

V

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~~The~~ Disturbances of  
~~the~~ Grammatical operations  
in patients with "semantic aphasia"

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1946-1975

And especially in patients with "semantic aphasia" associated with lesions of the left ~~post~~ occipito-parietal parts of the cortex.



On the disturbances ~~in~~ the pathology of grammatical operations.  
in semantic aphasia

This ~~paper~~ is one of the earliest papers the author published in the field of aphasia. <sup>was</sup>

The <sup>MAIN PURPOSE</sup> ~~mean~~ goal of this study ~~is~~ to analyse the rules of the breakdown of ~~the~~ operations <sup>with grammatical constructions</sup> in patients with ~~local lesions of the brain~~ <sup>rather than</sup> that is why in this paper ~~we~~ <sup>rather than</sup> the syndromes emerging in different forms of local brain lesions. ~~but rather~~ the ~~pathological changes of complex grammatical structures were investigated~~ <sup>REPORTED HERE</sup>

The subjects ~~studied~~ <sup>REPORTED HERE</sup> in this paper were mainly those with lesions of temporo-parietal parts of the left hemisphere and the ~~syndromes~~ <sup>of</sup> "semantic aphasia" which was described by the author in his later works (cf. "Traumatic Aphasia", Russian edition 1947, English version 1970; "Higher Cortical Functions in Man, Russian editions 1962, 1969, English version 1961 et al). All patients <sup>REFERRED TO</sup> ~~which were referred~~ in this paper had ~~vessel disorders of the brain and suffered brain hemorrhages~~ <sup>had vessel or partial loss of brain tumors</sup>. All of them, ~~and~~ <sup>so</sup> first of all - Patients Art. and Peps., were very carefully studied ~~during~~ <sup>FOR</sup> more than ~~one~~ <sup>a</sup> year each and were the first patients the author approached with Neuropsychological analysis.

The present paper was published in 1946 in the "Proceedings of the Academy of Pedagogical Sciences of the Russian Federation" (vol. 3, p.p. 60-98) and underwent a slight abbreviation when the author translated it in 1975 for this volume. During this translation the author added some references to some studies done after the first publication of this paper.

I. INTRODUCTION

acquisition of ~~the~~ <sup>conscious</sup> analysis  
The ~~mastering~~ <sup>of</sup> ~~the~~ <sup>grammatical</sup> structure of the language is one of the most important processes in the child's mental development. <sup>During</sup> ~~whereas~~ <sup>is</sup> its early stages of its development the ~~child~~ <sup>child</sup> ~~begins to use~~ <sup>begins to use</sup> ~~practically~~ <sup>practically</sup> the grammatical structures; but ~~whereas~~ <sup>whereas</sup> ~~the~~ <sup>child</sup> ~~performs~~ <sup>acquires</sup> ~~mence~~ <sup>of</sup> ~~the~~ <sup>grammatically</sup> organized speech develops quite early and is ready at the first school age, - a conscious analysis of grammatical structures, <sup>already used</sup> ~~remains~~ <sup>remains</sup> difficult and requires some special efforts.

It is well known that the child has much ~~more~~ <sup>more</sup> to do with things and events reflected in language, ~~whereas~~ <sup>whereas</sup> he remains not fully aware of the formal features of ~~the~~ <sup>the</sup> speech itself, and

PERHAPS BETTER TO MAKE IT CLEAR THAT YOU'RE ANALYZING ONE SYNDROME AS OPPOSED TO SEVERAL AS THAT YOU WILL COMPARE ONE WITH SEVERAL OTHERS??

IN THE PRECEDING PARAGRAPH, YOU SAY YOU'RE NOT INVESTIGATING BRAIN-BEHAVIOR SYNDROMES: NOW YOU BEGIN BY REFERRING TO A BRAIN (TEMPORO-PARIETAL)-BEHAVIOR (SEMANTIC APHASIA) SYNDROME.

PRACTICAL STRUCTURES? OR PRACTICALLY ALL STRUCTURES?



⑤ lessons of writing and reading

↳ to the abstract forms of behavior dealing with

⑥ which becomes a real goal of his ~~set~~ linguistic behavior during the lessons of language.



ability to analyse consciously and the shift towards the forms of language itself is a product of special school education especially of the lessons in <sup>grammar</sup> and special tests. The difficulty of the acquisition of the grammatical forms of the language <sup>the conscious analysis</sup> which requires a new abstract attitude and new kind of activity, where the immediate relation to the objects, ~~and~~ actions and events are blocked and the attention is shifted to the word itself is a rather difficult process.

As <sup>THIS</sup> was shown in the early works of L. J. Bozhovitch, (19), L. S. Slavina and the ~~f~~ ( ) and the further works ~~done~~ by S. N. Karpova ( ) and ~~their~~ her associates.

These studies showed that the pre-school child is unable to shift his <sup>HIS</sup> attention from things, actions or events, designated in speech to the speech itself, and <sup>HE USES</sup> ~~they are using~~ the speech ~~just~~ as a kind of transparent glass which enables <sup>HIM</sup> to see the environment <sup>of</sup> but which itself remains the subject is not aware. ~~of~~

To master grammar, one has to ~~break~~ <sup>block</sup> down this concrete attitude and to replace <sup>THE</sup> practical concepts of the child <sup>WITH</sup> "theoretical concepts" which are required by the study of the language and speech themselves.

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It is easy to see that during the such a shift of <sup>the basic</sup> quality <sup>during</sup> the conscious deal with <sup>from</sup> begins <sup>from</sup> the <sup>early</sup> first <sup>stages</sup> of the school, where <sup>N</sup> the child has to deal with words, sounds and letters, words and sentences, <sup>rather than objects</sup> ignoring <sup>the words</sup> of objects and events they reflect. It is well known that the first stages of teaching in the school result in a real revolution in the child's consciousness and that the teacher has to overcome a series of obstacles <sup>IN ORDER</sup> to <sup>GUIDE</sup> determine the child <sup>IN SINGING</sup> to <sup>WRITE</sup> single out separate <sup>SOUNDS</sup> parts of the word, <sup>TO WRITE DOWN</sup> to <sup>WRITING</sup> write down separate <sup>STROKES</sup> lines and <sup>COMBINING</sup> combine them <sup>TO</sup> in a <sup>complex</sup> complex representing letters (which is a senseless work before the child acquires <sup>the operations of writing</sup> its meaning). <sup>WHAT?</sup>

It is well known as well that it is rather a difficult task to break the child's immediate relations to objects, actions and events and <sup>HIS</sup> to transfer <sup>HIS</sup> attention to the word sounds, morphemes and grammatical structures. <sup>AGAIN TO REFER ONLY WRITTEN LANGUAGE</sup> That is why the process of acquisition of <sup>linguistic</sup> this attitude <sup>WHAT ATTITUDE?</sup> and the child's mastering of the reality of the language and speech <sup>is</sup> is of <sup>a</sup> special interest and <sup>of</sup> special importance.

During <sup>RECENT</sup> the ~~last~~ decades a long series of studies were done in this field. We shall not mention them here. We want only to <sup>REFER TO</sup> mention the important work <sup>DONE</sup> made by our former collaborator Prof. S. N. Karpova and her co-workers who described very carefully the acquisition of the child's abstract attitude towards the reality of language and speech.

WHAT?  
AND NOT BEFORE?  
FOR WRITTEN LANGUAGE YES, BUT HAS HE NOT DEALT WITH ABSTRACTION ALREADY IN OTHER FORMS OF LANGUAGE? YOU SAID IN ANOTHER CHAPTER THAT REPETITION IS HIGHLY ABSTRACT (A LA GOLDSTEIN) BUT THE CHILD BEGAN TO REPEAT WORDS & STRINGS OF WORDS AT A VERY EARLY AGE



⑤ Splitting and simplifying ~~an~~ indivisible normal events, open new ways

⑥ We already mentioned in a series of other publications (cf. A.R. Luria, 1966, 1969, 1972 et al.) that mastering of ~~grammatical~~ ~~and~~ complex grammatical relations as well as mastering the numerical operations ~~can be~~ <sup>can be supposed to be</sup> ~~used~~ ~~supposed~~ ~~to~~ ~~be~~ ~~are~~ examples of such ~~of~~ symbolic processes which ~~a~~ require complex simultaneous schemes, based of less complex forms of spatial orientation.

We shall start from this assumption, and we shall try to ~~come closer to the analysis~~ answer the question what kind of ~~a~~ complex grammatical relations are broken down in patients with primarily ~~dis~~ disintegration of simultaneous ~~anal~~ ~~syntheses~~ of spatial relations.



(conscious) ~~internal ways of child's conscious~~ There are two ways to come closer to the intimate mechanisms of the processing of grammatical structures. The first ~~one~~ is to study the subsequent stage of their acquisition in children, the second - the careful analysis of their destruction in local lesions of the brain. The second of these ways is in no way ~~of~~ less importance <sup>THAN</sup> the first. It was W. Wundt who <sup>ONCE</sup> mentioned <sup>MEANS</sup> that ~~the~~ brain injuries are one of the most significant <sup>WHICH</sup> <sup>INDIVISIBLE</sup> ~~ways~~ <sup>WAYS</sup> for a psychological analysis, and that ~~what~~ is <sup>CONSCIOUSNESS</sup> <sup>SEPARATED</sup> <sup>INDIVISIBLE</sup> ~~unavoidable~~ is <sup>CONSCIOUSNESS</sup> <sup>SEPARATED</sup> <sup>INDIVISIBLE</sup> ~~unavoidable~~ is normal <sup>CONSCIOUSNESS</sup> <sup>SEPARATED</sup> <sup>INDIVISIBLE</sup> ~~consistence~~ can be <sup>UNDERSTANDING</sup> <sup>SUGGESTED</sup> ~~split~~ in pathological cases and this <sup>PROVIDES</sup> <sup>OPPORTUNITIES</sup> <sup>FOR</sup> ~~opens~~ new <sup>WAYS</sup> <sup>FOR</sup> ~~ways~~ to the <sup>UNDERSTANDING</sup> <sup>SUGGESTED</sup> ~~and~~ <sup>CONCLUSIONS</sup> <sup>OF</sup> ~~its~~ <sup>INTERPRETATION</sup> ~~interpretation~~ of psychological functions. The same way <sup>SUGGESTED</sup> ~~mentioned~~ by D.P. Paulov <sup>WHO</sup> ~~said~~ that the pathological data <sup>UNAVOIDABLE</sup> ~~splitting~~ and simplifying ~~data~~ <sup>WHICH</sup> ~~are~~ <sup>UNAVOIDABLE</sup> ~~in~~ <sup>PHYSIOLOGICAL</sup> <sup>RESEARCH</sup> ~~physiological~~ <sup>RESEARCH</sup> ~~studies~~ - in the scientific analysis of ~~the~~ intimate physiological processes.

ARE PATHOLOGICAL DATA SPLIT + SIMPLIFIED, OR DO THEY SPLIT + SIMPLIFY OTHER DATA?

<sup>THESE WAYS</sup> We shall follow ~~this way~~, bearing in mind that lesions of the specifically human parts of the tertiary zones of the cortex are of ~~the~~ special significance for the acquisition of complex codes ~~system~~ of knowledge, and that ~~lesions~~ of these zones result <sup>NOT ONLY</sup> very often in an inability to deal <sup>WITH</sup> ~~with~~ complex <sup>SYMBOLIC</sup> <sup>CODES</sup> ~~spatial~~ relations <sup>BUT AS WELL</sup> ~~and~~ <sup>WITH</sup> ~~some~~ <sup>THE</sup> ~~systems~~ <sup>OF</sup> ~~abstract~~ <sup>COORDINATES</sup> ~~coordinates~~ which <sup>ARE</sup> ~~based~~ <sup>ON</sup> ~~the~~ <sup>SIMULTANEOUS</sup> <sup>SYNTHESIS</sup> ~~of~~ ~~the~~ ~~outlet~~ ~~space~~ ~~and~~ ~~its~~ <sup>FOR</sup> ~~mastering~~ ~~complex~~ ~~logico-grammatical~~ ~~structures~~.)

The syndromes of disturbances of grammatical operations (or symptoms of "agrammatism" were were carefully described by a series of authors (as A. Pick, 1919, K. Head, 1926), and are well described. It is well known that lesions of the posterior parts of the major hemisphere <sup>CAN</sup> result in a deterioration of <sup>THE ABILITY TO</sup> ~~dealing~~ with complex grammatical relations, while the understanding of ~~the~~ simple forms of ~~the~~ fluent speech, which <sup>DO</sup> ~~does~~ not involve complicated logico-grammatical relations, <sup>IS</sup> ~~remains~~ <sup>STILL</sup> ~~preserved~~. It is well known ~~all right~~ that lesions of the anterior parts of the speech zones result in a breakdown of fluent grammatical speech and in <sup>THE</sup> ~~appearance~~ <sup>OF</sup> ~~of~~ ~~it~~.

1) This approach was further developed in the author's book mentioned in the introductory lines <sup>OF</sup> ~~of~~ this paper.



"telegraphic speech," whereas the understanding of ~~every~~ complex grammatical forms ~~can~~ remains normal")

What remains ~~still~~ unknown is what kind of grammatical constructions suffer predominantly and which grammatical forms remain preserved.

~~A careful study of the understanding of several grammatical relations in patients with lesions of the posterior parts of the speech areas if needed to describe better the nature and the limits of such "agrammatism" and to make some significant contributions to the theory of the grammatical structures themselves.~~

The following questions will be therefore discussed in this paper:

- (1) Does the conscious awareness of ~~the~~ language and speech ~~themselves~~ <sup>ITSELF</sup> suffer in these cases? Or how far do the patients of the group mentioned preserve their ability to shift their attention from things and events mentioned in a verbal contribution to the verbal contribution itself?
- (2) ~~Or how far~~ <sup>TO WHAT EXTENT DO</sup> are the grammatical operations undergo a change in these patients and what are the basic rules of these changes?
- (3) If some changes of ~~the~~ "linguistic awareness" and grammatical operations are seen — <sup>WHAT</sup> ~~which~~ <sup>is</sup> ~~are~~ the <sup>influence</sup> ~~results~~ of these changes on the verbal behavior of the patients?

The <sup>data</sup> observations we shall deal with in this paper are based on our observations and experiments with ~~the~~ 50 patients with lesions of the posterior (parietal or temporo parietal) parts of the major hemisphere. <sup>THOSE</sup> Patients with <sup>A</sup> clear syndrome of "semantic aphasia" were selected, <sup>SOME</sup> ~~partly~~ <sup>or</sup> with tumors of this zone (verified on operation) or with hemorrhage in the same zone (verified clinically and <sup>SOMETIMES</sup> ~~partly~~ in autopsy). A number of patients with gunshot wounds were included who <sup>HAD UNDERGONE</sup> ~~underwent~~ a carefully study during the first years of the World War II.

Only patients with a high level of education (economists, engineers etc.) were selected (the exceptions <sup>BEING</sup> ~~were~~ <sup>40%</sup> two patients <sup>HAD RECENTLY FINISHED</sup> ~~who~~ <sup>with</sup> who shortly ~~attended~~ <sup>attended</sup> a high school with a fresh grammatical experience.

The author's collaborators O.P. Raufmann and V.R. Bubnova took part in these observations.

1) This assumption was studied by <sup>THIS THE</sup> ~~the~~ <sup>author</sup> in a series of ~~the~~ publications and among them in a special paper on ~~Disturbances of language~~ (cf. A.R. Luria 1966, 1970, 1972, 1973) and in ~~some~~ <sup>A</sup> ~~later~~ <sup>LATER</sup> papers on ~~disturbances~~ <sup>of</sup> ~~of~~ <sup>understanding</sup> of speech in ~~more~~ <sup>non-fluent</sup> motor aphasia (1975).



