphor, “the child forms and tests hypotheses about what structures exist in the language” and “the child is not copying the input.”
- c) According to the trigger metaphor, “the child neither copies the input nor evaluates it” and “a given piece of input triggers the correct parametric value,” assuming the child has innate knowledge of a small set of possible parametric values.

Key words and phrases

8) Which of the following statements do you agree with? What reasons would you give to support your opinions?

- a) People with high IQs are good language learners.
- b) Most mistakes in the L2 are due to interference from the L1.
- c) L2 learners should not be allowed to hear mistakes or they will learn them.
- d) Teachers should teach simple L2 structures before complex ones.

e) Teachers should teach only one L2 grammatical rule at a time and practice it thoroughly before introducing the next rule.

Key words and phrases

9) “Communicative Language Teaching is premised on the assumption that learners do not need to be taught grammar before they can communicate but will acquire it naturally as part of the process of learning to communicate. In some versions of Communicative Language Teaching, then, there is no place at all for the direct teaching of grammar” (Ellis, 1997).

a) Do you believe that second language learning is possible with only a focus on function (“communication”) and no focus on form (“grammar”)?

b) Why do you think that there are renewed calls for “form-focused instruction” after many years of Communicative Language Teaching?

Key words and phrases

(after G. Yule, The Study of Language, 2010)

CHAPTER THREE

GENERATIVE LINGUISTICS

PART ONE: THEORETICAL ASPECTS

WHAT IS GENERATIVE LINGUISTICS?

Generative linguistics is the branch of linguistics resting on the idea of a generative grammar. Generative grammar is based on a set of rules that generates an endless variety of sentences that are considered grammatically correct and no sentences that aren't.

The set of assumptions underpinning the philosophy of generative linguistics includes two important ideas.

1. the human ability for language is innate
2. human language is based on a set of logical rules that allow a speaker to produce novel sentences that can be understood by others who speak the same language.

The idea that a set of formal rules could be used as a model of the human cognitive ability to create language is said to be structure-dependent.

There are now many different models of generative grammar that attempt to explain how the human mind processes language.

The first technical use of the term *generative* within the discipline of linguistics occurred in 1957 when Noam Chomsky published a book entitled *Syntactic Structures*. In the book, Chomsky proposed a theory of generative grammar that he called "transformational grammar." Many consider the publication of *Syntactic Structures* to be the birth of generative linguistics as a subfield of linguistics.

The rise of generative linguistics, associated with the name of Noam Chomsky, represented a radical shift from 'behavior or the products of behavior to states of the mind / brain that enter into behavior' (Chomsky 1986:3), a change of perspective from behaviourism, which dominated the social sciences in the 1950s, to mentalism, which understands 'talk about the mind to be talk about the brain at an abstract level

at which [...] principles can be formulated that enter into successful and insightful explanation of linguistic (and other) phenomena that are provided by observation and experiment' (Chomsky 1987).

In his book Skinner explains this phenomenon as following (Skinner, 1957, Verbal Behavior): How do children create new sentences? Sentences are defined as strings of words, organised in linear order. Within the behaviourist approach, language is thus acquired by habit-formation, via positive / negative reinforcement. Language is perceived as a set of habits, dispositions and abilities. When acquiring language, defined as a set of habits, gradually built over the years, the child must solely rely on environment. The study of language acquisition is reduced to the study of observables, i.e. of input-output relations, without resorting to any study of the internal structure of the organism.

In 1959, Noam Chomsky, in his famous critical review of Skinner's book, argued that the stimulus-response model is completely untenable for language behaviour. Such a system cannot account for the production and comprehension of entirely new sequences of words. We can understand / utter sentences which we have never heard before.

Chomsky's famous sentence '*Colorless green ideas sleep furiously*' clearly proves that any sequence of words which has not been heard before can, however, be recognised as a grammatical sentence.

A stimulus-response model cannot possibly explain the fact that every sentence which a person might understand or utter can be a novel combination of words or that children can acquire language rapidly, without any formal instruction, growing to correctly interpret constructions they have never heard before.

Language cannot be described as a repertoire of responses nor can language acquisition be defined as the process of learning this repertoire. The central problems of the study of language are, within generative grammar what is the system of knowledge called 'language'? How does the child acquire this system of knowledge on the basis of a deficient linguistic input?

Language is no longer interpreted as a system of habits, dispositions and abilities but as a computational system of rules and constraints, specific to humans.

Generative grammar adopts certain approaches to language. First, it deals with sentences independent of discourse and context, despite the fact that we typically use our language in context. In fact, it is usually impossible to understand the intention of a speaker without any reference to the context. However, this does not mean sentences have to be studied in context. Why are such interpretations possible in the first place? The answer is because the sentence is grammatical and meaningful. Furthermore, even when a sentence is not ‘meaningful’, it can be grammatical. Speakers of a language can distinguish grammatical sentences in their language from those that are not, independent of what they mean. This leads us to conclude that certain context-free rules distinguish grammatical sentences from ungrammatical ones. What makes this possible should be the knowledge of language as represented in a native speaker’s brain. ‘What is knowledge of language?’ is one of the questions that generative linguists try to answer.

Human languages are unique in many respects. One of their most striking characteristics is productivity. Every day we use sentences that we have never encountered. The innovation of generative grammar in Chomsky (1955, 1957) was its emphasis on trying to develop an explicit theory of how language learners can, on the basis of encountering finite examples of language, come to understand and produce novel combinations in a potentially infinite number of sentences. This system not only allows for the production of grammatical sentences but also disallows ungrammatical sentences.

Every human being acquires a mother tongue. The acquisition of the system despite limited input is known as the issue of the poverty of the stimulus (or the logical problem of language acquisition, or Plato’s problem). Now consider the following sentences:

(1a) *Jack dislikes himself.*

(1b) *Jack admires a picture of himself.*

(1c) **Himself dislikes Jack.*

In (1a), (1b), the referent of himself is Jack, while it is not so in (1c), which is in fact ungrammatical. The reason for the difference appears to be the differences in word order: Jack precedes himself in (1a), (1b) but himself precedes Jack in (1c). If this is correct, all sentences in which himself comes before Jack should be ungrammatical, but this is not the case, as shown in (2):

(2) *That picture of himself surprised Jack.*

How do we know that himself can refer to Jack in (2) but not in (1c)?

It is unlikely that we have received any instruction from someone around us. In fact, it is very unlikely that we gained the rule by external means. Instead, the source must, logically speaking, come from inside ourselves. That is, we know this contrast because the rule exists tacitly in our mind. This tacit knowledge is likely to be derived from the psychological device used for first language acquisition (L1A). If such a system exists, it should be used in L1A regardless of the language to be acquired. In other words, this device – the Language Acquisition Device (for grammar), or Universal Grammar (UG) – is universal. In fact, Chomsky considered human languages (e.g. English, Japanese, etc.) to be variations of one human language UG. The main inquiry of generative grammar is to describe what UG is.