① Only <sup>normal</sup> subjects with preserved speech were used in this series - ~~normal subjects~~ or patients with semantic aphasia without any disturbance in repetitive speech and without any literal or verbal paraphasias. All patients were able to comprehend such simple instructions as "please, count the number of words in the phrase" etc. ~~No patients with significant~~ All patients were able to repeat the phrase presented, and no patients with severe memory defects were used in this series.



We shall begin with some data concerning the "linguistic awareness" and then move to the study of derangement of grammatical operations.

II. Changes in speech awareness

The first problem we mentioned is: can speech itself become the object of conscious analysis, and if this process suffers, what group of patients it <sup>DOES</sup> where the possible shift of the attention from the concrete things and situations formulated verbally to the words and sentences themselves suffer the most?

To study this problem we had to use the method of counting the number of words and sentences given in a communication.

A ~~verbal communication~~ <sup>sentence or a paragraph</sup> was given to a subject without any breaks or <sup>special</sup> intonations, and the subject had to tell how many words (or sentences) contained the communication.

In special cases the number of words came in conflict with the number of objects mentioned; such were the cases when

the patient subject was given a sentence: "There were <sup>twelve</sup> chairs in the room" and he was asked to count the number of words in the sentence (not the number of chairs in the room).

As it was shown by several investigators (T.O. Guineuskaya, 1933, N.G. Morozova, 1935 and afterwards S.N. Rarpova, 19 children of 5 to 6 years of age as a rule ~~are~~ show the tendency to count things rather words and that it was a special training was required to ~~link the att~~ <sup>ANALYSIS AWAY FROM</sup> the child's <sup>DIRECT</sup> ~~att~~ <sup>STEP</sup> to <sup>HIS</sup> ~~att~~ <sup>ATTENTION</sup> the words.

Here are some examples.

Lenia P. 6 years. "The tree fell down." How many words are there? "One word" Why? "There was one tree, and it fell down."

"The tree was <sup>FELLED</sup> ~~was~~ by an ax" How many words are there? "Three words" Why? "Because it is the man, who <sup>FELLED</sup> ~~fell~~, the ax and the tree"

Boia A. 5 years "Two trees are standing" How many words are there? "Two words" Why? "Because there were two trees..."

"In the room ~~was~~ was a table and chairs" How many words are there? "Three: one table and two chairs"

"The cake was eaten" How many words are there? "There are none! All was eaten. Nothing remained, only crumbs..."

It was seen that in the process of development of the child, different

Since patients have comprehension difficulties, how do you know they understood the instructions?

These patients make mistakes in how to know whether a word refers to an object or simply to the intended response.



① During the first years of our observations we supposed ~~that~~ these patients have lost their "abstract attitude" and ~~are~~ dealt as a rule with immediate surrounding and concrete actions, rather than with the ~~language~~ verbal behavior (such as repetition of phrases) itself.

② Investigations of the next years changed our interpretation of this facts. ~~to~~ During a systematic rehabilitation training we could observe that ~~the~~ repetition of words and phrases could become the subject of the patients activity; nevertheless marked difficulties in the patients operation with linguistic units still remained, and the tendency to deal with facts and events as units of the ~~or~~ as units of a verbal communication, rather than with words, as formal units of the sentences, ~~is~~ was still observed.



parts of speech to become the objects of awareness at different levels: first the ~~sets~~ <sup>names</sup> designation of objects (~~the~~ nouns), then - of actions or qualities (verbs and adjectives), and only after that - particles. Singling out particles as special words remain the most difficult task.

It is was seen, too, that the development of the process of conscious attitude towards the words can take two <sup>FORMS</sup> shapes: either it is a gradual development of the singling out the types of words we mentioned, or it is the process of ~~breaking~~ splitting words in phonetic units and counting these units. The <sup>AN</sup> example of the last "over-formalization" can be <sup>FOUND</sup> ~~seen~~ when the child ~~but~~ begins to count syllables instead of words, and, being asked to count the number of words in the sentence "The windows were open" begins to count ~~phon~~ phonetic units: "The - win - dows - we - re - o - pen..." All these observations, carefully described by the authors mentioned, show <sup>3</sup> how long and dramatic is the way of ~~making a~~ <sup>developing</sup> development of the "verbal awareness" in the child.

The first observations made on patients with semantic aphasia <sup>GAVE THE</sup> ~~made an~~ impression that these patients were inclined to deal ~~rather~~ with things and situations designated in verbal communication rather than with the <sup>verbal units</sup> ~~structures~~ of their communication themselves. The idea <sup>AND</sup> ~~of~~ that these patients <sup>HAD</sup> ~~lost~~ <sup>THE</sup> ~~these~~ "abstract" or "theoretical" attitude and that they ~~hardly~~ <sup>SCARCELY</sup> could <sup>IT WAS</sup> ~~handle~~ the formal style of the speech <sup>CAME</sup> ~~was~~ several years before <sup>IT WAS</sup> ~~proposed~~ by Kurt Goldstein, and the observations made ~~it~~ during this period seemed to confirm this <sup>IMPRESSION</sup> ~~idea~~ approach.

For a patient with a tumor of the left parietal lobe and <sup>THE</sup> ~~a~~ syndrome of <sup>namings defects</sup> ~~amnesic aphasia~~ as well as a series of severe semantic defects in understanding of speech, when asked to repeat ~~of the~~ the sentence, "I shall go home with my mother" <sup>TOOK</sup> ~~up~~ and started to <sup>SAY</sup> ~~tell~~ good ~~bye~~ - bye. Another patient with ~~the~~ atrophy of the same region of the brain, <sup>WITEN</sup> ~~reacted~~ <sup>EXPRESSED THANKS</sup> ~~to~~ asked to repeat "I want to go home" - went up and <sup>ADDITIONAL</sup> ~~requested~~ for the permission to leave the ward.

As we have observed ~~just~~ during <sup>ADDITIONAL</sup> ~~further~~ years - these data could be a result of ~~an~~ insufficient understanding of the complex structure of our demand: a series of patients with such syndrome ~~at~~ underwent ~~of~~ <sup>manipulation</sup> ~~relaxative~~ treatment and ~~dealt with~~ separate sounds and words [became the basic

QUESTION THE USE OF THIS WORD. IF PATIENT CAN REPEAT SINGLE WORDS OR SHORT STRINGS OF WDS., THE PROBLEM IS NOT ONLY COMPREHENSION. SUSPECT THAT TO: 1. UNDERSTAND DIRECTIONS 2. REMEMBER DIRECTIONS 3. UNDERSTAND AND/OR REMEMBER SENTENCE 4. REPRODUCE SENTENCE



ALL TAKEN IS THE COMBINED SOURCE OF DIFFICULTY.



(E) When the sentence included only meaningful words (nouns and verbs) he counted the ~~no~~ number of words with no mistakes; when auxiliary words were introduced - the patient became unable to be aware of these words and did not ~~count~~ single out them.

(F) In certain conditions - in cases we pronounce words separately and every word - even an auxiliary one - became a separate phonetic unit - the whole picture changed. So -





DO YOU MEAN IN THIS WHOLE PARAGRAPH SIMPLY THAT WHETHER OR NOT THE PATIENT UNDERSTANDS THE INSTRUCTIONS, HE STILL HAS TROUBLE WITH OTHER COMPONENTS OF THE TASK?

WHAT DO YOU MEAN?

contents of their life] (cf. A.R. Luria, 1948, L.S. TSUETKOVA, 1972); but even if the ~~etc~~ <sup>IS</sup> ~~example~~ mentioned <sup>IN THE ABILITY</sup> ~~can~~ be doubtful, a marked difficulty to deal with separate components of verbal communication and to approach these components formally remained could be seen in the most part of our ~~parietal~~ patients.

When one of our principal patients Aut. (an ~~engineer~~ <sup>ATROPHY</sup> engineer, 49 years old, with ~~atrophy~~ <sup>AND CLEAR</sup> of the parietal lobe as a result of a hemorrhage <sup>GIVE</sup> with ~~clear~~ <sup>syndrome</sup> of semantic aphasia), was asked to tell a sentence containing seven words, he started to count every word bending his fingers and telling: "I - went to a walk - set down - in - the garden - that makes five, returned to my home and had a rest! That makes seven!"

The same was seen in our experiments with counting the number of words in a sentence given (E)

Here are some examples:

Patient Sosn. (hemorrhage in the left temporo parietal zone and residual amnesic (semantic) aphasia)

(a) Sentences containing only basic words (nouns and verbs): Trees were covered with blossoms (in Russian the sentence "DEREVIA PORRYT ZVETAMI" doesn't include any particles or auxiliary words) "There are three words". "Snow drifts are ~~by~~ <sup>of</sup> lying" ("LEZhat sugroby sniega") "Three words" etc.

(b) Sentences with auxiliary words: "Ya + idu v les" ("I am going to the forest", "v" means "to") "Three words: Ya - idu - v les" "Chelovek sidit za stolom" (The man is sitting by the table, "by" means "za" meaning "by") "Three words: chelovek - sidit - za stolom" etc.

The same <sup>WAS</sup> seen in a group of patients with tumors of the ~~parietal~~ <sup>left parietal</sup> zone.

BUT HE DOES COUNT THE ORIGINAL NUMBER OF WORDS CORRECTLY

AGAIN, THESE PATIENTS MIS-NAMED (INCLUDING NUMBERS); CAN'T KNOW WHETHER THIS IS MISTAKEN LINGUISTIC ANALYSIS OR SIMPLY MISNAMING. FURTHER, MORE ERRORS OF ACROSTIC ANALYSIS CAN'T BE RULED OUT ON THE BASIS OF DATA REPORTED AHA!

It is seen <sup>clear</sup> that whereas significant parts of the sentence - <sup>nouns</sup> ~~substantives~~ and verbs - <sup>WERE</sup> singled out easily, auxiliary words remain were not singled out.

Further experiments showed that <sup>if</sup> separate words were separated phonetically and pronounced with intervals (I - am - going - to - a - walk) the patients became able to count even auxiliary parts as well, although a transfer to the of the same action to the sentence which was pronounced without such intervals - was as a rule very difficult if not impossible.

Auxiliary



Here are ~~some~~ <sup>FURTHER</sup> illustrations:

Patient Sosn.:

- (a) "Ya - pishu - a - sestra - smotrit" (I - am - reading - and - my - sister - observes - me) - "Four words: I - am reading - my sister - is observing" etc.
- (b) "Ya - pishu - a - sestra - smotrit" & "Five words!" (right) "Chelover - v - dome" (The man - is - in - the house) - "Three words" (right) etc.
- (c) Ptichka v gnezdie (The bird is in the nest) "Two words: a bird and a nest. The child "Rebenok v shkole" (The child is in the school) - "Two words" "Malchik v shkole" (The girl - is - in - the school) - "Three words: the girl - in - the school" "Malchik v shkole" (The boy is in the school) "It seems there are two words: the boy and in in the school" etc.

It ~~has~~ <sup>MUST</sup> be mentioned that ~~the~~ <sup>PAYING</sup> difficulties in ~~some~~ <sup>drawing</sup> ~~attending~~ to the words (instead to the objects and ~~actions~~ <sup>events</sup>) can be seen in different forms of aphasia, although - as further observation showed - they can be overcome their difficulties in the course of ~~the~~ rehabilitative training.

III. Disturbances of grammatical concepts.

<sup>THE DIFFICULTIES OF LINKING</sup> ~~The difficulties~~ to link <sup>the attention</sup> towards <sup>the formal</sup> ~~app~~ reality of speech itself <sup>WHICH HAVE</sup> ~~is~~ <sup>just</sup> described <sup>INDICATES</sup> ~~means~~ that we can expect <sup>even</sup> ~~some~~ <sup>more</sup> massive defects in ~~our~~ <sup>the</sup> performance with <sup>RESPECT TO</sup> ~~this~~ <sup>linguistic</sup> ~~reality~~ <sup>processes themselves</sup> if we move to <sup>A</sup> ~~a~~ <sup>more</sup> ~~complicated~~ <sup>task</sup>.

These tasks can be <sup>EITHER</sup> ~~either~~ to deal with ~~of~~ <sup>the</sup> basic grammatical concepts, to distinguish basic grammatical formal grammatical categories of words, or to deal ~~with~~ <sup>the</sup> relation of the grammatical forms ~~or~~ to abstract the expression of complex relations with the help of special grammatical means.

<sup>NOW</sup> We shall ~~move~~ <sup>now</sup> to ~~collect~~ <sup>collect</sup> some facts which can help us to ~~our~~ study this group of difficulties in the verbal behavior of our patients.



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VF to turn an aphasic to a position of  
a linguist and



1. Definition of linguistic categories  
(parts of speech)

The basic series experiments of this series <sup>WERE</sup> ~~was~~ to give the patient a word and to ask him to define ~~to what~~ <sup>TO WHICH</sup> the word belonged. <sup>THE</sup> Category (noun, verb, adjective)

Two parts were included in this series. In the first part, words (nouns and adjectives) were presented where the contents did not enter in <sup>TO</sup> any conflict with the word's form (bread, table etc. for nouns, to go, to run for verbs); ~~it~~ in the second part there was a conflict between the contents and the form of words: abstract nouns (such as liberty, development, boredom) were given or even nouns expressing actions (a <sup>trip</sup> ~~work~~, a <sup>flight</sup> ~~fight~~); the <sup>SAME</sup> ~~same~~ concerned verbs which this time expressed not actions but rather passive states (to sleep, to rest, etc.) Patients had to classify these words telling which of them were nouns and which of them were verbs.

In the last case part of the experiments an immediate experience ~~is~~ evoked by the word was not sufficient to provide an adequate grammatical evaluation of the class to which the word belonged.

It was shown by a series of psychologists and psycholinguists that an adequate evaluation of the class to which the word belongs becomes possible after 3-4 years of schooling, and <sup>BY</sup> ~~at~~ the 5<sup>th</sup> year of schooling the child is able to overcome all conflicts which led to a false ~~of~~ classification of the word.

That was not the case with our patients; ~~and~~ even patients <sup>OF</sup> with a high cultural level (engineers, economists, etc.) had <sup>DISTINCT DIFFICULTY</sup> significant trouble ~~to~~ overcoming the tendency to evaluate the word's class according <sup>TO</sup> ~~its~~ <sup>ITS</sup> ~~content~~ <sup>CONTENT</sup>, and, showed as a rule, classified nouns with a contents of actions (a trip, a flight) as verbs, and verbs with passive contents (to sleep, to rest) as nouns or as "dubious".

Here is an example of such <sup>DIFFICULTY:</sup> ~~troubles~~

Patient AUT. "A dog bites a small boy" where are the nouns? "A small boy! ... no... a dog..." And the verb? "The dog bites ... The verb is 'dog'..." NO, the verb expresses an action! where is here the verb? "The important is that the dog's

1) In Russian nouns and verbs don't have such external markers as "to..." in English "the..." or "to..." <sup>AS</sup> in English. That's why their classification has to use less expressed markers.



Bite! That's why the verb is "dog". I shall give you two words: "the bite" and "to bite" (in Russian: "ukusit" and "ukus") which one is the verb? "The [mean] is the bite. The dog's bite. The action ~~goes~~ starts with the dog... and the small boy - that's something different."

It is clear that the patient deals not with the ~~form~~ grammatical form of the word but rather with the event itself, and if "the dog was active" - it is designated as a verb, and "the boy" - "is something quite different".

Similar ~~data~~ difficulties were seen when ~~we~~ separate words were given to the patient, and he was asked to evaluate the grammatical class to which the word belongs. All of our patients could easily solve the first ("non-conflict") part of the experiments, but right answers never appeared in the second ("conflict") part. Here are some examples:

Patient Iosn.

In ~~at~~ the first steps the patient had marked difficulties <sup>IN</sup> ~~grasping~~ <sup>HE WAS GIVEN</sup> the problem given. After some examples, ~~he was~~ given he could easily put words in <sup>THE</sup> right grammatical categories in the first ("non-conflict") part of the experiment, but remained unable to give <sup>THE</sup> answers in the second ("conflict") part.