In generative grammar, linguistic knowledge is considered to be independent of other cognitive systems. This is supported by physiological data (Oblor and Gjerlow 1999), especially by the existence of developmental and pathological cases where linguistic knowledge is dissociated from other cognitive capacities. On the one hand there are people whose linguistic abilities are normal or even enhanced, while their non-linguistic capacities are impaired. On the other hand, there are people whose linguistic knowledge is deviant but other cognitive abilities are normal (e.g. people suffering from aphasia).

As illustrated above, the grammaticality of a sentence is usually independent of its meaning. This implies that the grammar consists of a ‘syntactic module’ which is independent of meaning (the ‘semantic module’). Traditionally, linguistics is divided into subfields, including phonology, morphology, syntax, semantics, and pragmatics, each of which can be considered to constitute a module, with the rules of each field

existing independently of the others. Modules are connected with one another through interfaces.

When a speaker produces non-target-like linguistic output, the causes are likely to lie in this ‘connecting’ system. Positing a multi-layered system makes it possible to investigate the cause of deviance. Hence, it is possible to suggest that, for example, second language learners’ syntactic knowledge is native-like but their morphophonological system is not (Hazneder and Schwartz 1997; Prévost and White 2000).

In generative grammar, what is directly observable is referred to as E-language (performance: E stands for External). Linguistic knowledge (I-language, i.e. competence: I stands for Internal) is the object of research (Chomsky 1965, 1986, 1995). In order to investigate I-language, we need to use E-language data.

There have been several radical changes in the framework of generative grammar:

the Standard Theory (Chomsky 1955, 1957),

the Extended Standard Theory (Chomsky 1965),

the Principles and Parameters framework (Chomsky 1981, 1986a) and

the Minimalist Program (Chomsky 1995, 1999), (Lasnik 2005).

The earliest model (Chomsky 1955) offered a phrase structure grammar, where the structure of a sentence can be depicted in tree diagrams, which consist of sets of strings. An important assumption in this model, as well as subsequently, is that any sentence has more than one structure, each at a different level: the structure that reflects almost completely the way the sentence is pronounced, as well as an additional abstract structure, and intermediate structures between the two. In the Extended Standard Model (Chomsky 1965), by inserting items from the lexicon into the structure, a ‘deep structure’ is constructed, and then transformations apply. When all transformations have been applied, the ‘surface structure’ is constructed. Chomsky (1973) introduced the notion of a ‘trace’, which an item leaves behind when it moves. This allows the deep structure to be represented in the surface structure and indicates where an item should be interpreted. So, semantic interpretation does not have to be

associated with deep structure. Later, it was assumed that additional transformations take place between surface structure and logical form (May 1977). All transformations were subsequently reduced to only one operation.

This theory is called Government and Binding Theory or the Principles and Parameters framework.

Government and Binding Theory or the Principles and Parameters framework.

Before the Principles and Parameters approach, researchers were mainly interested in finding new ‘facts’ of this kind, by investigating natural languages intensively and deeply, to find relevant evidence for discussing the human mind (Reibel and Schane 1969). If a rule is too abstract to be learned from input, it is inferred to be present innately as part of UG.

The Principles and Parameters (Chomsky 1981, 1986) provided researchers with a theoretical framework to account for similarities and differences among languages. Given this framework, generative linguists try to account for the differences among adult languages (e.g. Haegeman 1997), historical changes (e.g. Roberts 1993), L1A, and SLA.

Parameters tell us not only that languages may vary in accordance with their values but also that no other possibilities are allowed. A large number of phenomena were described and explained in the Principles and Parameters framework. Parameters are offered to capture variation among languages. For example, the ‘wh-parameter’ says that wh-phrases have to move to the specifier position of CP between deep and surface structures in some languages (e.g. English), while they may stay in the original position in other languages (e.g. Japanese). This difference is determined by parametric values: English has the value [+wh-movement] and Japanese has the value [-wh-movement].

Other parameters include the Bounding Node Parameter, the Null Subject Parameter (whether a sentential subject without sound [i.e. null subject] is allowed or not), and so on. Parameters tell us not only that languages may vary in accordance with their values but also that no other possibilities are allowed.

Subsequently, Chomsky (1995) advanced a new approach, the Minimalist Program, where cross-linguistic differences are attributed to formal features associated with functional categories.

Every day we use new sentences. Our knowledge of language is the system that makes it possible for us to produce and interpret sentences that we have never come across in our life.

This system is constrained in a certain way. The sentences we produce and interpret are not merely strings of words, but they have structures.

Learners' behaviour shows that their use of language reflects what is (far) beyond memorization of chunks; rather, what they have is a system which generates target-like and non-target-like linguistic behaviours and which is sanctioned by the constraints common to all human languages, that is, Universal Grammar.

All natural languages have common abstract rules, called Principles, and vary along a limited number of choices among values (mostly binary) associated with parameters.

The Minimalist Program

In the mid-1990s, a new framework called the Minimalist Program was proposed (Chomsky 1995), where the concepts of deep and surface structure were abandoned. Instead, all operations are based on the demands at the interfaces where 'sounds' and 'meaning' are interpreted.

Constructing a syntactic object starts from the Lexicon, where all lexical items are taken into a lexical array called Numeration. A structure is constructed by Merge, which merges one object with another, and other operations, such as Agree, take place where necessary.

Which book will the student buy?

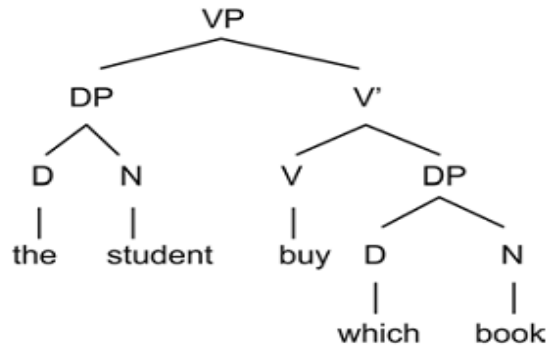


Figure 2 A syntactic computation in the Minimalist Program

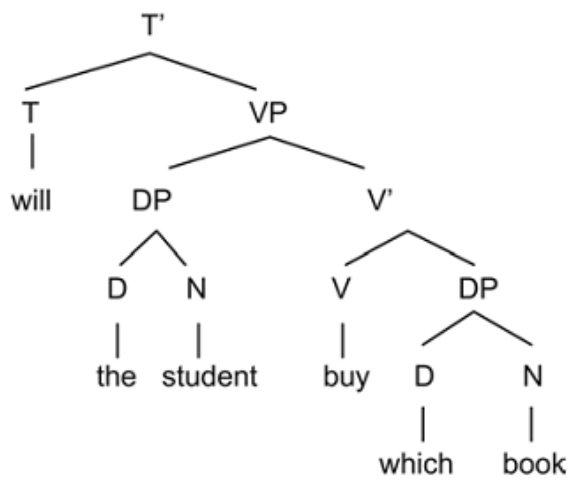


Figure 3 The argument structure is constructed, and the syntactic object has propositional content

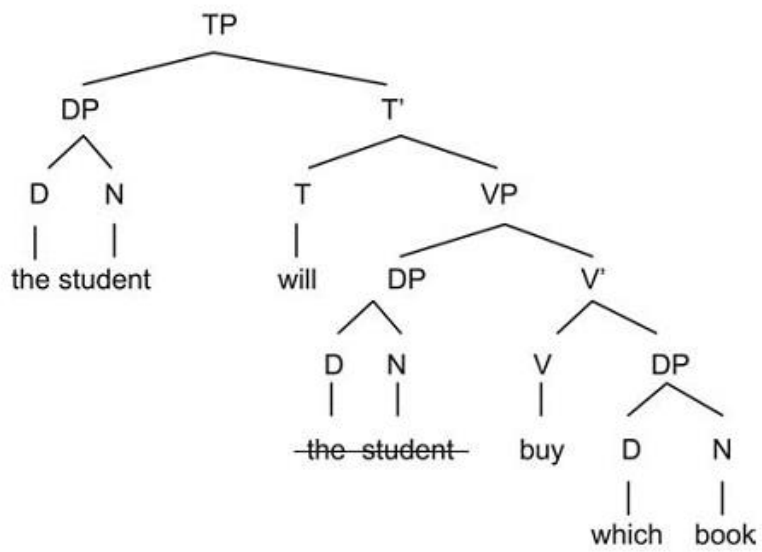


Figure 4 T(ense) merges with this object

English T has a feature (EPP: Extended Projection Principle), which requires its specifier position to be filled by a DP. So, the DP closest to this position is attracted and moved into the position.

Then, C merges with TP, and the affix feature attracts and moves the tense feature associated with T. The auxiliary “will” is moved as a whole to C

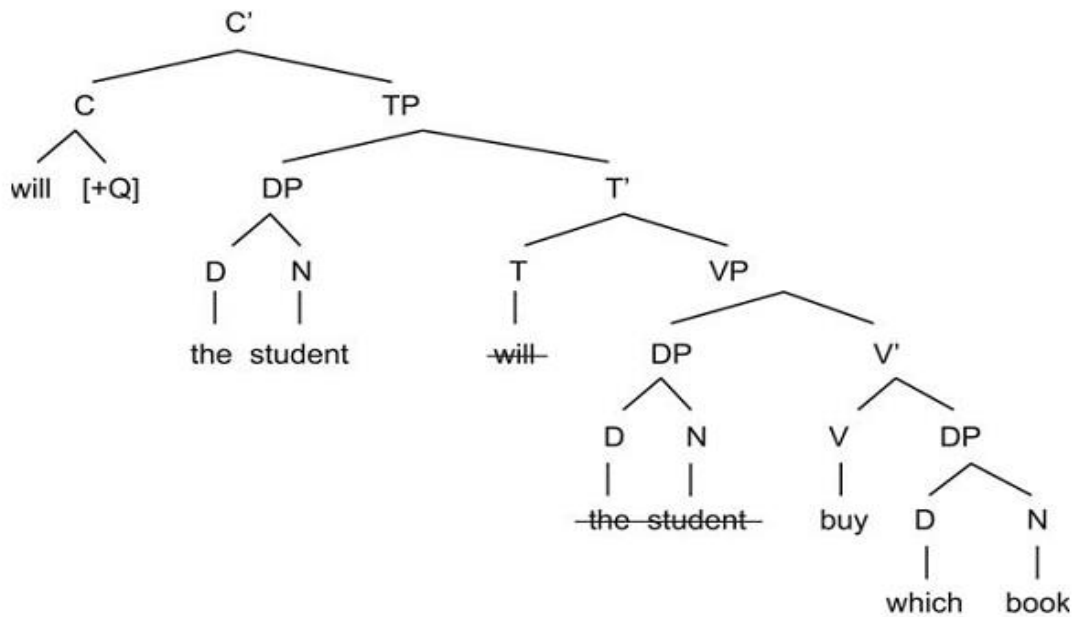


Figure 5 C merges with TP

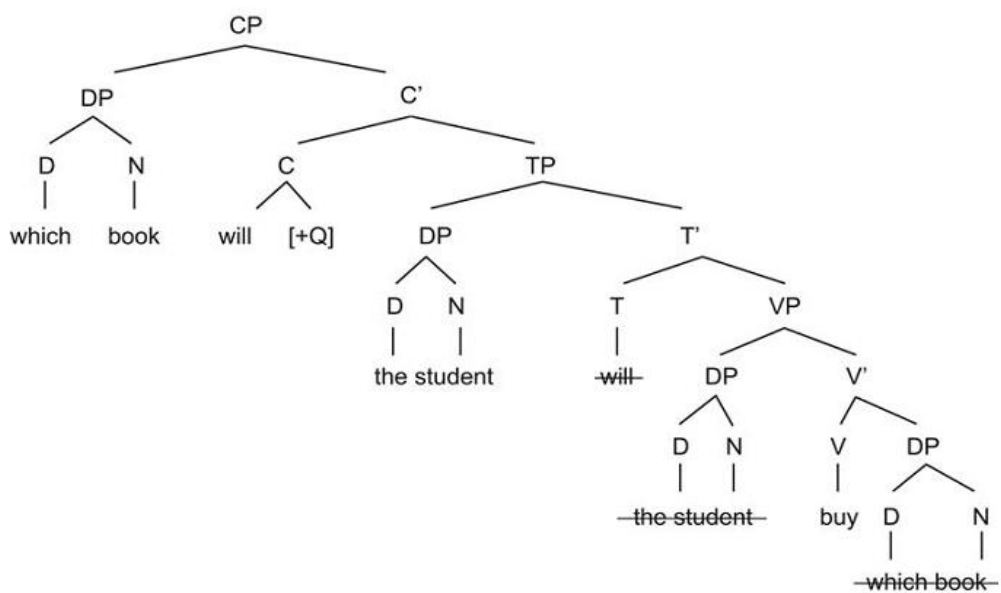


Figure 6 The DP which book is moved to the specifier position of CP

Certain research strategies have been adopted in different frameworks within generative grammar. From the beginning, unlike traditional grammars, generative grammar tried to explain why certain structures are not allowed in a grammar as well as why others are allowed (Smith 2005).

Observations that support the Chomskyan view of language

Until Chomsky propounded his theory of universal grammar in the 1960s, the empiricist school that had dominated thinking about language since the Enlightenment held that when children came into the world, their minds were like a blank slate. Chomsky's theory had the impact of a large rock thrown into this previously tranquil, undisturbed pond of empiricism.

Subsequent research in the cognitive sciences, which combined the tools of psychology, linguistics, computer science, and philosophy, soon lent further support to the theory of universal grammar. For example, researchers found that babies only a few days old could distinguish the phonemes of any language and seemed to have an innate mechanism for processing the sounds of the human voice.

Thus, from birth, children would appear to have certain linguistic abilities that predispose them not only to acquire a complex language, but even to create one from whole cloth if the situation requires. One example of such a situation dates back to the time of plantations and slavery. On many plantations, the slaves came from many different places and so had different mother tongues. They therefore developed what are known as pidgin languages to communicate with one another. Pidgin languages are not languages in the true sense, because they employ words so chaotically—there is tremendous variation in word order, and very little grammar. But these slaves' children, though exposed to these pidgins at the age when children normally acquire their first language, were not content to merely imitate them. Instead, the children spontaneously introduced grammatical complexity into their speech, thus in the space of one generation creating new languages, known as creoles.