(a) Cow - "noun", To go (Khodit') - "verb", "horse" - "noun", "mush-room" - "noun", "to play" (igrat') - verb

(b) "To live" (zhit') - "It's a dubious word". The sky (niebo) - I really do not know. "Liberty" (svoboda) - "That's a verb" to die (umeret') - "Who knows what it really is..." To sleep (spat') - "No, I don't know..."

Patient Pros. (economist, turnover of the left temporo-parietal lobe)

(a) Book-case "That's a noun" To go (Khodit') - "That's a verb, that's clear" ~~Red~~ Red - "That's an adjective" etc.

(b) The fight (beg) - "That's a verb!" Why? "That's a movement, all what result in a movement, an action - is a verb!" "Liber. ty" - "That's an adjective..." Doubt - "I really don't know..."

Patient Avot. Avt.

Please tell me some nouns: "day, night, sun, moon, lake..." And "emptiness"? "Emptiness... (the patient is confused) an empty space... that's not a noun! Nouns are: sun, moon, day... and emptiness?... No, I don't know..."

GRAMMATICAL  
TROUBLE SEEMS NOT TO  
BE DISTINGUISHING CATEGORIES,  
BUT ASSIGNING CORRECT NAME  
IF GIVEN THE TASK OF  
SEARCHING THESE  
WORDS BY PART OF  
SPEECH, OR POINTING  
TO THE VERB, E.G., IN  
A LIST OF NOUNS,  
INCLUDING ONE VERB,  
THEY WOULD DO QUITE  
WELL, EXCEPT  
POSSIBLY FOR  
NOUNS CLOSELY  
DERIVED FROM  
VERBS, AND IN  
THIS CASE ANY TELL  
LINGUIST WILL  
YOU THAT  
THE NOUN OR VERB  
QUALITY OF VERB-  
QUALITY OF THE CLASSIFICATION  
MIGHT BE OF  
THE WORD IS  
INDUBIOUS  
JUST AS THE  
PATIENT SAYS.  
THE ACCEPTED CLASSIFICATION IS  
ARBITRARY, I.E.  
LINGUISTIC MEANS.  
DO YOU STILL THINK IT'S  
NONSENSE?

CORRY, I  
SEE HERE THAT  
YOU'VE DONE  
MUCH AS I  
HAD IN MIND  
ABOVE. AL-  
THOUGH HEARD,  
YOU RELY TOO  
MUCH ON HIS  
REPORT  
AND DO NOT GET  
AT HIS KNOWLEDGE  
DIRECTLY.  
STEIN HIMSELF MADE  
THE SAME MISTAKE  
WHICH YOU POINTED  
OUT IN HIGHER  
CERTICAL FUNCTIONS.  
PIAGET MAKES THIS  
MISTAKE AS WELL WHEN  
HE TESTS CHILDREN'S  
KNOWLEDGE IN TERMS  
OF THEIR ABILITY TO  
VERBALIZE THAT  
KNOWLEDGE.



2

(V) When we investigated carefully a group of ten patients with lesions of the left temporo-occipito-parietal zones and with semantic aphasia - the results we received were always the same: no mistakes in evaluation nouns <sup>or</sup> verbs ~~or~~ were made by the patients only when a conflict between the ~~form of the~~ grammatical form of the word and its immediate significance took place.



And how is <sup>it</sup> with "Liberty"? "No, "Liberty" isn't a noun! a noun has to be something quite definite: day, night."  
 And "apple"? "That's a noun!" "Stone"? "That's a noun too." "Pencil" "Of course that's a noun!"  
 And "a flight" (begstvo) → "a noun... ok, no... excuse me... "flight", "jump" - that's something different... what is that really... It seems not to be a noun! "Why do you doubt?" "Because it is ~~linked~~ linked towards something.. "flight" "Run" (beg) is probably a noun, but "flight" (begstvo) it seems to be the same but it is not.."  
 Please give me some examples of verbs: "he went", "he came", "he jumped"... And "to sleep"? "No, that's an again not a verb... To sleep (spat) that's a sleep (son). The verb is an activity, and "to sleep" - no that's something different!"

It is clear that patients of this group deal with the content, the semantics of the word, and it is very difficult for them to make an abstraction from the immediate content and to move to a formal (grammatical) analysis of the word.

CAN YOU DEFINE THIS WORD PRECISELY?  
 IT'S EASY TO GIVE AN EXAMPLE, BUT CAN YOU DEFINE IT IN TESTABLE TERMS??

~~In the Table I we summarise the data obtained in~~  
~~ten of our patients.~~

Table I  
 Definition of the parts of the speech in patients with semantic aphasia

N	Patients	Results of definition of grammatical category	
		Non-conflict experiment	Conflict experiment
1	Sosn.	+	-
2	Koz.	+	-
3	Dan	+	-
4	Pros.	+	-
5	Aut.	+	-
6	Chukh.	+	-
7	Supr.	+	-
8	Bog.	+	-
9	Gol	+	-
10	Kzer.	+	-

THIS TABLE SUGGESTS THAT PATIENTS NEVER MAKE ERRORS IN 'NON-CONFLICT' AND ARE NEVER CORRECT IN 'CONFLICT'. IS THAT AN ABSOLUTELY ACCURATE REPORTING OF THE DATA?

TOTAL NO. CORRECT OUT OF HOW MANY TRIALS?

TOTAL NO. CORRECT OUT OF HOW MANY TRIALS?



## 2. Change of grammatical form and constancy of grammatical categories

The fact that the patients <sup>in</sup> of our group were not able to deal constantly with the formal structures of the language, i.e. to link their attention not to the semantics, ~~of the designations~~, but to the form of the det words themselves, <sup>SUGGESTS</sup> ~~present~~ that they had severe difficulties in including words in some ~~cases~~ formal systems of codes.

~~This~~ will be seen in the following series of experiments, <sup>WHEN ASKED</sup> ~~when asked~~ whether we changed the <sup>cases of the words</sup> ~~form~~ of the words and <sup>TO</sup> ~~was~~ whether the patient's evaluation of the class <sup>of which the words belonged</sup> ~~to which the words belonged~~ be <sup>was</sup> ~~remained~~ preserved. <sup>WAS</sup> ~~Other~~ <sup>WAS</sup> ~~to put it otherwise,~~ <sup>WAS</sup> ~~it is the problem of its constancy of~~ <sup>WAS</sup> ~~grammatical evaluation of~~ <sup>WAS</sup> ~~the words in our patients.~~

As a rule words can exist in <sup>two basic</sup> ~~double~~ forms: in a "dictionary" <sup>form</sup> ~~form~~ - as separate units given in a neutral form (or a "null-form" as it was called for a time), and in a <sup>speaking</sup> ~~speaking~~ form - being <sup>part of</sup> ~~part of~~ <sup>the</sup> ~~the~~ <sup>utterance</sup> ~~utterance~~ and permanently changing speech.

The changes the words undergo when included in <sup>the</sup> ~~the~~ <sup>fluent</sup> ~~fluent~~ <sup>speech</sup> ~~speech~~ can be easily observed in such languages as <sup>the</sup> ~~the~~ <sup>Russian</sup> ~~Russian~~, where different kinds of <sup>inflections</sup> ~~inflections~~ are used. So "the table" in Russian "stol" and where suffixes are markers of these <sup>inflections</sup> ~~inflections~~.

"The table" in Russian "stol"; <sup>the</sup> ~~the~~ <sup>genitive</sup> ~~genitive~~ of the word is "stola" (of the table); dative "stolu" (for the table); instrumental case is "stolom" (with the table) etc.

It is easy ~~to see~~ <sup>to see</sup> that <sup>only</sup> ~~only~~ <sup>in</sup> ~~in~~ <sup>the</sup> ~~the~~ <sup>dictionary</sup> ~~dictionary~~ or <sup>the</sup> ~~the~~ <sup>null-form</sup> ~~null-form~~ (nominative) <sup>the</sup> ~~the~~ <sup>objects</sup> ~~objects~~ <sup>denoted</sup> ~~denoted~~ <sup>are</sup> ~~are~~ in a stable, resting <sup>condition</sup> ~~condition~~; in all <sup>other</sup> ~~other~~ cases some <sup>action</sup> ~~action~~ <sup>is</sup> ~~is~~ <sup>performed</sup> ~~performed~~ with <sup>the</sup> ~~the~~ <sup>object</sup> ~~object~~ is mentioned.

The same is the case <sup>in</sup> ~~in~~ <sup>Russian</sup> ~~Russian~~ verbs, where <sup>infinitive</sup> ~~infinitive~~ "khodit" (= to go) has a stable meaning whereas "chitat" (= to read) has a permanent, stable meaning whereas "chitay" (= read) is more individual, situation-bound character.

What was the attitude of our patients <sup>toward</sup> ~~toward~~ <sup>the</sup> ~~the <sup>changes of</sup> ~~changes of~~ <sup>the</sup> ~~the~~ <sup>words?</sup> ~~words?~~ <sup>we</sup> ~~we~~ <sup>mentioned</sup> ~~mentioned~~ ? [Does the patient preserve the same grammatical evaluation of the word when <sup>its</sup> ~~its~~ <sup>form</sup> ~~form~~ is changed? Does the grammatical classification of the word stable or <sup>does it</sup> ~~does it~~ <sup>change</sup> ~~change~~ in association with <sup>the</sup> ~~the~~ <sup>changes of its</sup> ~~changes of its~~ <sup>word form</sup> ~~word form~~ ?]~~

Data we obtained <sup>from</sup> ~~from~~ <sup>our</sup> ~~our <sup>observations</sup> ~~observations showed that our~~~~

WHAT DOES THIS WORD MEAN, EXACTLY?  
AND THIS ONE?  
IF ABSTRACT = ARBITRARY AND FORMAL = AGREED UPON THEN IT IS EXACTLY AS IN MY EXPERIMENT WHICH YOU CALL NONSENSE. CAN YOU DO BETTER?

NOT SURE IF YOU'VE USED THE CORRECT ENGLISH PROPOSITION - I WOULD HELP IF I HAD AN EXAMPLE

I THINK YOU'VE ASKED THE SAME QUESTION TWICE HERE. IS THAT WHAT YOU MEANT TO DO?



patients were much more semantic-bound than ordinary subjects, that they felt much more the semantic changes <sup>UNDERGONE BY</sup> the word <sup>THE</sup> underwent in course of the changes <sup>IN</sup> its <sup>ITS</sup> form and as a result - their grammatical evaluation of the word was much less stable and much more dependent <sup>ON</sup> the word's [inclusion] <sup>USE</sup> in the living, ~~and~~ fluent speech, than ~~it~~ was the case in ordinary subjects. Our patients felt much more the component of action included in nouns in indirect cases, or the components of stability in the dictionary forms of the verbs (infinitives).

Below fragments from the protocols can show this very clearly.

Patient Dan. (hemorrhage in the left infero-parietal lobe, semantic aphasia) was asked to tell to name the categories grammatical categories separate words of a phrase belonged to.

"The boy has a dog." (malchik imet sobaku) <sup>WHICH</sup> are the nouns, <sup>and WHICH</sup> the verbs. "The boy" - it is a noun... "has" - is a verb.

"A dog" (sobaku - accusative) .. I really do not know... A dog is with the boy (U malchika est sobaka) ... "U malchika (malchika = genitive) ... I don't know... with whom... a dog (sobara) - That's a noun..." "There is not a dog with the boy (U malchika (gen.) niet sobaki (gen.) ... "U malchika ... that's an adjective ... niet (there is not (niet) .. I don't know... (the patient is confused).

The gun fires with a bullet (Ruzhie streliaet pulci (instrumental)) "The gun is a noun; fires - a verb; with a bullet (pulci = instrum.) - perhaps that's an adjective? .. I really don't know.

Patient Chukh. (the same diagnosis)

What is the word "dog" (sobaka) .. "Dog.. dog... - that is a noun!" And "to the dog" (sobake = dat.) is that a noun or not? "I really don't know". And "to the mother" (materi = dat.)? "That's not clear... I can't say..." And mat' (mother)? Oh, that's a noun.

The master ~~to~~ gives ~~to~~ feeds the dogs with meat (Khoziaia Kormit sobak miasom (= accus.) miasom (= instrum.)). The master - it's a noun; feeds - a verb... with meat (miasom = instr.) I do not know: is that a verb or a noun?



✓ All of our ten patients evaluated correct nouns given in null-forms as nouns, but the most part of our patients changed ~~that~~ the correct evaluation when the noun was given in other cases than nominative (genitive, dative, instrumental etc.); ~~in~~ when these cases were used, the most part of our patients expressed doubts whether the words are nouns and began to classify them as "verbs" or "adjectives" etc.



(null-)

It is seen clearly that only nouns in their dictionary/form (nominative case) are evaluated as nouns; every ~~indefinite~~ noun in an indirect case is not evaluated as ~~noun~~ noun: The indirect cases with which are ~~seen~~ in Russian expressed with changes of suffixes ~~being~~ are associated by the patients as something which includes action, and evaluated as verbs, adjectives, "doubt", "something doubtful" - But not as nouns.

Table II gives a summary of our results.

(F)

# Table II  
Definition of parts of the speech associated with changes in cases of 14 nouns in patients with semantic aphasia

N	Patient	Words in "dictionary" form	Words in indirect cases
1	Sosa	+	-
2	Koz.	+	-
3	Dan	+	-
4	Aut Pros.	+	±
5	Chukha Aut.	+	-
6	Supz. Chokl.	+	-
7	B. Supz.	+	-
8	Bog.	+	± -
9	Goz.	+	±
10	Kzer.	+	-

THIS TABLE SHOULD PRESENT THE DATA MORE COMPLETELY: HOW MANY WORDS WERE GIVEN? AND HOW MANY CORRECT OUT OF THE TOTAL? IF YOU DON'T WANT TO DO A STATISTICAL ANALYSIS OF YOUR DATA, YOU SHOULD PRESENT IT IN SUCH A WAY THAT YOUR READER CAN, IF HE CHOSES, IN ORDER TO VERIFY YOUR CLAIM.

ALSO - WHY NO CONTROL GROUPS? HOW DO YOU KNOW THAT OTHER FORMS OF APHASIA WOULD NOT HAVE THE SAME TROUBLE? YOU SEEM TO BE SAYING THAT THIS DISTURBANCE OCCURS ONLY IN SEMANTIC APHASIA BUT I THINK YOU'D FIND ELSEWHERE YOU LOOKED.

The instability of the grammatical categorization of ~~the~~ words can be seen <sup>with</sup> the operation of <sup>when</sup> the categorization grammatical analysis itself ~~appears~~ <sup>takes</sup> or the actions the patients ~~apply~~ <sup>take</sup> to relate the word to a category are analyzed more carefully. It is seen that instead of using some ~~abstract~~ <sup>practical</sup> formal [grammatical rules - our patients use some <sup>this</sup> practical ~~rules~~ <sup>ways</sup> ~~relations~~ with the objects (designata), and ~~that~~ <sup>these</sup> can result in a series of mistakes.

Here are a few examples.

Patient Dan. is asked to define the grammatical class of 10 words given

Paper - "That's a noun". Why - "who? what? - that's a noun."

WHAT DOES THIS WORD MEAN? YOU USE IT ALL THE TIME, BUT WITHOUT A PRECISE DEFINITION, IT IS USELESS!



(-200)

(V) dealing not with objects or events designated by the words, but with some grammatical qualities of the word itself

(#) formal codes of the linguistic system

(7) when a change of the word form is associated ~~of a~~ with a change of the substantial meaning of the words; the transition from singular to plural is of such a category (..)

(Δ) The other kind is a change of the word which is associated not with substantial meaning of designated objects, but is rather with a syntactical or systemic relations.



"Sun" (Solnyshko = diminutive)? That's an adjective!  
 "my sun" (moye solnyshko). a [<sup>CRY</sup>weep] (plach)? That's  
 a verb. One has to do it... no... oh... no... ~~as low as should~~  
 it be? [<sup>CRY</sup>weep] (plach)... that's a verb. "<sup>CRY</sup>Red"? That's  
 a noun! what is that? Of course it's a noun! "Stout"?  
 "A noun! who is stout? a man!... or maybe it is an  
 adjective?!" "How stout he is!"  
 Patient Chukh. "Red"? "A noun. what is it? red..."  
 "Stout"? "A noun! what is red? who is red? a noun!"

BY ITSELF IT  
 FUNCTIONS AS  
 A NOUN: A  
 COLOR NAME.

YOU WRITE AS IF  
 YOU'VE MADE A  
 CAREFUL ANALYSIS  
 OF THE PATIENTS'  
 ERRORS, BUT UNTIL  
 YOU DEFINE, YOU  
 FOR EXAMPLE, YOU  
 HAVEN'T ANALYZED  
 ANYTHING AT  
 ALL. WHY IS THE  
 FORMAL OPERATION  
 DIFFICULT FOR  
 THE PATIENT?  
 CAN YOU ANSWER  
 THE QUESTION  
 DIRECTLY?

It is seen that ~~abstract~~, formal grammatical operations <sup>(V)</sup>  
 become rather difficult. Even for highly educated ~~peop~~  
 subjects, and the auxiliary questions they ~~to~~ use are  
 aimed more to an analysis of <sup>REFERENCE</sup> objects rather <sup>THAN</sup> to an  
 analysis of words and their grammatical relations.  
~~This~~ <sup>THIS</sup> is an additional symptom of the basic disturbance  
 of mental activity the illness has evoked.  
 The patients become <sup>SCARCELY</sup> able to ~~comb~~ ~~construct~~ their  
 operations within the ~~formal~~ <sup>formal</sup> system and ~~are~~ very easily  
 slide to the operations with ~~immedi~~ the relations of  
 the immediately perceived environment designated by words.  
 3. The breakdown of the relation categories.

The analysis of operations with grammatical forms in patients with  
 semantic aphasia showed that our patients had a clear tendency  
 to reflect the formal (categorical) grammatical systems and  
 had having preserved a more immediately ~~approx~~ reflection of  
 the objects, actions and events <sup>TO WHICH THE WORDS REFER.</sup> ~~mentioned~~ by the words. That is  
 why ~~was~~ when both approaches came in <sup>TO</sup> conflict, the immediate  
 reflection of concrete events dominated.

The inability of our patient to deal with ~~abstract~~ <sup>formal</sup> semantic gram-  
 matical systems was seen especially clearly in cases when  
 the patients had to deal immediately with the grammatical  
 relations between words themselves and when changes of  
 the ~~inflective~~ <sup>IN</sup> parts of the words inevitably resulted in changes  
 of ~~gr~~ <sup>intel</sup> syntactical relations of separate words] <sup>ARE YOU SURE IT ISN'T VICE VERSA?</sup>  
 These two kinds of changes of grammatical forms of the words  
 can be distinguished. One is <sup>a</sup> ~~a~~ change when the change  
 of the word form is related <sup>to</sup> ~~to~~ <sup>a</sup> concrete change of the  
 objects designated by these forms (for example: table - tables,  
 star - stars <sup>REFLECTS</sup> reflecting one object <sup>US.</sup> many objects). <sup>(A)</sup> ~~Other~~  
 other changes in the word's form ~~is~~ <sup>reflects</sup> no material  
 changes in separate objects but rather changes of their relation  
 to the other objects. See the examples of such changes are  
 SOME RELATIONS ARE ALL MATERIAL - IS THIS ~~ALL~~ YOU'RE SAYING? OR IS THERE MORE TO IT?

CAN YOU  
 SAY WHAT  
 THIS IS AND  
 EXACTLY  
 WHY THE  
 PATIENT  
 CAN'T DO IT?

WHAT  
 MAKES  
 ABSTRACT,  
 ABSTRACT?  
 AT PRECISELY  
 WHAT POINT  
 DOES A  
 REFERENCE  
 CEASE TO BE  
 CONCRETE AND  
 BECOME ABSTRACT?  
 DO YOU THINK  
 THE QUESTION  
 IS UNIMPORTANT?  
 WHEN YOU CAN  
 ANSWER IT,  
 YOU'VE SOLVED  
 ONE OF THE  
 BIGGEST  
 MYSTERIES IN  
 APHASIA.

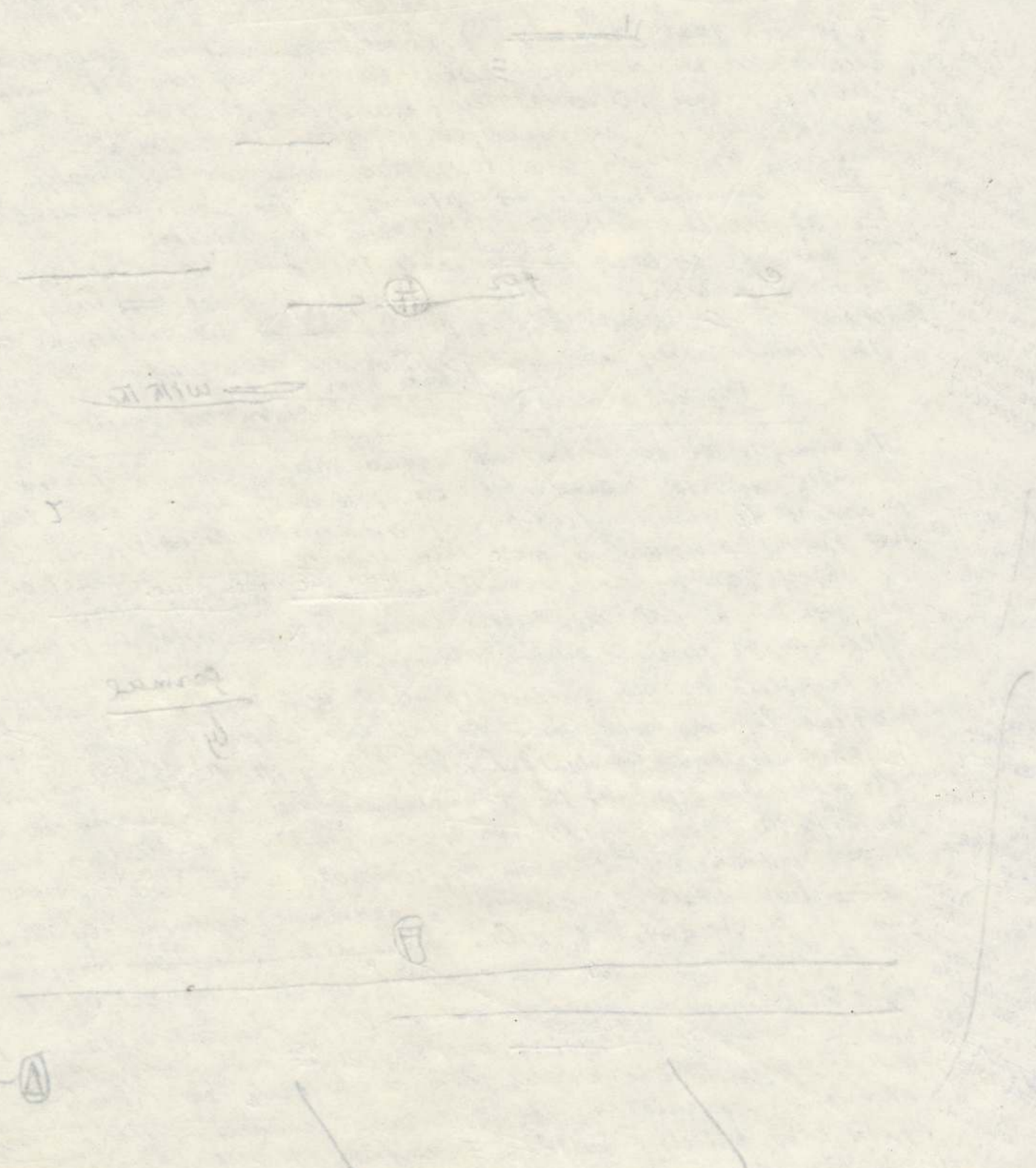


23

F

and when changes of the cases indicates changes in ~~relation~~ relations of the word with other ~~syntactical~~ words, i.e. when new syntactical or syn-semantic relations of the word are involved.

7





(F)

This happens when changes in cases of the words take place <sup>changes</sup> or suffixes associated with cases <sup>and changes</sup> ~~with~~ <sup>INDICATE</sup> ~~mean~~ <sup>DIFFERENT</sup> changes <sup>IN THE</sup> of the word with other words <sup>in</sup> of the sentence, <sup>i.e.</sup> syntactical relations. (This type of relation was ~~studied~~ <sup>very carefully studied</sup> in the structural linguistics, beginning <sup>WITH</sup> ~~from~~ the classical work of N. Chomsky (1957), and such different relations as they were seen <sup>caused</sup> by the changes of <sup>the</sup> interrelations of <sup>the</sup> words. <sup>CHANGING</sup> ~~the~~ cases was <sup>THE</sup> object of a long series of studies ~~mentioned~~ <sup>mentioned</sup> elsewhere (cf. A.P. Luria, 1975). Here it has to be <sup>SAID</sup> ~~mentioned~~ that whereas in English cases are marked by auxiliary <sup>WORDS SUCH</sup> ~~particles~~ as "to", "from", "by" — in Russian they are marked by <sup>IN</sup> flexions: *topoz* (acc, nom.) — *topoza* (of the acc, gen.) — *topozu* (to the acc, dat.) — *topozom* (by the acc - instrum.) etc.

RECENT

The basic aim of our further studies was to compare the patients' attitude towards concrete changes of ~~the~~ nouns (such as transition from singular to plural) to ~~the~~ plural and their attitude towards its relational (or syntactic) changes of the words.

We could suppose that whereas our patients remain aware of ~~the~~ concrete changes of the word and that no difficulties will be seen in discrimination of singular and plural, — they will have marked difficulties in dealing with <sup>syntactical or syn-semantic</sup> ~~the~~ relational changes of the words, and ~~the~~ definition of cases will be much ~~more~~ <sup>more</sup> easy than the definitions of <sup>the</sup> quantity markers of quantity.

This hypothesis was ~~fully~~ supported by our observations.

Here are a few examples:

Patient Dan. (<sup>HAD</sup> studied grammar a few in ~~the~~ school a few months before ~~her~~ her illness).

Please tell what words are the singular and what <sup>ARE</sup> ~~the~~ plural. Derenva (trees) is Plural. Zemlia (earth) — "Singular" Loshady (horses) "Plural" etc.

Do you remember which cases there are in the grammar?

"Of course! Nominative, genitive, dative etc." Let us go through all cases with the word ~~the~~ "sobaka" (dog)

"No.. I don't remember.. genitive... no... it's lost!" Let us make it reverse. What case is "sobake" (to the dog, dat.) ~~For patients~~ ~~think~~ ~~after~~ ~~a~~ ~~long~~ ~~pause~~ ~~the~~ patient tells: "No, I don't remember any cases."

WHAT KIND OF RELATIONAL CHANGES? IF THERE ARE DIFFERENT KINDS, WILL SOME BE MORE DIFFICULT THAN OTHERS? WHY?

IF HE CAN'T TELL YOU, BUT COULD INDICATE KNOWLEDGE IN SOME OTHER WAY, THEN WHAT WOULD YOU CONCLUDE??

24



① Operations which require conscious analysis of the relational (syntactic and synsemantic) functions of the ~~use~~ forms of the words ~~for~~ (for as it is in the case of ~~each~~ changing cases of the nouns)

② ~~the student~~ shift their attention to the conscious analysis of the meaning of the syntactical or synsemantic meaning of grammatical forms themselves, otherwise - to deal consciously with the ~~pure~~ grammatical forms of the language itself -



Patient Pros.

"Potentially" (they have lost). Is that singular or plural?  
"Plural!" Zvezdy (stars) "Plural!" Derivo (tree) "Of course singular, I know that well!"  
What case is "Kozove" (to the cow, dat.) "Nominative, genitive... (the patient is confused)... instrumental..."  
No... I really don't know!"

HOW DO YOU KNOW? YOU DIDN'T TRY ALL POSSIBLE WAYS.

As it is seen, operations with the markers of number are fully preserved, ~~operations with cases~~ <sup>ARE</sup> impossible. <sup>THIS</sup> can mean that patients have lost ~~their ability~~ their ability to analyse the grammatical system for expression of relations, whereas the grammatical means for expression of concrete features of objects (their number, gender) are preserved. Further observation <sup>SUPPORT</sup> ~~proves~~ that assumption.

THIS SUGGESTS THAT ALL RELATIONS ARE ABSTRACT. DO YOU BELIEVE THAT?

Patient Art.

What does it mean when I <sup>SAY</sup> ~~say~~ "Kozove" (to the cow) but not "Kozova" (the cow)? "Kozova (the cow) ... that means ... the cow does not move... the cow is closed in the stall... "Kozovam" (for the cows, dat. plur.) it means plural... "And how <sup>MOST</sup> ~~can~~ you say "Kozovam nie daly yest" (= "They had given ~~the~~ food to the cows") or "Kozova nie daly yest" (= "He had ~~me~~ given the food... the cow (nom.)" "Kozovam (dat. plur.) (dat. sing.) when there is only one cow, and if there are many - then Kozovam (dat. plur.)" Why ~~you~~ can't <sup>you</sup> say "The ~~host~~ <sup>FARMER</sup> "Khozain nie dal Kozova (sing, nom.) yest"? (The ~~host~~ gave no food to cow (sing. & nom.)? "That's not right... That's singular..." What is the difference between "Kozovam" (dat. plur.) and "Kozovami" (instr. plur.)" (What is the difference between "for the cows" and "by the cows")? "Kozovam" (dat. plur.) it means that now, at the right moment, the cows are here, and "Kozovami" (instrum. plur.) that's the future!"

Of the utmost importance is the fully preserved ability to use, practically, the case forms of cases (their performance) and the full breakdown <sup>OF AWARENESS</sup> ~~to be aware~~ of them, <sup>OF THE ABILITY</sup> into analysis only their significance of these forms. Our patients can easily correct a mistake <sup>IN THE PRACTICAL USE OF</sup> ~~of a word~~ <sup>practically used</sup> case, but when they are asked to analyse the sentence of its case and to ~~describe~~ the system of grammatical forms - they remain fully unable to do it.

All these defects can be especially easily seen when we come to the <sup>description</sup> ~~analysis~~ of its patient's analysis of sentences.

IF THEY CAN USE CASE IN PRACTICE, HOW CAN YOU SAY THEY HAVEN'T MASTERY OF IT? WHAT DOES THIS MEAN EXACTLY?