Criticisms of Chomsky's theories

Chomsky thus continues to believe that language is “pre-organized” in some way or other within the neuronal structure of the human brain, and that the environment only shapes the contours of this network into a particular language. His approach thus remains radically opposed to that of Skinner or Piaget, for whom language is constructed solely through simple interaction with the environment. This latter, behaviourist model, in which the acquisition of language is nothing but a by-product of general cognitive development based on sensorimotor interaction with the world, would appear to have been abandoned as the result of Chomsky's theories.

Since Chomsky first advanced these theories, however, evolutionary biologists have undermined them with the proposition that it may be only the brain's general abilities that are “pre-organized”. These biologists believe that to try to understand language, we must approach it not from the standpoint of syntax, but rather from that of evolution and the biological structures that have resulted from it. According to Philip Lieberman, for example, language is not an instinct encoded in the cortical networks of a “language organ”, but rather a learned skill based on a “functional language system” distributed across numerous cortical and subcortical structures.

Though Lieberman does recognize that human language is by far the most sophisticated form of animal communication, he does not believe that it is a qualitatively different form, as Chomsky claims. Lieberman sees no need to posit a quantum leap in evolution or a specific area of the brain that would have been the seat of this innovation. On the contrary, he says that language can be described as a neurological system composed of several separate functional abilities.

For Lieberman and other authors, such as Terrence Deacon, it is the neural circuits of this system, and not some “language organ”, that constitute a genetically predetermined set that limits the possible characteristics of a language. In other words, these authors believe that our ancestors invented modes of communication that were compatible with the brain's natural abilities. And the constraints inherent in these natural abilities would then have manifested themselves in the universal structures of language.

Another approach that offers an alternative to Chomsky's universal grammar is generative semantics, developed by linguist George Lakoff of the University of California at Berkeley. In contrast to Chomsky, for whom syntax is independent of such things as meaning, context, knowledge, and memory, Lakoff shows that semantics, context, and other factors can come into play in the rules that govern syntax. In addition, metaphor, which earlier authors saw as a simple linguistic device, becomes for Lakoff a conceptual construct that is essential and central to the development of thought.

Lastly, even among those authors who embrace Chomsky's universal grammar, there are various conflicting positions, in particular about how this universal grammar may have emerged. Steven Pinker, for instance, takes an adaptationist position that departs considerably from the exaptation thesis proposed by Chomsky.



? Answer the questions and comment on the following:

1. What is generative grammar?
2. What are the main ideas which the philosophy of generative linguistics is based on?
3. What is the aim of generative grammar models?
4. Whose ideas are the foundation of generative grammar?
5. Explain the difference between behaviourism and mentalism.
6. What did N.Chomsky criticise in the book "Verbal Behaviour" by Skinner (1957)?
7. What is stimulus-response model?
8. How is language observed according to generative grammar principles?
9. Explain what E-language and I-language stand for?
10. Outline the framework of generative grammar. Describe Government and Binding Theory or Principles and Parameters and Minimalist Program.
11. What is UG?

12. Give arguments for and against the theory of generative grammar?



PART TWO: PRACTICAL TASKS

Task One. *Analyse the following:*

1) A generative grammar is a set of rules that tries to include all examples of correct language and predict how these will be formed.

E.g. The tree structure is important in the context-free generative grammar model. It describes phrases in terms of constituent grammatical parts.

Generative grammars are of limited use to learners and are not meant to be a guide to how to use language. Learners looking for more information about grammar can be supported by grammar usage books, which show how structures are used in language, and by prescriptive grammars, which describe rules.

(after <https://www.teachingenglish.org.uk/article/generative-grammar>)

Key words and phrases:

Task Two. *Read the following extracts and present the problem in your own way:*

a) *The Future of Generative Grammar*

Despite the variety of generative theories of grammar that have been put forward, the field has been dominated throughout its history by the work of one individual, Noam Chomsky. He was its founder; he has been its most prolific innovator; and the mainstream of generative research has always followed his lead. Even the proponents of alternative theories (such as the nontransformational approach sketched in the previous section) generally take work of Chomsky's as the point of departure for their proposals. In the early years of generative grammar, the field was constituted largely by Chomsky and his students and collaborators. Over the decades, however, the number of generative grammarians has grown exponentially. Under these circumstances, it is remarkable that Chomsky has retained his dominant position. It seems likely that this will eventually change. Given a saturated academic job market, increasing numbers of linguists are seeking employment in industry. This puts pressure on the field to give more attention to potential applications of its theories. The most obvious type of application for work in generative grammar would be in the development of natural language technologies – that is, computer programs that deal with human languages, e.g., doing machine translation, information retrieval

from text files, summarization of texts, and the like. To the extent that such applications motivate theoretical work, considerations of computational tractability are likely to play an increasingly important role in theory construction. Likewise, such applications call for looking at how people actually use language, rather than focusing exclusively on what is grammatically possible. The investigation of real usage data is greatly facilitated by the availability of large on-line text files, which can be sampled and analyzed with computational tools that did not exist until quite recently. This is already having a noticeable effect on the sorts of data used by generative grammarians in their theoretical arguments. These potential changes should not be worrisome. The history of generative grammar is one of numerous upheavals, as Chomsky has modified the foundations of the theory. These upheavals have been accompanied by vigorous debates and lively competition from alternative frameworks. The result has been – and promises to continue to be – a robust line of research that has greatly enriched our understanding of human linguistic abilities.

(after Thomas Wasaw, “Generative Grammar” in “Handbook of Linguistics”, 2003)

Key words and phrases:

b) Contemporary linguistics faces a similar situation to that of the various paradigm shifts in the history of science. The dominant tradition, or rather specific theories under the programme of generative grammar, is under increased scrutiny and alternative frameworks such as Dynamic Syntax, HPSG, and Construction Grammar abound. Understood in structural realist terms, this does not entail abandoning many of the insights or successes of the former. Linguistics, like the natural sciences, does not begin *de novo* with every theory change, if we maintain the continuity of structure. Seen in this light, the previous sections argued for structural relations or similarity between not only different strains of the generative tradition but also across other frameworks such as DS.²³ The structures in question are the mathematical models of the theories or the grammars.²⁴ In Weisberg (2013), he describes a third kind of model besides the concrete and mathematical ones, namely computational models. To a certain extent, it is not clear how distinct computational models are from mathematical models (as Weisberg seems to admit when pressed). Nevertheless, computational models have a distinctive procedural or algorithmic element. This aspect allows them to track or represent the dynamics of systems (in terms of states and transitions between them). The models of generative grammar (and dynamic syntax) are of this variety according to most of its practitioners.

.....

Linguistics is in a relative scientific adolescence, often lacking a clear unified methodology, theoretical persuasion or direction. The dominance of the generative

programme is under increased scrutiny and there is a plenitude of frameworks waiting in the wings to take its place. On the one extreme, divergences are often exaggerated and these frameworks are considered to be incommensurable (in the Kuhnian sense). On the other extreme, genuine differences are overlooked and considered to be mere ‘notational variants’ of one another (in the Chomskyan sense).