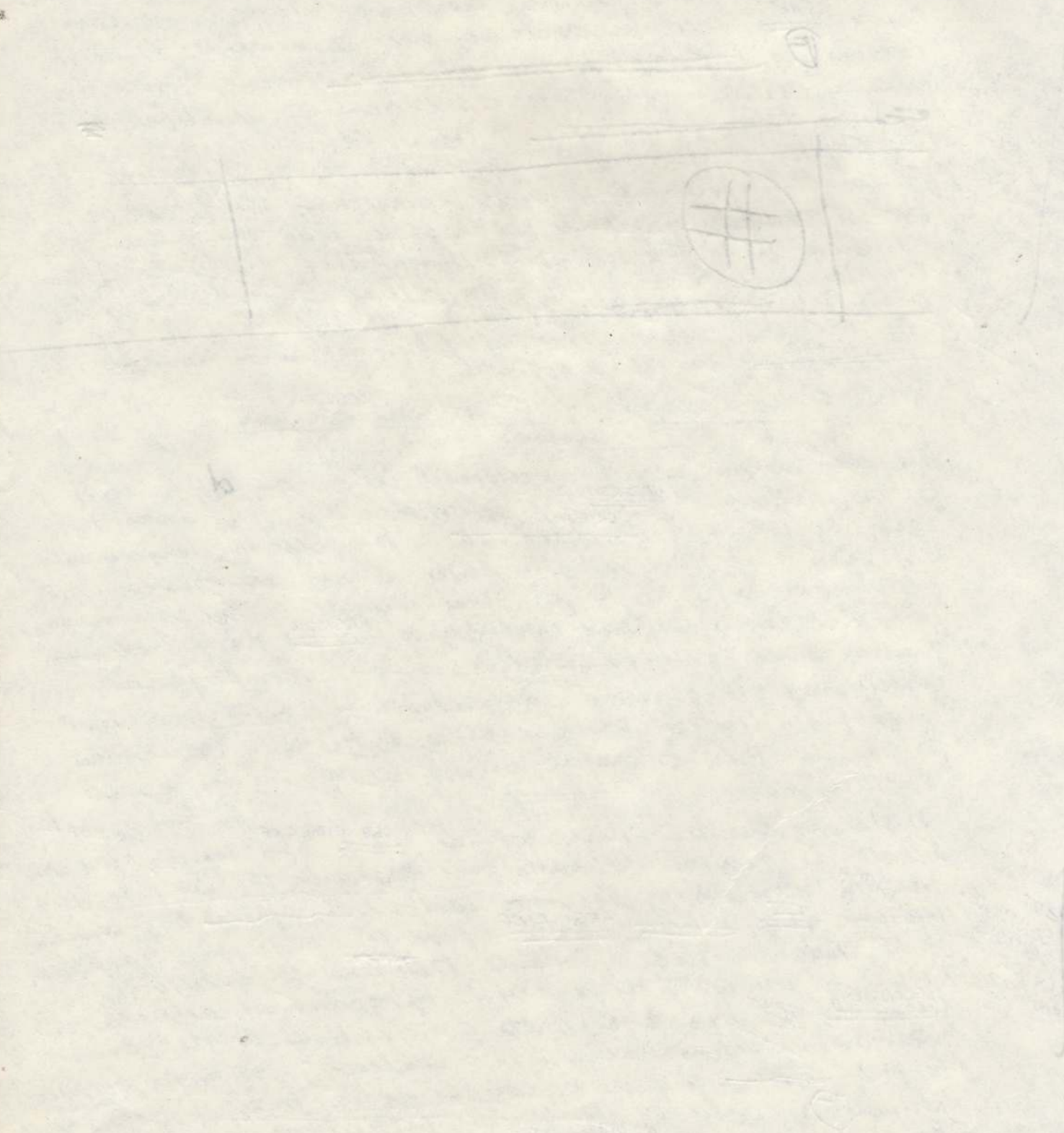
① otherwise said - to deal with consciously  
to make the ~~gr~~ formal grammatical  
relations the subject of his theoretical  
reasoning, and that such a theoretical  
attitude towards grammatical codes

② That is why some dissociation of  
the practical performance with ~~speech~~  
linguistic system in speech and  
the ~~to~~ theoretical analysis of the  
formal codes of language can be  
possible, and that the fact that  
our patients ~~to~~ can ~~practically~~  
use ~~all~~ ~~gr~~ the most part of sym-  
factual forms in their speech does  
not yet mean that they are able  
to analyse consciously the system of  
linguistic codes they practically use.









HERE CORRESPONDS EXACTLY TO WHAT I HAVE PROPOSED IN <sup>MY</sup> ~~THE~~ PAPER WHICH YOU CALL NONSENSE.



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<sup>FARMER</sup> "The [~~host~~] gave to the cows much hay" - <sup>AN</sup> example of the first kind of questions would be: "Who <sup>GAVE</sup> gave the hay?" "Whom the hay was given?" "How much hay was given?" etc. The subject can easily answer these questions by a simple analysis of the concrete situation mentioned in the sentence. Examples of the second kind of questions could be such <sup>IN THE REVERSE</sup> questions, such as: "Which question does the word 'host' [~~host~~] answer?" "Which question <sup>DOES</sup> the word 'much' answer?" "Which question <sup>DOES</sup> the word 'hay' (in Russian: Siena = of the hay, gen. sing.) answer?" etc. Here a correct answer requires an abstraction from the situation <sup>REFERRED TO</sup> in the sentences <sup>AND A</sup> linking of the subject's attention to the grammatical relations included in the sentence itself.

It is easy to hypothesize that in patients with "semantic aphasia" we shall not find any troubles with answering the first kind of questions (the significant difficulties which can be evoked in asking questions ~~which~~ involving complex paradigmatic relations will be analyzed below (cf. as well D.R. Luria, 1966, 1970, 1972, 1973, & 1974 et al.), but <sup>THE PATIENTS</sup> they will have ~~marked~~ severe difficulties in ~~answering~~ trying to answer the second kind of questions.

This ~~pre~~ assumption was proved in our experiments: none of our patients showed any difficulty in answering the question of the meaning of simple sentences & which expressed "communications of events" rather <sup>THAN</sup> "communications of relations" (that classification proposed by Svedelius, 1897, & will be discussed later); but all of them showed marked difficulties in dealing with the second type of questions.

THIS INDIVIDUAL SEEMS TO HAVE ANTICIPATED BY CHOMSKY ABOUT 60 YEARS.

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Here are some examples illustrating these <sup>FINDINGS:</sup> facts mentioned.

Patient PROS.

He was given the sentence "The [~~host~~] gave to the cows much hay"

(a) What words answer to the word "how much"? "Of course "much" (mnogo). And "to whom" (komu)? "Korovam (to the cows, dat. plur.) Who? "The [~~host~~]. What? "The hay" (Sena, acum. sing.) What did he do? "He gave <sup>FARMER</sup> ~~them~~!" etc. etc.

(b) What question answers <sup>ED BY</sup> the word "Khozain" (the [~~host~~])? "The [~~host~~]" well, he remains to be a [~~host~~]" (The experimenter explains the question and gives some examples). "What?! no, it is in it "what".) really do not remember... "What question <sup>ANSWERED BY</sup> the word "of the hay?" "Sena" (of the hay, gen. sing.) "Up to <sup>?</sup>" I remember only that "it is in questions! YOU CAN'T KNOW FOR A FACT WHETHER THE TROUBLE LIES IN →

IN ENGLISH, A HOST IS ONE WHO ENTERTAINS GUESTS.

QUITE APART FROM THE DIFFICULTY OF THE RESPONSE, WHICH IS THE POINT OF THE EXPERIMENT, DON'T YOU SEE THAT THE QUESTION ITSELF IS LONGER AND LINGUISTICALLY MUCH MORE COMPLEX IN THE SECOND KIND OF QUESTIONS?



THE PATIENT'S  
~~HIS~~ FORMULATION OF HIS OWN ANSWER, OR IN LACK OF MEMORY FOR, AND  
COMPREHENSION OF, YOUR QUESTION? WHY DO YOU ALWAYS ASSUME COMPREHENSION?



JUST A MINUTE - I THOUGHT THAT A NOUN IS THE GENITIVE WAS NEVER - COULD NEVER BE IDENTIFIED AS A NOUN BY THESE PATIENTS. AT LEAST THAT'S WHAT YOU SAID A FEW PAGES AGO.

a noun. "And what question have you to ask to have an answer "sená" (of the hay)? " Perhaps to buy it... no... it's not what you want... " And what is the <sup>QUESTION</sup> ~~word~~ <sup>ANSWERED BY</sup> the word "Kozovam" (for the cows, dat. sing.)? " Perhaps "much"!"

Patient Art.

He was given a sentence "A man received a leave and went to Krimea"

(a) What word answers the question "Who"? - "a man". "Where" - "To Krimea" etc.

(b) What is question have you to ask to have an answer "to Krimea" (v Krym)? "That means a spa!" Perhaps it is the question "what" or "whom" or "why" or "where"? "Well... it could be Sochi or Caucasus... or "whom" - no to that isn't right! "Perhaps "Why"? "Well, you can ask "Why"... To have a medical treatment... one can ask "where" - But it does not fit!" (The question was repeated). "To have medical treatment... To have treatment in Krimea... why for? To the Krimea - why? here you can say: to the Krimea for medical care... where? here you can say as well: in a sanitarium, in Krimea, with a boat."

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I STILL THINK THE PATIENT LITERALLY DOES NOT COMPREHEND WHAT YOU WANT HIM TO TRY TO DO HERE - QUITE APART FROM WHETHER OR NOT HE COULD DO IT IF HE UNDERSTOOD YOU. IN OTHER WORDS, THERE ARE AT LEAST TWO SEPARATE QUESTIONS: 1. DOES THE PATIENT UNDERSTAND WHAT YOU ARE SAYING TO HIM? 2. CAN HE FORMULATE THE PROBLEM AND/OR THE ANSWER?

It is clearly seen that a question referring to the situation does not evoke any difficulties and the patient can easily answer, <sup>TAKING INTO ACCOUNT</sup> the details of the situation. <sup>ON THE OTHER HAND,</sup> a question which requires a <sup>CONSCIOUS</sup> analysis of the relations of words in the sentence is not grasped by the patient, and <sup>THE</sup> patient remains <sup>WITH</sup> in analysis of the concrete event mentioned in a sentence.

It is of ~~an~~ interest that the patient shows a tendency to overcome the difficulties mentioned by using some <sup>CONVERSATIONAL</sup> fragments of conventional <sup>CONVERSATIONAL</sup> speech. When such a <sup>INCLUSION</sup> <sup>CONVERSATION</sup> <sup>MORE</sup> tendency of <sup>more</sup> <sup>more</sup> is impossible - difficulties were seen even clearly.

YOU DON'T KNOW WHETHER HE DOESN'T GRASP YOU - OR CAN'T GIVE YOU THE RIGHT ANSWER.

Patient Art. wa

He was given the sentence: "The <sup>FARMER</sup> host gave the cows much hay". What word <sup>TELLS</sup> ~~is~~ <sup>TELLS</sup> how much hay the <sup>FARMER</sup> host gave to the cows? "The hay... much hay". And what is the word I asked you to find (the question was repeated)? "The hay." <sup>TO</sup> <sup>whom</sup> did he <sup>GIVE</sup> hay? To the cows. (Kozovam, dat. sing.) (The question was repeated). "Plural... there were many cows..." What word <sup>FARMER</sup> tells what the <sup>FARMER</sup> host did? "He did..." (the patient reads the sentence)... much hay... <sup>that</sup> is plural (much = plural!). What word tells who <sup>GAVE</sup> ~~did~~ the hay? "To the cows" etc. 9.

WERE THE STIMULUS MATERIALS ALWAYS PRESENTED BY EYE??



F

Of the question dealt with the situation, mentioned in the sentence - the patient could easily answer it; if the question presumed a conscious analysis of the ~~the~~ linguistic syntactical codes themselves - ~~at~~ it was seen the patient remained unable to shift his attention from the real events designated in the phrase to the essential relations of the syntactical relations of the words themselves.

I CAN'T SEE THAT THIS FINAL PARAGRAPH ILLUSTRATES EITHER THE PATIENT'S USE OF CONVERSATIONAL SPEECH OR THE OPPOSITION OF DIRECT AND INDIRECT QUESTIONS. THEREFORE, MAY I SUGGEST SIMPLY DELETING THE PARAGRAPH ALTOGETHER?



IF YOU COMPARE THIS QUESTION WITH THE QUESTION IN FINAL PARAGRAPH - LINES 8 AND 9 OF THE PRECEDING PAGE (PAGE 20) YOU'LL SEE THAT THEY ARE ALMOST IDENTICAL. YOU HAVE NO GROUNDS FOR SAYING THAT THEY ARE OF TWO DIFFERENT KINDS, DIRECT AND INDIRECT. ~~THE PATIENT~~ - THEY ARE IN FACT ALL DIRECT AND SOMETIMES THE PATIENT CAN ANSWER THEM AND SOMETIMES HE CAN'T. NO CONCLUSIONS ARE POSSIBLE.

Opposite data were obtained when direct ~~questions~~ <sup>QUESTIONS</sup> were given to its patient:  
 WHO gave the much hay? "The horse". [Whom he gave hay?  
 "to the cows" (Korovam, dat. plur.) etc.

THIS ISN'T THE OPPOSITE OF YOUR EARLIER EXACTLY THE SAME (SEE PAGE 20, LAST PARAGRAPH, LINES 4 AND 5).

If its question was put to the patient in a direct form and if, together with the answer, ~~it~~ <sup>HE COULD FIND</sup> a fragment of dialogue, expressing some concrete events, ~~the patient could~~ <sup>ON THE OTHER HAND</sup> answer it easily. If, ~~otherwise~~, the question was aimed at an operation with relations of words and the real structure of grammatical units - a breakdown of the operation, was seen, and the question remained did not at all evoke the answer as requested.

All these defects became especially clear when in a special series of experiments, when we prepared a question asked the patient to select ~~the~~ <sup>AN</sup> adequate question from several alternatives.

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Patient An.

The patient was given a simple statement: "Vanya Khoroshii" (Vanya is nice)

(b) What question ~~one~~ <sup>HAS</sup> ~~has~~ to ask to receive the answer "Khoroshii" <sup>the</sup> "nice"? "Vanya... of course he has to be nice."

(a) How is Vanya? "He is nice!"

(b) [I MEAN, THAT MEANS] which question ~~one~~ <sup>has</sup> to ask to receive the answer "nice"? "Vanya... he is nice now!"

A state sentence is given: "Kolya lives in Kharkov"

(b) What question has to be asked to have an answer "he lives in Kharkov"? "What does he do there?"

(a) Where does Kolya live? "In Kharkov"

(b) Now, what question ~~one~~ <sup>has</sup> to ask to learn that he is living in Kharkov? "Kolya lives in Kharkov. I remember, how I answered this question... Kolya - where? In Kharkov... He is working in Kharkov, learning in Kharkov... Because he came from another place... let us say Siberia..."

Patient Sepz.

Vanya is nice. <sup>question</sup> What have you to ask to receive its answer "he is nice"? "That is hard to tell what ~~one~~ <sup>HAS</sup> ~~has~~ to ask.

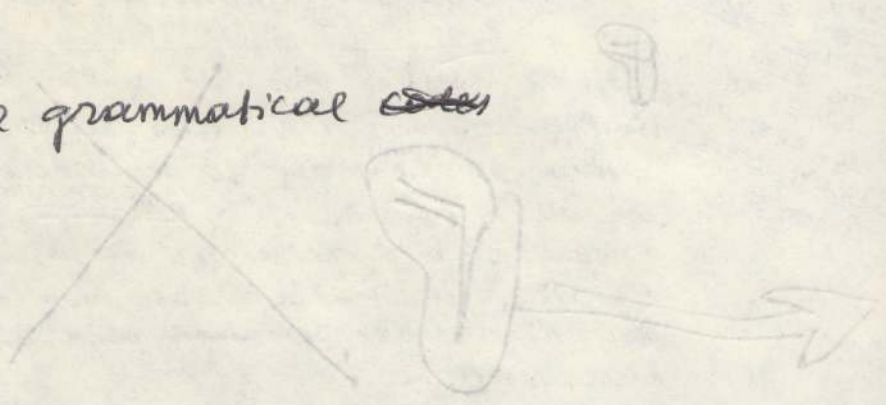
He is nice - and that's all. I know only that he is nice. (The answer is related to the real situation, not to the sentence linguistic reality). What have you to ask to receive that answer? "Where?" "What?" "What does he do?"

I should say: Vanya behaved nicely on the street!"

\* We marked with (a) a direct question and with (b) question which requires an abstract grammatical operation.



(A) formal grammatical ~~cases~~





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(A full explanation of the ~~process~~ needed to find the question was given and examples ~~was~~ <sup>were</sup> added).  
 "Vanya is a boy" "Wait a minute, I shall ~~of~~ find questions where? "a boy..." (an additional explanation <sup>was given</sup>). "You see, I really can't understand that I can't imagin' what have I to ask about the boy..."  
 "Vassya is ill" "That's the boy or he is ill? That is just the same... no..." "Where?" "We are not told where..." "Who is ill?" "No, I do not understand!" etc.