.....
Following a line set by Blutner (2011) and Tomalin (2010), I extended this analysis beyond the standard accounts within generative grammar such as Government and Binding and the Minimalist program, to include Jackendoff’s parallel architecture and optimality theory of Prince and Smolensky. Lastly, I attempted to unite the modelling practices of the generative tradition with a competing approach which lacks the similar theoretical underpinnings of the parallel architecture and OT, namely the dynamic syntax of Kempson et al. (2001). I argued that although the theoretical claims of this latter framework are genuinely distinct from those of the specific generative programmes, they approach the target system of natural language in similar ways via minimalist modelling strategies.

(after Ryan M. Nefdt “Scientific modelling in generative grammar and the dynamic turn in syntax”, 2016)

Task Three. *Read and analyse the given extract and render the information in English:*

За более чем пятьдесят лет в своих политических статьях Н. Хомский проявил себя как один из наиболее оригинальных, с широким диапазоном политической и общественной критик. Отмечая это, литературное обозрение газеты «Нью-Йорк Таймс» считает его глобальным феноменом, возможно, самым читаемым голосом по внешней политике США на планете. Вероятно, значительно менее среди историков известен тот факт, что наряду с репутацией одного из наиболее выдающихся общественных интеллектуальных деятелей в мире в течение более полувека Ноам Хомский был доминирующей личностью в области лингвистики. Как указывает Нил Смит в предисловии к книге Н. Хомского «Новые горизонты в изучении языка и мышления»: «Его теория генеративной грамматики, известная под разными терминами, была руководством и вдохновляющей силой для многих лингвистов в разных уголках света и точкой отсчета практически для каждого языковеда. Можно не соглашаться с работами Хомского, но игнорировать их означает проявлять близорукость и не подобающее ученому невежество»

Хомский поставил перед учеными четыре фундаментальных вопроса о способности человека усваивать язык и пользоваться им: «1. Что собой представляет система знаний? Что хранится в сознании/мозгу говорящего на английском, испанском или японском языке? 2. Как возникает эта система знаний в сознании/ мозгу? 3. Как это знание используется в речи (или вторичных системах, таких как письмо)? 4. Каковы физические механизмы, служащие материальной базой для этой системы знаний и для

использования этого знания?». По утверждению Хомского, данные вопросы являются классическими.

Лингвистические труды Хомского оказали, на мой взгляд, большое влияние, совершив революцию во взглядах ученых, вследствие трех важных факторов: 1) постановки перед лингвистической наукой новых целей, кардинально отличающихся от тех, которые ставила лингвистика того времени, и потому по своей сути революционных; 2) ориентации на формализованное описание; 3) отказа от бихейвиоризма и поворота к когнитивным свойствам языка как дифференцирующей черты человеческого вида. Хотя данные вопросы не получили еще такого оформления в первой книге Хомского «Синтаксические структуры», опубликованной в 1957 г., идеи, которые легли в основу их более поздней формулировки, уже просвечивают в данной книге в виде намеченных Хомским целей лингвистики.

Итогом этих исследований должна стать теория структуры языка, в которой описательные средства, используемые в частных грамматиках, представлены и абстрактно описаны без специфической соотнесенности с конкретными языками» и далее «Фундаментальная цель лингвистического анализа языка L заключается в отделении грамматически правильных последовательностей, в качестве которых выступают предложения L (например, He slept peacefully in his bed all night 'Он спокойно спал в своей кровати всю ночь'), от неграмматических последовательностей, не являющихся предложениями L (типа знаменитого примера Хомского Colourless green ideas sleep furiously 'Бесцветные зеленые идеи яростно спят'), и изучении структуры грамматических последовательностей». Несколькими строчками ниже Хомский пишет: «Грамматика L будет поэтому средством, порождающим все из грамматических последовательностей L и ни одной из неграмматических последовательностей». При этом термин «грамматический» имеет значение «принимаемый носителем языка». Генеративная грамматика в интерпретации Хомского есть не что иное, как набор (система) абстрактных правил и принципов, настолько абстрактных, что говорящие на языке не осознают их, а сами правила могут быть даже врожденными, заложенными в их генах. Другими словами, генеративная грамматика, по мнению Хомского, предположительно должна объяснять способность слушателя-говорящего порождать и понимать бесконечное число высказываний, включая и новые, с помощью ограниченного числа грамматических правил и конечного набора грамматических средств языка.

Однако следовать пути, намеченному в «Синтаксических структурах», стало делом нелегким. Найти ответы на кажущиеся простыми вопросы, поставленные Н. Хомским, о сущности языка оказалось чрезвычайно трудно. Это в итоге привело к постановке таких весьма загадочных и неоднозначно решаемых проблем: язык как исключительно человеческая способность, его эволюция и устройство, проблема отношений мозга и тела. Хотя ученые еще не нашли убедительных ответов на эти вопросы, сам факт обращения на них внимания научного сообщества создал мощный интеллектуальный стимул, приведший к появлению целого ряда интереснейших работ лингвистов,

психологов, нейрофизиологов, специалистов в компьютерной лингвистике и многих других ученых. В качестве примеров назовем: *The Language Instinct* (1994) С. Пинкера и его же *The Stuff of Thought* (2007), *The Articulate Mammal* (1976) Дж. Эйчисон, *The Symbolic Species* (1997) Т. Дикона, *Women, Fire and Dangerous Things: What Categories Reveal About the Mind* (1987) Дж. Лакоффа, *Metaphors We Live By* (1980, 2003) Дж. Лакоффа и М. Джонсона, *Semantics and Cognition* (1983), *Patterns in the Mind: Language and Human Nature* (1994), *The Architecture of the Language Faculty* (1997), *Foundations of Language. Brain, Meaning, Grammar, Evolution* (2002) Р. Джэкендоффа и др.

Не буду вдаваться в технические подробности и детали генеративной грамматики, особенно принимая во внимание тот факт, что ввиду кардинальных изменений, которые данная теория претерпела с годами, сегодня уже говорят о нескольких версиях генеративной грамматики: Стандартная теория (*Standard Theory* – 1957) – первоначальная модель генеративной грамматики, в которой Хомский ввел основополагающие понятия глубинной и поверхностной грамматических структур и трансформаций, которые должны обеспечивать переход от глубинных к поверхностным структурам. Расширенная стандартная теория (*Extended Standard Theory* – 1970), в которой к ранее принятым составляющим грамматики (фонетическому компоненту, трансформационному компоненту и прежде всего синтаксису) добавляется семантический компонент. Теория управления и связывания (*The Government and Binding Theory* – 1981), в которой есть место лишь для одной универсальной трансформации *move α* ‘перемещение α ’ и ряду специфических модулей (Икс-бар синтаксис, теория связывания, теория управления, теория падежей, тета-теория). Каждый из них имеет свои собственные принципы и параметры, которые предопределяют на выходе специфический для каждого языка результат. Минималистская программа (*The Minimalist Program* – 1992), в которой наряду с базовыми компонентами, а именно – лексиконом и вычислительной системой – есть два интерфейса: фонетический и логический. Теория неоформленных фраз (*Bare Phrase Structure* – 1994). Пофазовая деривация (*Derivation By Phase* – 2001). Аппарат описания, равно как и многие научные постулаты, оказались неузнаваемыми, понятия глубинной и поверхностной структур, годами упорно продвигаемые генеративными грамматистами и Хомским, были упразднены усилиями его бывших аспирантов Посталом, Россом и Макколи, набор трансформаций был заменен на общую операцию перемещения, вся структура генеративной грамматики приобрела совершенно иные очертания.

Благодаря своему структуралистски ориентированному образованию в Университете Пенсильвании, Хомский следовал традиции, уделяя внимание прежде всего синтаксису, оставляя семантику за бортом лингвистического описания. Однако язык человека с его главной функцией – быть репрезентацией мысли, делать ее ясной как для самого себя, так и для передачи другим, – не мыслим без значения. Поэтому синтаксис и семантика не могут быть разделены. Соответственно, Хомский под влиянием лучших своих учеников был вынужден ввести в Расширенную стандартную теорию

семантический компонент, предназначенный для того, чтобы дать семантическую интерпретацию порожденным предложениям. Этот шаг привел к возникновению целого ряда интерпретационных или генеративных семантик и стал, в то же время, «революцией внутри революции» [там же], или началом так называемых лингвистических войн между лингвистами восточного (Н. Хомский, Дж. Катц, Р. Джэкендофф как наиболее яркие представители) и западного побережья (с Ч. Филмором и Дж. Лакоффом в качестве лидеров). Генеративные семантики считают, что генеративным и тем самым ядерным компонентом лингвистической теории является не синтаксис, а семантика. Исследования сторонников генеративной грамматики выявили другую слабую сторону грамматики Хомского. Генеративная грамматика призвана производить правильные предложения, приемлемые носителями языка.

Принимая во внимание наши постоянно меняющиеся намерения произвести определенный эффект на слушателей и множественные ошибки, которые мы делаем при производстве и понимании предложений, можем с легкостью сделать вывод, что представления Хомского о нашей языковой компетенции и использовании языка, как отмечают критики Хомского, достаточно ошибочны.

Среди ученых не было единодушия и относительно концепции Хомского о природе человеческого разума. Взгляд этого ученого на язык как уникальную человеческую способность влечет за собой вопрос о том, как развивалась у человека эта способность. Ответ Хомского состоял в том, что универсальная грамматика, которой пользуется ребенок, является частью его генетического наследия, другими словами, язык является врожденной способностью. Это заявление посеяло раздор среди психологов (среди которых наиболее слышны были голоса Жана Пиаже, Элизабет Бейтс и Майкла Томаселло, ведущих специалистов в психологии усвоения языка) и нейрофизиологов. Они яростно воспротивились теории врожденности языка и в противовес ей объясняют появление языка рядом общих характеристик мозга, а усвоение языка ребенком – с помощью общих механизмов обработки информации мозгом, взаимодействующих с разнообразным и сложным социальным окружением, в котором язык усваивается и используется. Среди других недостатков генеративной грамматики Хомского было то обстоятельство, что она, основываясь в значительной степени на логических и философских аспектах теории языка и развивая их, в то же время приводила к тривиальным практическим выводам и наблюдениям, в целом к ничтожным реальным результатам. Таким образом, обещания, данные в начале, остались невыполненными.

Мне не хотелось бы давать здесь какие-либо свои оценки. Вместо этого, завершая статью, я бы хотела подчеркнуть, что Н. Хомский сместил фокус научных интересов на рассмотрение одного из наиболее важных вопросов гуманитарной науки «Что есть язык для человека? Что делает нас особенным видом животных? Как работает наш мозг?». Если оценивать его научные достижения в этом свете, то я полностью согласна с Джоном Серлем, который

сказал, завершая анализ работ Н. Хомского, следующее: «В конечном итоге, я думаю, что его самым большим вкладом будет считаться сделанный им большой шаг вперед в направлении восстановления традиционных представлений о величии и уникальности человека». С этой позиции лингвистические взгляды Ноама Хомского представляют собой увлекательную картину переходного периода в истории науки, занимающей значительную часть в истории общества.

(after З. А. Харитончик «Хомскианская революция: обещания и результаты», 2017)

Key words and phrases:

Task Four. *Render the following into Russian:*

Language has double characters. On one hand, it is the product from the mind and the mouth of individuals, and it expresses one's thoughts. On the other hand, whenever one speaks, he speaks to others and inevitably has some effect on others, and therefore, language is also the tool of human communication.

Following these two lines, since the 1950s, there have been two linguistic schools appearing among others, each developing along its own line and both gaining more impact and influence than the others. One is the transformational generative grammar (TGG) represented by Chomsky, an American scholar; the other is the systemic functional grammar (SFG), represented by M.A.K. Halliday, a British linguist.

As most previous literature has taken TGG and SFG as two contradictory perspectives to language and their differences have already been talked thoroughly time and again, in this study, the author mainly focused on the non-contradictory side of the two approaches to see how they could supplement each other and forms a more comprehensive picture of the language of English. The research method adopted in the present study is qualitative to describe the two approaches of grammar and to explore how they could be "combined" in terms of linguistic competence, syntax and pragmatics.

To achieve this goal, the attitudes of the two grammars towards the nature of language and linguistic competence will be discussed to see how, instead of being exclusive to each other, they could mutually support each other. Then, special attention will be paid to different functional purposes that guide the transformation from the same deep structure to different surface structures, and the transformational processes that facilitate the completion of linguistic functions.

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Furthermore, bearing these similarities and comple-mentation in mind, most importantly, this paper discusses how to combine these two perspectives to make the best use of them in second language acquisition and second language teaching.

Transformational generative grammar (TGG)

Chomsky’s TGG sees language as a system of innate rules. For TGG, a native speaker possesses a kind of linguistic competence. The child is born with knowledge of some linguistic universals. Thus, language learning is not a matter of habit formation, but an activity of building and testing hypothesis (Chomsky, 1986).

Chomsky’s theory initiates from his three main questions: a) What constitutes knowledge of language? b) How is such knowledge acquired? c) How is such knowledge put to use?

With sentence as his focus, Chomsky’s grammar has essentially two basic components: Phrase structure rules and transformational rules. Phrase structure rules are generalizations about the ways in which categories (such as noun, adjective, verb, etc.) can be combined to make phrases and sentences in a language. With these rules, many sentences can be created: $S \rightarrow NP + VP$; $VP \rightarrow V + NP$; $NP \rightarrow Det + N$, and so on. Such rules are the major source of productivity in grammar (Chomsky, 1986, 1994).

For the transformational rules, according to Chomsky (2002), a sentence has two structures, one is surface structure and the other is deep structure. The surface structure is the kind of sentence we ordinarily say, while the deep structure is an abstract syntactic representation of sentence from which its surface structure generates. The deep structure specifies the basic meaning and categories of the sentence. In other words, it is the skeleton of a sentence with all the information

necessary to do three things: to derive a well-formed sentence, to give it a phonological representation and to give it a semantic interpretation. This structure is modified in various ways to become a surface structure, which is the linear arrangement of words and phrases which will be produced. The rules with which we transform the deep structure of a sentence into the surface structure are called transformational rules. They are rules of passive transformation, yes/no transformation, do transformation, negation transformation, etc. These rules were used to add, delete, or permute, that is, change order and some-times also hierarchic relationship among constituents of the deep structure to turn it into an ordinary sentence we use in everyday life.