All these fragments of our protocols show a ~~full~~ <sup>COMPLETE</sup> break between the immediate statements related to real events and the process of the operations with ~~logical~~ <sup>logical</sup> relations. Whereas the first remain fully preserved, the second remain impossible, and the patients turn each time to the analysis of the real situation, being unable to shift their attention towards the reality of verbal ~~relations~~ <sup>relations</sup> which express these relations.

2. Operations with auxiliary words.

After all we <sup>HAVE</sup> said, it is ~~mostly~~ <sup>ENTIRELY</sup> probable that ~~of~~ being aware of the auxiliary parts of speech and being able to operate evaluate them consciously ~~is~~ <sup>is</sup> ~~not~~ <sup>not</sup> ~~that~~ <sup>that</sup> ~~hardly~~ <sup>could</sup> be preserved in our patients.

~~At~~ <sup>WE SEE</sup> first glance, ~~the disorder can easily be seen that~~ <sup>relations</sup> ~~the~~ <sup>relations</sup> ~~practical operations with auxiliary parts of the~~ <sup>relations</sup> ~~speech remain~~ <sup>relations</sup> fully preserved in our patients (and that what was afterwards called "syntagmatical organization of the speech" vs its paradigmatic organization (cf. R. Jakobson, 1971, Benson, 19, <sup>SHOWING</sup> <sup>NO</sup> ~~see~~ <sup>showing</sup> <sup>no</sup> ~~any~~ <sup>any</sup> ~~disturbances~~ <sup>disturbances</sup> in our patients <sup>don't</sup> <sup>show</sup> <sup>any</sup> <sup>difficulties</sup> <sup>involved</sup> <sup>in</sup> <sup>using</sup> <sup>so</sup> <sup>such</sup> auxiliary parts as "while", "because", "rather", "although" etc.

HOW DID LOGIC CREEP IN? YOU WERE TALKING ABOUT LINGUISTIC RELATIONS: ARE GRAMMAR AND LOGIC THE SAME THING?

34

Patient Aut.

Please <sup>GIVE</sup> ~~tell~~ me a sentence which would contain the word "although". "Although I am leaving, I should be glad to remain here..." Now please <sup>GIVE</sup> ~~tell~~ a sentence with ~~the~~ <sup>the</sup> word "if". "I shall move quickly if the Railroad ~~is~~ <sup>is</sup> Office will improve the train."

All these auxiliary parts of speech which ~~are~~ <sup>are</sup> ~~hardly~~ <sup>hardly</sup> the child ~~is~~ <sup>is</sup> ~~able~~ <sup>able</sup> to use and the performance of which requires special ~~level~~ <sup>ACQUISITION</sup> ~~acquisition~~, remain, ~~at~~ <sup>it</sup> ~~seems~~ <sup>seems</sup>, fully preserved in our patients.

Does it mean that the essential semantic relation expressed by these auxiliary words remains really preserved, and that they remain unaltered even if they become the ~~at~~ <sup>at</sup> ~~basic~~ <sup>basic</sup> subject to the p.p. That's consciousness?

HOW DO YOU KNOW? YOU DIDN'T TEST FOR IT DIRECTLY.

HE COULD PROBABLY DO THE SAME IF YOU ASKED HIM TO USE SOME KIND OF OTHER WORD DID YOU ASK HIM TO GIVE A SENTENCE USING THE WORD, "MAN" OR "RUN"?



(E) <sup>analysis</sup> ability to ~~deal~~ consciously ~~with~~ the system of verbal codes was much more deranged than the practical use of these codes in his communications.



As it was in our former experiments, we shall try to answer this question with ~~the~~ shifting the attention of our patient from the immediate ~~reference~~ <sup>to</sup> the events towards the conscious analysis of the verbal (semantic) relations.

We presented to our patients sentences or paragraphs with omitted words, using the well known Ebbinghaus technique; in a part of our experiments the omitted parts were nouns or verbs or adjectives, in the second part the omitted words were auxiliary (relative) parts of speech.

The example of the first <sup>TYPE</sup> part of the experiment was the sentence: "A big, dark ~~cloud~~ (cloud) ~~did~~ approach us without any (noise, wind)." The example of the second type was the sentence: "The <sup>PHYSICIAN</sup> ~~physician~~ ~~total~~ lectured (on) different diseases (of) ~~the~~ nervous system" or a more complicated sentence: "The ~~acrobat~~ <sup>noised</sup> went very ~~skillfully~~ <sup>skillfully</sup> on a string (although) it was a very difficult".

Data we received showed clearly that both types of problems had ~~to~~ were psychologically basically different. Whereas the restitution of the text with omitted significant parts (nouns, verbs, adjectives) did not evoke any difficulties in our patients, the restitution of phrases with omitted auxiliary words remained impossible in the predominant <sup>NUMBER</sup> parts of the patients.

It is especially interesting that ~~the~~ difficulties we observed in these cases were <sup>ERRORS</sup> in this form of experiment in the last type of experiments, could be seen both in cases when simple auxiliary parts (such as "and", "about") and ~~comparatively~~ semantically complex ones (such as "although", "while" etc.) were omitted. In all these cases it was clear that the attention of the patient was aimed <sup>AT</sup> to the concrete events designated by the sentence rather than <sup>AT</sup> to the abstract <sup>formal</sup> grammatical relations or the use of auxiliary words which express them, or, <sup>BY OTHER WORDS</sup> that the patient's "theoretical activity" was "abstract" or "categorical" activity was much more deranged than the "practical", "immediate" one.

NO! I KNOW, AS FAR AS EBBINGHAUS EXPERIMENTED WITH LISTS OF SYLLABLES, NOT SENTENCES OR PARAGRAPHS.

YOU KEEP THIS AS IF WORDS REFERENCE WERE CLEARLY ESTABLISHED.

IF HE CAN CATEGORIZE IN SOME SITUATIONS, IS IT SAFE TO SAY THAT HIS 'CATEGORICAL' ACTIVITY IS DERANGED?

Patient Prof.

<sup>THIS PATIENT</sup> He was given sentences or paragraphs with omitted words (in part of each type) (in parentheses are words <sup>WITH WHICH FILLED</sup> the <sup>BLANK</sup> spaces).

(a) A Big, dark ... (cloud) ~~with~~ <sup>did</sup> approach us without any (vibration); it ~~made~~ <sup>noised</sup> very ... (quickly ... no ... nearly) towards us" etc. The grammatical components were realized and corrected.

(b) After the supper was over the physician gave a lecture (concerning) the different diseases.: "He gave a lecture.. different... something is missing... He gave a lecture.. lectured the different diseases.. no I can't." What is missing? "I really can't say.. here it He ~~lecturer~~ gave a lecture.. He described some different

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MEANING? (TO) ENOUGH?

diseases... That's right. Now it will be all right!"  
I put the Ya postavil metlu (u) stieny" (to) put the broom <sup>close to</sup> the wall" in Russian to express the relation "close to the wall" The wall... It seems to be all right here. We have a broom... and we put it... ~~the~~ and the wall. The broom is standing... and that's all right..." (a full explanation is given and the lack of the auxiliary word (to) is explained. To prove the transfer the first sentence was given as an example. "Something is not in order here. We have to change something..." What have we to add? "I really can't realize". Perhaps it is ~~to~~ "to" which is missing? "No." Perhaps it is "about"? "No, it does not fit! "To..." To different diseases would do, and "about" - it does not fit!"

It is clear that the patient's attention is linked to the situational components of the events the sentence refers to, and that is why any omission ~~of~~ concrete, situational details ~~is~~ corrected, and new concrete details (objects, events, actions) are added; but the patient remains unable to analyze the grammatical relations in the sentence, and ~~lacking~~ <sup>LACK</sup> of the auxiliary, relative words ~~is~~ <sup>is</sup> not evaluated clearly, although the patient "feels" that something is lacking.

The same is seen in another patient of this group.  
Patient Art.

(a) A man of a high (intelligence) died. The boy fell down and... (wept). He finished the school and went... (to work, to study, to live, to sing!...)

(b) The man fell down (i.e.) he lost his balance, <sup>Do you</sup> what have you to put in the ~~to~~ <sup>BLANK</sup> space? "The man fell down.

He lost his balance. The man fell down when he was <sup>swimming</sup> in the river, his attention was ~~at~~ <sup>aimed</sup> at a fish, he lost his balance, started, and had to swim.

It he couldn't swim - he became drowned <sup>to</sup> and perhaps he is ~~being~~ <sup>going</sup> down!... And does the word "although" fit here? "Yes, ~~to~~ it does... [Although he lost his balance he fell down...]" Why do you say "although"? "He lost his balance and still he fell down... But he could <sup>NEED</sup> remain not falling down.. He could sit down..." And if you ~~would~~ put here the word "nevertheless" (in Russian "Nie smotzia na" =

= not looking ~~to~~): "NOE... that's impossible.. How could it be that he was not looking (here "not" <sup>not</sup> looking <sup>at</sup> is used in the sense of a concrete event) and he fell... perhaps he tried to look, and then he felt giddy... and he fell down." And perhaps it would be right to put here the word "because"?

EARLIER, YOUR PATIENTS WERE PERFECT IN THEIR ATTEMPTS TO USE AUXILIARY WORDS IN A SENTENCE. HERE, THE TASK IS THE SAME, BUT IS THE PERFORMANCE PERFECT. PERHAPS IT WASN'T ALWAYS PERFECT IN THE FIRST CASE, EITHER.



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1) In this paper patients we deal only with patients with semantic aphasia. Patients with other forms of aphasia are not discussed here, and as it was seen they can show a different kind of difficulties.



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"Because he fell down ... in the water ... Because he lost his balance ... Of course, that fits too ... He lost his balance because he fell down ... And now he is down, and no balance is needed <sup>ANY</sup> more ... If he fell down, there is no more <sup>DANGER</sup> ... When he fell down, he decided that he does not ~~more~~ need any balance, that somebody will <sup>practically</sup> take care of him ..."

It is easy to see that although the patient still uses (all the auxiliary words in his fluent speech, he is <sup>NOT</sup> ~~able~~ to be ~~so~~ clearly aware of their meaning and does not know which of the auxiliary words ~~he was~~ given, has to be used. What is <sup>PRACTICAL</sup> possible in the flow of his <sup>practically</sup> preserved, <sup>A</sup> fluent speech, becomes very difficult at the moment when the ~~whole~~ aim of the patient's activity is changed and when his conventional, well imprinted fluent speech becomes itself the subject of ~~an~~ conscious analysis.

It is worthwhile to note as well, that the contents of the patient's analysis is very easily ~~limited~~ <sup>aimed at</sup> ~~to~~ <sup>discussion</sup> of details of ~~situation~~ the concrete situation, and that it is rather difficult - if not impossible - to ~~let~~ <sup>aim</sup> his attention ~~at~~ <sup>at</sup> the reality of the speech language and of the speech processes themselves.

This dissociation of preserved fluent speech as a well imprinted skill and the inability to make this speech <sup>THEIR</sup> subject of conscious ~~and~~ (theoretical) analysis is one of the most important facts typical <sup>for</sup> ~~of~~ <sup>of</sup> patients with semantic aphasia. <sup>(see above)</sup>

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HOW ABOUT PATIENTS WITH OTHER KINDS OF APHASIA?

To prove this assumption and to make it more reliable, we continued our experiments moving to the next series, in which ~~we~~ <sup>WE</sup> ~~presented~~ <sup>presented</sup> our patients <sup>WITH</sup> two kinds of unfinished sentences. The first kind ~~of~~ <sup>of</sup> the sentence (type (a)) ~~came up~~ had at ~~its~~ <sup>ITS</sup> end such words as "because", "although" etc. and the patient had to finish the sentence adding some concrete details of the situation mentioned. In the second kind (type (b)) the auxiliary parts ("because", "although" etc.) were omitted and the patient had to fill the gap, ~~with~~ <sup>or</sup> selecting one of three alternative words: "because", "although" or "if".

The results obtained were very clear. If the <sup>practical</sup> use of the auxiliary words <sup>REFERRED TO</sup> ~~mentioned~~ in the patient's fluent speech <sup>GAVE</sup> ~~could~~ <sup>could</sup> have the impression that ~~its~~ <sup>its</sup> the meaning of these words as a means <sup>OF</sup> ~~to~~ <sup>to</sup> express <sup>IN</sup> ~~relations~~ <sup>relations</sup> was preserved, ~~our~~ <sup>our</sup> experiments when the patient had to ~~at~~ <sup>make</sup> a choice and to select the <sup>PROPER</sup> ~~proper~~ auxiliary ~~relations~~ <sup>relations</sup> words from three alternative ~~words~~ <sup>words</sup> showed that the conscious



(F) analysis of the (syn-semantic) linguistic, relations was very difficult. The patient remained able to understand the real meanings of the ~~auxiliary~~ relational words ("although", "while" etc.) only if their practical use was well imprinted and when these words were included in the practical fluent speech of the patient.



AUXILIARY WORDS DO NOT NECESSARILY HAVE LOGICAL MEANING  
E.G. WHAT'S "LOGICAL" ABOUT "BETWEEN" OR "WITH"?

ACTUALLY WORDS HAVE AS LOGICAL MEANING AS

DON'T YOU MEAN LINGUISTIC?

**F** ~~Further~~ analysis of the ~~relational~~ <sup>logical</sup> meaning of these words, their function in expressing ~~logical~~ <sup>syn-semantic</sup> relations, is markedly disturbed, and that ~~the~~ <sup>our</sup> impression of the ~~normally~~ <sup>practically</sup> preserved meanings of these words has to be limited ~~only~~ <sup>by</sup> ~~to~~ the patient's well ~~imprinted~~ <sup>imprinted</sup> verbal performances, ~~otherwise~~ <sup>but</sup> the semantics of these words can be established only ~~in~~ <sup>within</sup> the frames of ~~the~~ <sup>their</sup> preserved fluent speech of the patients.  
A very important deduction can be made from this assumption. ~~If the facts would support it - we could assume~~ <sup>LET US ASSUME</sup> that the theoretical ~~frame~~ <sup>linguistic</sup> processes could ~~be~~ <sup>are</sup> available for our patients only by means of their ~~practically~~ <sup>PRACTICAL</sup> preserved, ~~a~~ <sup>fluent</sup> speech, and that they ~~could~~ <sup>could</sup> come to a ~~master~~ <sup>the</sup> paradigmatic relation only via their preserved syntagmatic processes verbal.

ONE CAN ASSUME ANYTHING: IF FACTS SUPPORT THE ASSUMPTION, IT IS NO LONGER AN ASSUMPTION.

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Here are some examples which support this assumption  
Patient Pros.

- (a) Tests with sentences which had a ~~real~~ <sup>end</sup> relative word (became ... although etc.) ~~on~~ <sup>at</sup> ~~the~~ <sup>THE</sup> ~~end~~ <sup>END</sup> were ~~finished~~ <sup>easy</sup>. ~~were~~ <sup>were</sup> easy and where the patient had to add some details of events, were completed easily.
- (b) 4 sentences were given where the patient had to make choice from three alternatives of relational words.  
"The men fell down in the water ( "and", "although", "because" ) he has lost ~~his~~ <sup>his</sup> balance". (The patient <sup>READS</sup> ~~is~~ <sup>reading</sup> the sentence three times). "The man fell down in the water... and he lost his balance... and there is nothing else". Is that so?  
"No it isn't". Why? "Something is missing... No.. it can be said so: the man fell down in the water - and he lost his balance..." And would it fit if you would add "although" or "because"? "Although... no, it doesn't fit.. and what have I to do?... perhaps "because"?" (The patient is not sure.)

Patient Aut.