Systemic functional grammar (SFG)

Contrary to Chomsky's TGG, Halliday's SFG attaches great importance to the sociological aspects of language. He views language as a form of "doing" rather as a form of "knowing" (Halliday, 1979; Halliday and Matthiessen, 2014).

SFG focuses on the following two questions: a) What are the special functions of language? b) How are these functions reflected in the linguistic system? Halliday (1973) recognizes three functions of language in communication of human society. They are: 1) Ideational function: language functioning as a means of conveying and interpreting experience of the world (this function is subdivided into two sub-functions, the experiential and the logical sub-functions). 2) Interpersonal function: language functioning as an expression of one's attitudes and an influence upon the attitudes and behavior of the hearer. 3) Textual function: language functioning as a means of constructing a text, that is, a spoken or written instantiation of language.

Halliday's functional theory is based his systemic theory, with the former as the output of the latter. They are two inseparable parts for an integral frame work of linguistic theory. Systemic grammar aims to explain the internal relations in language as a system network, or meaning potential. And this network consists of systems from which language users make choices. The items of a particular system should belong to the same area of meaning.

The nature of language

Looking at language from the inside, Chomskian linguists define language as a set of rules or principles. They believe that human beings are born with a language acquisition device, which enables them to acquire a language in such a way that other animals cannot. TGG relates language with human being's physical and psychological features and views language as "a form of knowing". Chomsky considers language as the starting point to investigate the common laws of language and to find out the cognitive system, mental laws and intrinsic quality of human being.

On the other hand, SFG views language as a systematic resource for meaning expression in social context, and thus linguists should focus on how people exchange meanings through the actual use of language. Halliday (2004, 2007) views language as form of "doing", and holds that the nature of language is determined by the functions it evolves to serve in the society. This functional perspective to the

nature of language is deeply rooted in its anthropology and sociology origins from Malinowski and Firth.

From the above analysis, we can see that although TGG and SFG look at language from two different angle– one from a psychological perspective inside the language, and the other from a sociological perspective outside the language, they do not exclude each other, but are different aspects of the same subject- language. It would be unthoughtful to deny that language is a psychological phenomenon, but equally unwise to deny that it is a social phenomenon. Taking the two perspectives together, we can gain a more wholesome understanding of the nature of language as both inside knowledge and a behavior serving certain social functions. Without language acquisition device in human mind, it would be impossible for human beings to ever start acquiring language, not to say using language to serve certain purposes. Meanwhile, leaving the social and functional aspect of language unconsidered, there would be no reason for the existing of language. Everything in the world is connected with others, the same is true for language. Language could never be fully understood leaving its social features aside.

Parole and Langue

As both SFG and TGG belong to modern linguistics, they all follow the basic principles of modern linguistics proposed by Saussure and get new linguistic points from previous linguists. Both of them pay attention to the distinction of LANGUE- the linguistic competence of the speaker (sentence) and PAROL- the actual phenomena or data of linguistics (utterance).

Following Saussure's concepts of langue and parole, Chomsky introduces the fundamental distinction of linguistic competence and performance in his aspects of the Theory of Syntax (1965). In that book, he points out a language user's underlying knowledge about the system of rules is called his linguistic competence; while the actual use of language in concrete situations of daily communication is named performance. As TGG is primarily concerned with the internal knowledge of language inside human mind, it focuses more on the linguistic competence rather than performance which contains numerous false starts, deviations from rules and changes of plan in expression, and so on. In Chomsky's view, linguistic competence can explain every single linguistic performance, as thus, it should always be the focus of linguistic study.

In the meantime, Halliday (2001) distinguishes linguistic behavior potential and actual linguistic behavior. He sees language as a three-level semiotic system, consisting of a semantic system (what can be done), a lexico-grammatical system (what is meant to be done) and a phonological system (what can be said) with the higher-level systems embedded/realized in the lower level systems. Halliday points out clearly that linguistics study should include both langue and parole. But he does not use these two terms proposed by Saussure, instead he uses "can do" and "does". "Can do" refers to the meaning potential which provides various possibilities to human beings for communication thorough language, while "does" refers to the actual choices of the possibilities, that means, the choices of lexico-grammatical system reflecting the chosen meaning potential. However, he also noticed that as "can

do” is what is hidden behind, we cannot observe it directly. The only way we can get to know the linguistic potential (can do) of someone is through the observation of his/her actual linguistic behavior (does). As thus, in SFG, more attention has been paid to actual linguistic behavior, or linguistic performance in Chomsky’s term.

However, although in different terms, as pointed by all the three linguists: Saussure, Chomsky and Halliday, all languages have an internal side and an external side, to know a language, we should have the knowledge of both internal “linguistic competence”/ “what one can do” and external “linguistic performance”/ “what one does”. We can work from the external to shed light on the internal or vice versa, but whatever the start point is, the ultimate goal of linguistics should be to gain a knowledge of both aspects of language. So from this perspective, we may say that the distinction between the focuses of SFG and TGG is a matter concerning the start point, rather than a black and white contradiction. They are more like two roads leading to the same destination, each with its own landscape.

Syntax and pragmatics

Functional guidance of transformation

SFG has evolved in use and it has no existence apart from the practice of those who use it. The social functions of language have occupied a crucial place in SFG. According to Halliday, ‘language is because of the functions it has evolved to serve’ (1976, p. 26). SFL puts great emphasis on the different functions language serves in the social communication of human beings. Halliday defines functional grammar as essentially a natural grammar, in the sense that everything in it can be explained, ultimately, by reference to how language is used. As SFG takes clause as the basic unit of analysis, on the syntax level, all the transformational rules in TGG could be explained with the functions it is to accomplish. Whenever and wherever there is transformation, there is a reason behind, and the ultimate reason is the function it is to serve.

To take the sentence “John broke the vase” for example, it can be transformed to the following sentences under the transformation rules:

1. John didn’t break the vase.
2. Did John break the vase?
3. The vase was broken by John.
4. The vase was broken.
5.

All the transformations are guided by the functions the deep structure “John broke the vase.” This structure is called “kernel sentence” by Chomsky. In the first example, the kernel sentence undergoes the transformation of negation. The function it serves is to express the addresser’s attitude or belief in the topic under discussion. In this way, it serves the interpersonal function. Example 2 is a case of interrogative transformation, it serves the function of “demanding information” with the form of an interrogation. It belongs to the interpersonal function and makes up the principle speech role of question according to Halliday. The next sentence “The vase was broken by John.” undergoes passive transformation from the kernel sentence. By putting the object “the vase” in the beginning place of the sentence, the departure of

the information delivered by the sentence has changed accordingly from “John” to “the vase”. It represents a different way of our perception of the world. So it serves both ideational and textual functions. In the last example, the subject “John” is omitted directly from the original kernel sentence. This is an optional transformation in passive transformation. Nevertheless, it has its own functions to serve. By omitting the actor (John) of the material process, this whole action seems to happen all by its own, thus hiding the causal relationship between the actor and the process (break), creating a mystifying effect. The vase seems to break all by itself. In this way, the actor “John” is protected from his responsibility of breaking the vase.

From these examples, we can see that functions are served during the transformation processes from the same deep structure to a variety of surface structures, and even within every transformational step in every transformational process, transformation is functionally directed. In the extended standard theories of Chomsky, he also admits that any kind of transformations will certainly change the sentence meaning, and now completely puts semantic interpretation which is related with the functions of language into the surface structure.

Linguistic function facilitation of transformational device

In the meantime, in order to serve some particular functions, particular forms of language should be taken. We cannot use the same surface structure once and for all the different functions we want to achieve. According to Chomsky (1965), the deep structure specifies the basic meaning and categories of the sentence. In other words, it is the skeleton of a sentence with all the information necessary to do three things: to derive a well-formed sentence, to give it a phonological representation and to give it a semantic interpretation. To express different meanings to serve various functions, the same deep structure has to be transformed into a variety of surface structures. As thus, the transformational devices facilitate the accomplishment of functions language serves, and it is what makes the language creative and functionable.

The ideational function, as it deals with the conveying of new information through specific use of language to refer to categories of experiences in the world, can only be achieved by the different uses of language (surface structures). And the same world process can be expressed in different ways according to our different understandings. For example, the material process “John broke the window” can be reworded as “the window was broken by John” or just “the window was broken” if the speaker does not know who broke it or chances may be that speaker does know who broke the window but does not want to tell the others. Thus, our particular perceptions of the world are tied up with particular expressions. And as for the interpersonal function which deals with people’s attitudes, the same kernel sentence “John broke the window” can be said as “perhaps John broke the window” or with more confidence “It must be John who broke the window.” So we can see, in order to achieve different degrees of confidence, to express different attitudes, we have to apply different surface structures. And textually, as the textual function deals with combining stretches of discourse into a coherent and unified text, to make a passage coherent and sound natural, we have to make some transformations from the deep

structure. For example, to make the actual sentence “John ate some spaghetti, and Mary some macaroni” work, first we have the deep structures “John ate some spaghetti” and “Mary ate some macaroni”, then we have to add the conjunction “and” to combine these two sentences together, then the combined sentence “John ate some spaghetti and Mary ate some macaroni” undergoes the deletion rule – the second “ate” is omitted to make the sentence sound more natural and coherent. This combining and deleting transformations together facilitate the textual function of a language.

In summary, we can see that transformation process from the same deep structure to a variety of surface structures allows for the achievement of different functions. It is the generative nature of these transformational rules that made it possible to achieve the numerous functions we can fulfill with our language.

Implications for second language acquisition and teaching *Application of TGG*

Although Chomsky announces that his theory applies primarily to native speakers but not to second language learners, there are several aspects of his theory which is significant in second language acquisition and have been adopted by many second language teachers and researchers.

TGG presents grammar as a linguistic knowledge capable of generating an infinite number of sentences from a finite set of rules which is capable of generating all and only the grammatically correct sequences of that language. From this point, to know a language means to know the finite set of rules. This makes language learning and teaching a much easier and more direct experience.

When we learn a sentence, we do not just know the surface expressions of the sentence; instead, we learn the set of rules that could generate the sentence, so that we can make other sentences with the same structure. For example, we know that a sentence may consist of a noun phrase, an auxiliary verb and a verb phrase. Then we may generate other sentences like “John may come”, “The bird can imitate what people say” and so on. Then on the lower level, the verb phrase “frighten the boy” in this sentence is formed by a verb and a noun phrase, following this rule, we may generate an infinite number of verb phrases like “eat an apple, “sing a song”, etc. By the same token, the students can generate all the negative sentences by acquiring the negative transformation rule, and interrogative sentences and passive sentences, so on and so forth. In this way, the students can acquire a language easily by mastering a finite number of phrase structural rules and transformational rules.

Besides, the deep structure and surface structure may also help the students to understand some ambiguous expressions. Take the sentence “the cat ate the mouse with a fork” for example, the ambiguity of the sentence comes from the two deep structures it is related with.

Application of SFG

Unlike most theoretical linguistics, SFG makes no distinction between linguistics and applied linguistics (Chen, 2008), always ready to apply their theory of language use and meta-functions to educational practices. Via foregrounding the

social nature of language and viewing language in functional terms, SFG has been a useful model in a pedagogically applied sense since its emergence. One basic assumption of all these functionally oriented pedagogies is that the ultimate goal of knowing a language is to communicate with others— language is a tool of communication. If we want to interact in the world successfully, we must learn more about the usage of a certain language instead of the rules of that language system itself. The objective of language teaching is to generate successful language users and not flawless grammarians.

Having said that, SFG is extremely useful in communicative approaches of second language teaching where function is always considered as an important issue. It leads directly to the development of notion/ function-based syllabuses (Chen, 2008). This approach was first proposed by Wilkins (1976) and van Ek (1975), two famous linguists in U.K. and has received considerable attention since the 70s in 20th century. In the fully notional model proposed by Wilkins (1976), there is great emphasis on Halliday's meaning potential which is the semantic system of a language, and thus he coins the term notional. The functional model proposed by van Ek (1975) has much in common with Wilkins' notional model, but it further takes in Halliday's concepts of meta-functions. Van Ek's focus of the functional model is on what a learner can do with language rather than the meaning potential he has in mind and intends to express. However, focusing on the communicative or functional aspect of second language teaching and learning does not mean that SFG totally ignores the rules of language or that the rules are not important in second language teaching and learning, rather, it proposes that if we view the linguistic system as closely related to our social needs and the functions that it serves, then we may begin to make sense from the way it is organized. To know a language, we have to know both the grammatical organization of the language itself, and how to use language appropriately in practical interactions with people around us.

From the above discussion, it can be seen that SFG and TGG are not mutually exclusive. On the surface, these two approaches seem to be opposed to each other. They have different views towards the nature of language; they propose different emphasis on research, and they have totally different analytical frameworks. Nevertheless, based on the above analysis, we may see that each of them has a considerable amount of truth on its own side. Instead of being completely contradictory and mutually exclusive, SFG and TGG supplement each other and together present us a more holistic picture of language with their own strengths and weaknesses. They offer us a multi-angle view towards the nature of language. While it would be unwise to deny that language is a psychological phenomenon, it would be equally senseless to deny that it is a social phenomenon. On the syntax level, the different theories of SFG and TGG can be used to elaborate each other. Although, their research focuses are different with one on linguistic competence and the other linguistic performance, this is more a difference of starting points which gradually lead to the same destination, as both of them admit and accept the two aspects (competence and performance) of language and acknowledge their importance. Linguistic knowledge that should be a combination of the two. In the field of second language teaching and acquisition, each of the two approaches has its own

advantages. To be a competent language user, one should be able to speak that language in a correct way and in an appropriate manner.

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