- (a) Tests <sup>REQUIRING</sup> the completion of a sentence with a relational word on the end are completed easily.
- (b) "The man ~~went~~ <sup>WALKED</sup> on a ~~string~~ <sup>WIRE</sup>, ~~still~~ <sup>while</sup> fully balanced ("although" "because") it was very difficult". What have you to choose as a missing word? "Of course "because"! because it was very difficult.. But he was skilled enough and ~~he~~ <sup>HE WALKED</sup> ~~went~~ on a ~~string~~ <sup>WIRE</sup>.. He mastered that because he was skilled.."  
And does "if" fit? "That ~~is~~ <sup>does</sup> fit too. If it was ~~so~~ <sup>so</sup> difficult he had to have a skill! If he had the skill, he could retain his balance.." And "although"? (a long pause); "The man"

(where he)

(if)

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had a skill, he could fall down... But he didn't... although... he balanced... and moved forward... he ~~was~~ skilled... there was a risk... although he did not fall down..."

We can see that a conscious attitude towards the logical relations of the words in a sentence remains very ~~at~~ a very difficult, even inaccessible in direct attempts, although the patient can easily construct some practical performances which include any of the relational <sup>ALL</sup> words given. At last patients can arrive <sup>AT</sup> to the solution needed, but they do it including the ~~st~~ expression of <sup>THE</sup> relation in ~~the~~ their practical, syntagmatic speech, and all relational words ~~can~~ <sup>ARE</sup> used, ~~expressing~~ <sup>TO EXPRESS</sup> one of the possible situations.

The inability to select a special logical relation associated with ~~the~~ <sup>THE</sup> ability to use them these relations in a practical verbal performance can be seen in ~~some~~ cases when patients who try to solve this problem show some doubts and when they use concrete ~~situ~~ analysis of the [situation] immediate to ~~try~~ to ~~is~~ trying to find ~~the~~ <sup>AN</sup> adequate solution.

Here is a fine example.

Patient Qu.

Wp He was given a sentence: "Olega went to a movie (<sup>"although"</sup>, <sup>"if"</sup>, <sup>"because"</sup>) her father had forbidden it." "Olega went to a movie... although and because... Both are, as a matter of fact, the same..." But there are differences. Please tell me what they are (both ~~to~~ sentences - one with "although", the other with "because" were given to the patient). "Of course there is a difference - that is a different kind of behavior. "Because" - it is an order. "Because the mother father had forbidden" - that's an order of course. And here - "although the father had forbidden it" that is doubtful... She went to movie with a doubt." What was the doubt? "A definite order... to deprive <sup>HERE OF</sup> ~~of~~ the movie... to forbid it... and if Olega wanted to go to the movie and there was not an order... The difference is that "because" it is a definite request, and "although" is only an assumption."

It is clear that definite logical meanings of the words "although" and "because" <sup>ARE</sup> replaced by a fine psychological analysis which is preserved in the patient, although the ability to ~~of~~ single out logical relations <sup>HAVE HAS</sup> ~~is~~ breaks down. Thus - the processing of logical relations and the legro-grammatical analysis of the sentence becomes impossible although a psychological and practical analysis of the contents of the sentence remains preserved.

Our patients remain clever people and fine psychologists, <sup>BUT</sup> they ~~become unable~~ <sup>ARE NO LONGER</sup> to become former structural linguists.



3. Understanding of complex grammatical structures.

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All we have <sup>STATED</sup> mentioned shows that some important disturbances can be seen in our patients when operations on grammatical relations are observed.

Does it mean that even the understanding of several grammatical structures suffer in these patients too?

To answer this question we have to move to a series of more general problems and to try to analyse more closely which forms of ~~gram~~ the understanding of grammatical forms remain preserved in patients with semantic agnosia and which are broken down. We have to describe as well what kind of disturbances <sup>IN</sup> the understanding of their complex grammatical structures <sup>ARE</sup> observed and what factors ~~are~~ <sup>UNDERLIE</sup> these destructions.

Although in a series of <sup>our</sup> later ~~st~~ publications these problems were carefully studied (cf. A. R. Luria, 1966, 1970, 1972, 1973, 1975) - we shall try to describe our data in a group of special experiments.

(a). Disturbances in <sup>comprehension</sup> understanding of the relation of words in a sentence.

What after all we have ~~already~~ <sup>SAID</sup> said above, it can be supposed that an understanding of those ~~is~~ inter-relations of words in syntactical constructions which ~~are~~ reflect ~~to~~ a specific logico-grammatical relations and which cannot be deduced from ~~an~~ immediate experience of the concrete events <sup>mentioned</sup> - could undergo a certain destruction. <sup>IN OTHER WORDS,</sup> ~~structure~~ - we could suppose that <sup>"communications"</sup> ~~com~~ "understanding of events" would be preserved, whereas "communications of relations" (Svedelin) or a ~~to~~ certain part of them would be deranged.

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We ~~can~~ can hypothesize that whereas the fluent syntagmatic organization of speech remains to a certain part normal in our patients, - the paradigmatic relations included in ~~the~~ fluent, <sup>syntagmatic</sup> speech will evoke ~~some~~ significant difficulties in understanding.

Let us turn to some protocols <sup>IN AN EFFORT</sup> ~~to~~ <sup>GAIN</sup> ~~to~~ ~~reach~~ a control of this assumption.

We shall start with the understanding of some simple sentences where the change of a sequence of words results in a change of ~~its~~ <sup>ITS</sup> meaning (or - to use a more modern term -



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i) In Russian this sentence means unambiguously that the arms were preserved in the storehouse, whereas the second phrase means the arms were in the hands of the sentry.



AS OF A MATTER OF FACT, DEEP STRUCTURE WAS NOT DEFINED AS MEANING, BUT AS A STRING OF WORDS, WHICH, IN TURN, HAD MEANING UNDERLYING! (STILL DEEPER). THIS IS A FINE POINT WHICH IS OFTEN MISUNDERSTOOD.

ITS ~~deep~~ grammatical structure

Patient Avt.

- Two sentences were given to the patient:
- (a) A <sup>sentry</sup> ~~guard~~ was <sup>standing</sup> ~~standing~~ <sup>by</sup> ~~close~~ to a <sup>storehouse</sup> ~~depot~~ with arms
  - (b) A ~~guard~~ was ~~standing~~
  - (c) A <sup>sentry</sup> ~~guard~~ with arms was ~~standing~~ <sup>by</sup> ~~close~~ to a ~~depot~~ <sup>storehouse</sup>.

The patient was asked to find the difference in the meaning of both sentences. He read the sentences several times and after a long pause said: "There (a) ~~the~~ most important is the <sup>sentry</sup> ~~guard~~ with arms... ~~the~~ most important are arms to be preserved, to be not stolen... the most important are the arms of the ~~guard~~ sentry, but not the core storehouse". And what is the meaning of the second sentence (b)? "In the storehouse... no... mainly in the storehouse... Oh, I am not sure..." Where were the arms? "In the storehouse..." How do you know that? "A sentry was standing here... ~~close~~ to the ~~ware~~ storehouse... and they were ~~by~~ the storehouse... ~~the~~ most important may be that it was with arms..." (the patient is confused)

Both sentences were given simultaneously written on a piece of paper. What is the difference? "Here... a sentry with the arms is standing... It means firstly arms were brought, and then the sentry came..." And here (sentence b)? And here the words were placed differently... there came a man to evaluate tell the quantity number of arms... Only a displacement... nothing else.

Patient Pros.

He was given the same sentences and asked the same question: Is the meaning of both sentences identical or not? "I cannot combine them... That is the same, only the words are placed differently... and that's all!" Wasn't the meaning changed? "No, they are the same. The meaning is the same." Where were the arms in the <sup>first</sup> second sentence? "In the street." And in the second? "I really can't tell, it is too difficult. I am feeling something... but <sup>in</sup> general... Oh, I don't know. What are the arms related to: to the sentry or to the storehouse?" "May be to the sentry... because he is standing!" It is obvious that a sentry has to have arms" (the patient is reading the sentences once more). What are the arms related to? "To the sentry or to the storehouse?" "To the storehouse... to the sentry... No, I can't understand it!"

We shall not turn to other illustrations (they are identical). It is quite clear that the patient can easily grasp the fact of the

FRANKLY, I'M NOT SURE WHETHER THESE SENTENCES HAVE THE SAME MEANING OR NOT, EITHER. THE FIRST ONE IS VERY AMBIGUOUS IN ENGLISH: 'ARMS' COULD GO EITHER TO THE STOREHOUSE OR WITH THE GUARD. IF IT'S INTERPRETED ONE WAY, THEN THE OTHER INTERPRETATION IS CORRECT. THEN THE TWO MEANINGS ARE DIFFERENT. NO DOUBT IN RUSSIAN IT'S CLEAR, BUT THIS EXAMPLE IS GOING TO DRIVE YOUR ENGLISH READER NUTS.

HE'S NOT THE ONLY ONE.



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meanings ~~of~~ changing the sequence of the words in a sentence, but such change does not ~~not~~ result in a semantic ~~change~~ <sup>THE</sup> understanding of a semantic ~~change~~ <sup>change</sup> of the one sentence, and the patients remain unable to pass from the superficial structure of the sentence to ~~its~~ <sup>ITS</sup> inner structure. We can see as well that all these defects are closely connected with the patients' inability to aim their attention ~~to~~ <sup>AT</sup> the relations ~~with~~ semantic relations evoked by the changes ~~in~~ <sup>IN</sup> the order of the words.

(B) Defects in <sup>comprehension</sup> understanding of the ~~semantic~~ <sup>semantic</sup> role of ~~complete~~ paradigmatic role of syntactical forms. (Impressive aggrammatism)

All we have said means that the semantic ~~the~~ <sup>relations</sup> processes underlying the processing of ~~the~~ grammatical structures are in our patients very ~~at~~ markedly different from what they are in normal, well trained adults. Our patients understand the meaning of <sup>several</sup> grammatical structures quite differently or sometimes they ~~even~~ ignore the real meaning of ~~some~~ grammatical changes. The understanding of the sentence's meaning depends much more on the relation of the objects included in the situation than on the formal grammatical structure of the sentence itself. (That can be clearly seen if we present to the patients ~~sentences~~ <sup>sentences</sup> ~~as~~ <sup>are</sup> understood mainly as a "following of events" than as "followed" sequence of events" rather than as "followings of words" in a grammatical structure. ~~That~~ <sup>THIS</sup> can be shown in a special series of experiments, where the sequence of events comes <sup>TO</sup> in a conflict with sequence of words.

DIFFERENTLY FROM NORMALS DO YOU MEAN?

In Russian, as well as in most Indo-European languages there is a certain correlation of sequence of words in the sentence with ~~the~~ <sup>the</sup> sequence of events. So, if ~~one~~ <sup>one</sup> says "The boy hit a girl", the sequence of the words reflects the sequence of events (S → P) and the ~~logical~~ <sup>grammatical</sup> scheme of the sentence does not come <sup>TO</sup> in contradiction with the ~~logical~~ <sup>logical</sup> scheme, both being S → P. The same is true for more complex sentences "I took the cat and ~~then~~ <sup>then</sup> I ~~drank~~ <sup>DRANK</sup> coffee". The reverse is ~~in~~ the case of negative constructions or the constructions of the passive voice, which are only

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secondary in Indo-European languages but which are basic for some Caucasian languages (for instance the Georgian language).

If it is said "~~The dog was hit by a boy~~"

In a sentence "~~The boy was hit by~~ "The girl was hit by a boy" there is a clear conflict between the sequence of words and the structure of real events, which can be reflected in a scheme (O ← P ← S) ~~+~~. The same can be ~~seen~~ seen in more complicated sentences where some auxiliary words ~~are~~ are used which determine such reversals. <sup>THIS</sup> ~~That~~ is the case in such sentences as: "I chopped wood after I <sup>DRANK</sup> ~~drank~~ coffee" where the ~~sequence~~ sequence of words comes in conflict with the sequence of events because the word "after" turns the semantics of the phrase <sup>BACKWARDS</sup> [upside down].

Very similar cases can be seen in ~~two~~ sentences which use the auxiliary word "by". Whereas in the sentence "the sun lights up the earth" <sup>THERE IS</sup> ~~no~~ conflict between the order of words and <sup>THE</sup> ~~the~~ order <sup>OF</sup> ~~of~~ events, — in ~~the~~ the sentence:

"the earth is <sup>LIT</sup> ~~lightened~~ up by the sun" — ~~is~~ a clear conflict <sup>RESULTS</sup> ~~(the result)~~ from the reversal of the word sequence. <sup>is seen</sup>

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We ~~have~~ <sup>MAY</sup> ~~all~~ <sup>PHRASES</sup> ~~right~~ to suppose that ~~phrases~~ where ~~no~~ ~~conflict~~ with a isomorphism of word ~~and~~ ~~sequence~~ of words and ~~that~~ of events could be easily understood; sentences with a conflict between these two sides will be understood <sup>WITH</sup> ~~much~~ more difficult by our patients, and in some cases will not be understood at all.

Let us turn to some facts.

Patient Oe. (hemorrhage to the left inferior parietal edge, amnesic apraxia) was given a sentence: "Sobaku oblayala Loshad" (The dog was barked at by the horse) and she was asked whether the sentence was right. The answer was:

"Of course it is right!" What does it mean? "That the dog recognized a horse and started to bark on it"

It can be clearly seen that the patient grasps the sequence of words and treats them as isomorphic to the ~~two~~ sequence of events, neglecting the relation evoked by the word "by".

It has to be mentioned that in Russian there are suffixes (Sobaku, -4 meaning dat. sing.) which make the semantic differences of the passive voice even clearer.

Patient Koz.

"The lantern is lightened by the street". Is this right? "Fonar' osveshchayetsya ulitsei" (The lantern is <sup>LIT</sup> ~~lightened~~ by the street, "ulitsei" meaning instrum. sing, and osveshchayetsya - "3ya" meaning the passive voice). Is that right? "Of course,



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it is!" and: "Uchitza osveschayetsya Fonariom" (the street is <sup>LIT</sup> ~~lightened~~ by a lantern, the marker Fonariom om - meaning instrum. sing. acc). Is that right? "That is right too..." (an explanation is given and some examples were given). Is it right to say "Fonar osveschayetsia uchitsei (the lantern is <sup>LIT</sup> ~~lightened~~ by the street)? "Of course that's right!" (The explanation is given once more.) "No.. you have to say "The lantern is <sup>LIT</sup> ~~lightened~~ by the street"... but "The street is <sup>LIT</sup> ~~lightened~~ by the lantern" - that is false. To say it right you have to say "The lantern is <sup>LIT</sup> ~~lightened~~ by the street!"

It is ~~not~~ <sup>not</sup> seen again that it is the sequence of ~~the~~ words, <sup>not</sup> ~~by~~ <sup>THE</sup> grammatical form of the passive only which ~~is~~ <sup>DETERMINES</sup> the understanding of the patient.

Patient Art.

The patient is given two sentences:

(a) The sun is <sup>LIT</sup> ~~lightened~~ by the earth, and

(b) The earth is <sup>LIT</sup> ~~lightened~~ by the sun.

The patient reads both very attentively: "Both are right, they are identical... No, listen: there is a difference! It is obvious that the sun is <sup>LIT</sup> ~~lightened~~ by the earth, that is clear. But "the earth is <sup>LIT</sup> ~~lightened~~ by the sun" - it can happen only when the sun appears on the horizon, and then "the sun is <sup>LIT</sup> ~~lightened~~ by the earth" - that is true in all cases!

Patient Sel.

"The sun is <sup>LIT</sup> ~~lightened~~ by the earth": Is that right? (The patient repeats the sentence). "Of course it is right! It is <sup>LIT</sup> ~~lightened~~ by the earth..." And "The earth is <sup>LIT</sup> ~~lightened~~ by the sun": "No, it's not right! It cannot be... But "the sun is <sup>LIT</sup> ~~lightened~~ by the earth" - that's right!"

BELIEVE YOU, BUT A FEW SELECTED PATIENTS WILL NOT CONVINCED A CRITICAL READER AND HE IS THE ONE YOU WANT TO CONVINCED, ISN'T HE? AFTER ALL, WHAT'S THE POINT OF ADDRESSING WHO ALREADY AGREES WITH YOU, OR WHO ACCEPTS WHAT YOU SAY UNCRITICALLY?

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The examples we mentioned <sup>SUGGEST</sup> ~~show~~ clearly that in our patients syntactical can markers have not <sup>THE</sup> ~~semantic~~ functions they have ~~in~~ <sup>in</sup> ~~an~~ <sup>normal</sup> language, and that their syntactical markers are neglected by our patients who are dealing only in the events mentioned ~~and~~ with the sequence of the words which is isomorphic to the sequence of events. That is why the patients do not notice the real ~~first~~ meaning of syntactical structures and are following only the orders of events mentioned.

The defects of understanding take, in our patients, <sup>THE</sup> ~~in~~ form of a kind of "impressive agrammatism". The basic laws of



Semantic agrammatism have to be carefully studied. ~~the~~ <sup>THE</sup> few facts we ~~mentioned~~ <sup>OFFERED</sup> were only the beginning of this work. The studies published later, and especially the author's book "Basic Problems of NeuroLinguistics" give a much more ~~exten~~ expanded and detailed study of these data.

(c) Disturbances in the <sup>comprehension</sup> understanding of complex forms of grammatical relations structures

It is obvious that if the comprehension of comparatively simple sentences can evoke a series of difficulties in ~~the~~ <sup>THE</sup> patients we ~~mentioned~~ <sup>PRESENTED</sup>, comprehension of complex grammatical structures can be much more difficult.

The group of complex ~~and~~ syntactical structures include sentences with distant constructions (where one sentence is embedded in another), sentences with a <sup>HIER</sup> ~~hierarchical~~ subordination of their parts, sentences ~~with~~ with insertion inserted structures and so on. Here a careful analysis of the syntactical structure is needed, and if this operation fails, it can be clearly seen that an immediate ~~and~~ reflection of the contents of the communication ~~or an immediate~~ which is limited by <sup>immediate</sup> ~~an~~ reflection of the ~~same~~ real events is in no case sufficient to understand the ~~construction~~ <sup>THE</sup> meaning of the construction. ~~adequately~~

Let us start with the description of how our patients understand a complicated phrase where <sup>THERE ARE</sup> ~~there are~~ factors of alternative complex relations and embeddings is incorporated. ~~its~~ <sup>THE</sup> separate parts as well as the factor of EMBEDDING.

Patient Avt.

A complex communication was given to the patient: "To ~~at~~ the school, where Dunya studied, a <sup>WORKER</sup> ~~worker~~ came from the plant to deliver a paper concerning the woman's day" (The sequence of the words in Russian is slightly different and more complicated for understanding. The text remains ~~the whole time~~ <sup>THE ENTIRE TIME</sup> before the patient) "Who delivered a paper?" "Dunya delivered the paper... no, let us see... where Dunya studied... to deliver a paper... That means Dunya wants to deliver a paper... she wants to do it... To whom is the paper addressed? The paper is on the Woman's Day... Well, it's clear that a worker woman - worker came... the woman <sup>from the plant</sup> ~~worker~~... where Dunya studied... to deliver a paper on the Woman's Day..."

⊕ (RABOTNITSA, -TSA means feminine)



a woman-worker came... It means that somebody delivered  
red of the paper... Maybe it was the Director of the factory?  
It means that somebody delivered the paper..."

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Patient Sel. (Kernershaeg in the left hemisphere - parietal  
lobe, amnesic aphasia)

~~The patient~~ The same sentence was given to the patient.  
Who came from the plant? "Dunya". Where did you see it from?  
"From this school... Dunya had to be in the school...  
And from the plant... Dunya is speaking, the woman-  
worker is telling that Dunya came..." (the patient is confu-  
sed). Who delivered the paper? (the patient examines  
the text once more). "...to deliver a paper... A woman-  
worker came to deliver a paper... It seems that the woman-  
worker had to deliver a paper..." Well, is it Dunya  
or the woman-worker who delivered a paper? "Here it  
~~seems~~ <sup>SEEMS</sup> that maybe Dunya... and maybe the woman  
from the plant... That means... Dunya says the woman from  
the plant..." and who had to deliver a paper? "Maybe  
this second person (the woman) delivered a paper... No,  
it's Dunya who delivered it..." (the patient is confused).

It can be ~~clearly~~ <sup>COMPLETELY</sup> seen that both patients mentioned here were  
~~fully~~ <sup>fully</sup> confused by the problem - <sup>OF</sup> to select <sup>ING</sup> the proper relation  
between two alternatives, and that ~~to~~ <sup>BOTH</sup> persons mentioned in  
the complex communication could be chosen as subjects with  
an equal probability. <sup>THIS</sup> ~~fact~~ means the complex grammatical  
form with an embedded sentence, ~~was~~ evoked severe difficulties  
in the process of a <sup>PROPER</sup> ~~proper~~ choice and that no selective ~~choice~~  
processing according to grammar syntactical rules was possible.  
~~The facts we mentioned~~ <sup>THESE</sup> led to ~~an~~ <sup>THE</sup> assumption that even  
the process of relating several components of the sentence  
and ~~of~~ thus - the process of moving from the superficial  
syntactical structure to the deep one, ~~or~~ formulating the  
<sup>PROPER</sup> ~~proper~~ logic-semantic relation, would be difficult for our  
patients.

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To prove ~~that~~ <sup>THIS</sup> we presented to the patients complex sen-  
tences with adequate and with inadequate grammatical  
interrelation of the words; ~~and~~ <sup>we</sup> tried to show whether  
the evaluation of correct or incorrect structures remained  
possible for our patients, and if they were able to correct  
inadequate relation of words in a phrase.

Patient Pros.

A sentence was presented to the patient: "The beggar  
reached out the hand for a coin which trembled from the  
frost and excitement" (In Russian no "which" is ~~the~~ <sup>the</sup> ~~article~~  
by "which" is used, but a past participle form: drozhaschi =



"which trembled"). Is the sentence correct? "Of course, it is quite correct!"

The phrase was given: "The peasant's axes made a noise in the yards, which prepared (in Russian "nalazhiwaw-shirk" = participle past #; "which" or "who" is omitted and is implicated in this form) ploughs and harrows"

Is it correct? "Yes, it is". What are the words "which prepared" - to the yards, to the ploughs or to the peasants?

"Well... axes the peasant used - it is of course right; they ~~had~~ made a noise in the yards which prepared ploughs and harrows..." (The patient does not realize the false ~~int~~ position of the words in the sentence which means that the ~~ploughs and harrows~~ were yards ~~where~~ prepared ploughs and harrows).

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Patient SUPP.

The phrase was presented: "The beggar stretched out the hand to have a coin which trembled because of frost and excitement".

"Well... it means that the beggar stretched out his hand to receive a coin... and that somebody gave him a coin holding it <sup>in</sup> the hand which trembled from frost and excitement... That means the beggar was not accustomed to beg... " Were the words in the sentence placed correctly? "Oh, yes... very correctly... The beggar... (the patient is reading the sentence once more). <sup>SEEMS</sup> ~~top~~ to me - all is correct!"

It is clear that the syntactical structure can not become an once the subject of the patient's attention, and that patients deal with the events designated by the sentence rather than with the formal structure of the sentence itself.

(d) Disturbances in comprehension of logical relations in a sentence.

We can now discuss the last problem of this paper - the problem of the understanding of ~~the~~ logical relations in a sentence.

It is easy to say that there are two kinds of logical relations expressed in a communication which is delivered by in a sentence.

Some of these logical relations reflect real events and can be ~~deduced~~ <sup>understood</sup> from the events mentioned rather <sup>THAN</sup> from the ~~grammatical~~ <sup>syntactical</sup> structure of the sentence. So in ~~the~~ <sup>THE</sup> sentence "The boy hit a dog" it is obvious that the subject who ~~hit~~ <sup>PECKED</sup> hit was the ~~dog~~ <sup>and</sup> boy, ~~was~~ <sup>PECKED</sup> in the sentence, the hen ~~pecked~~ <sup>PECKED</sup> a grain, the subject who ~~pecked~~ <sup>PECKED</sup> was a hen, and the object which was ~~pecked~~ <sup>PECKED</sup> is the grain. These sentences ~~do~~ come in one group.

There are different kinds of sentences, where no immediate events are existing and where it is impossible to deduce obvious to me in both sentences. Why do they not seem so to you??

YOU SEEM TO BE SAYING THAT OF COURSE THE DOG WOULDN'T HIT THE BOY, BUT THAT THE GRAIN MIGHT PECK THE HEN. THE SUBJECTS AND OBJECTS SEEM EQUALLY OBVIOUS TO ME IN BOTH SENTENCES. WHY DO THEY NOT SEEM SO TO YOU??



THIS IS EXACTLY WHAT I SAID IN MORE FORMAL TERMS IN MY PAPER - WHICH YOU CALLED NONSENSE. YOU REFER TO THE XIECES WHILE I REFERRED TO THE MEANING IN THE FIRST PLACE. IMPLICATION SENSE, BUT THAT DOESN'T, IS NONSENSE!

ACTUALLY, WE'RE SAYING EXACTLY THE SAME THING: THAT THE PATIENT NO LONGER INFERS ON THE BASIS OF ABSTRACT CUES. I HAVE SIMPLY GONE A STEP FURTHER BY ATTEMPTING TO DEFINE EXACTLY WHAT THOSE CUES ARE AND HOW THEY DETERMINE THE ESSENCE OF LANGUAGE.

the contents of the communication from practical experience. In such sentences the listener has to who is trying to comprehend the <sup>CONTENTS</sup> ~~contents~~ of the communication has ~~to~~ only <sup>ONE CHOICE</sup> ~~to~~ to analyse grammatical markers and to infer ~~conclude~~ from this analysis the contents of the communication. <sup>IN</sup> Such sentences as "Peter bit John" or "John bit Peter" or "Peter bit John" or "John was <sup>BITTEN</sup> by Peter" etc. as well as "The triangle is under the circle" or "The circle is under the triangle" - there is no immediate experience of events which can be used to ~~use~~ understand the meaning of communication, and only grammatical markers (the sequence of words, the relative meaning of the auxiliary word "under" etc.) ~~have~~ can give a <sup>CLUE</sup> ~~clue~~ to ~~the comprehension~~ of the meaning of the sentence. <sup>ANOTHER</sup> Another example of both kinds of communication could be such phrases as "I lit the light and began to read" (where <sup>THE</sup> ~~an~~ opposite order would contradict the practical experience) or "I made coffee and then I read the paper" (where ~~no obligatory sequence~~ the sequence of events <sup>ARE</sup> is not an obligatory one and where both ~~sequence~~ sequences ~~can~~ be possible). It is obvious that in the last cases grammatical markers are of a decisive importance.

For the understanding of the communication the role of grammatical markers is even more important when the <sup>CONTENTS</sup> ~~contents~~ of the sentence comes in conflict with real events. So ~~for~~ the sentence "The man died because <sup>although</sup> he died" is nonsense; but to understand that ~~the sentence is incorrect one has~~ to overcome the immediate impression of the immediate events (The man became ill - and he died) and to ~~analyze~~ single out the ~~real~~ logical meaning of the auxiliary word "although".

Our last experiment consisted in <sup>PRESENTING</sup> ~~presenting~~ to the patient some sentences which have an incorrect meaning, where the mistake could be grasped only as a result of a ~~form~~ grammatical analysis of the phrase itself.

It could be predicted that ~~such processing~~ <sup>involved</sup> The processing of such grammatical analysis ~~was associated with~~ in our patients ~~with~~ marked difficulties. All these difficulties were due to the fact that our patients were, as a rule, <sup>FOCUSED</sup> ~~on~~ <sup>ON</sup> the fact that the patient's ~~all~~ events designated in the communication, rather <sup>THAN</sup> ~~to~~ <sup>ON</sup> the grammatical structure of the communication itself, and that the <sup>logical</sup> relations included expressed in the communication grammatical structure of the ~~statement~~ was for the patient a rather difficult task (this aspect will be the problem of further discussion elsewhere).



Let us give <sup>some</sup> examples of the fact we <sup>DESCRIBED</sup> mentioned.

Patient L.V. (~~trans~~ gunshot wound of the left temporo-parietal zone, amnesic aphasia) <sup>smoked</sup>

The patient's sentence was given to the patient: "I ~~begin~~ started to smoke a cigarette after I lit the match"

What did I do first? "Of course you have lit a match <sup>in work</sup> and then maybe the cigarette was already lit, and then I have lit the match" (The patient follows the sequence of words which relate immediately to the sequence of events mentioned; the marker "after" which <sup>HAS</sup> a semantic function of inversion of the sequence is ignored.)

"Rains started after I became ill" What was first, and what followed? "Of course, firstly it rained, and afterwards I became ill". Now a second sentence: "Rains started after I became ill". Are both sentences identical?

"Oh, sure, they are their contents is identical, only the form is different!?"

Patient Pros. "I lit the match after I <sup>BEGAN</sup> to smoke the cigarette. What did I do first? "Of course I lit the match, and then I took the cigarette. It couldn't be otherwise!"

Please repeat the sentence. (The sentence was repeated all ~~what~~ as it was given). Well, what I have done firstly? "I lit the match, and then after that I took the cigarette... Of course, one has firstly to take a cigarette and only then to lit a match and then one can start smoking, and here it is different: one lit a match and then took a cigarette? So the sentence is incorrect."

Sure, it is incorrect" (The patient grasps the "inadequate" meaning of the sentence, comparing <sup>its</sup> meaning (which he did not comprehend, with the imaginary situation he created).

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The defects of understanding of ~~a~~ the meaning of a sentence ~~do~~ are not limited to the ~~com~~ comprehension of sequences of events; the same can be seen in comprehension of the relation of cause-consequence. <sup>Special observation</sup> show that whereas <sup>THE</sup> real relation of cause <sup>AND EFFECT</sup> is well understood, the <sup>patient fails to understand the</sup> ~~formal~~ grammatical formulations of the same relations if they come in conflict with the real events and that the incorrectness of ~~a~~ sentences is never grasped at ~~once~~.

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Patient O.E. (<sup>amnesic aphasia as a result of a hemorrhage to the left temporal lobe</sup>) Experiments were done by Dr. Ph. Babin

Please tell me in your own words the meaning of the sentence: "It is raining because I took my galoshes"



"Well... it was raining, and ~~to~~ not to become wet I took my galoshes..."  
 "It was a long time <sup>THAT</sup> I didn't receive letters from N. because I worried a lot". What is the sense of this sentence? "It is clear: there were no letters from N. during a long time, that is why I worried..."  
 "And is this sentence correct?" "Of course it is correct."  
 "The next train is leaving in 40 minutes, because I feared to be late". Is this sentence correct? "Of course it is". And what is the sense of this sentence?  
 "The sense is that the train leaves in a short time, and that is why I feared ~~to~~ not to reach it..."  
 Patient Pros.

"I am taking"

Two sentences were given to the patient:

(a) "~~I am taking~~ the drug because I am ill"

(b) "I am ill because I am ~~take~~ taking the drug"

Is the sense identical? "Of course it is identical here (b)... if he is ill - he has to take the drug... I am ill... because I am taking the drug... One can say so, but it is better to say: "I am taking the drug because I am ill..." But in both cases the meaning is identical: he is ill, and he takes drugs."

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In all <sup>THESE</sup> examples, ~~as mentioned~~ the patient's defects are of the same nature. Logical relations included in a syntactical structure were ignored and put our patients <sup>DEALT</sup> only with the causal relations of the real events. As a result - the structure of the comprehension of the sentence ~~changed~~ hence changed, and the patients became unable to grasp the formal logical relations mentioned in the phrase. Comma grammatical communication.

Defects of the awareness of verbal logic-grammatical relations <sup>included in them</sup> of syntactical structures were they associated with severe deteriorations of the comprehension. ~~of their meaning~~

1) In the 40<sup>ies</sup>, when this paper was published, the basic disturbances of comprehension of the complex grammatical structures and <sup>of</sup> the transition from superficial syntactical structures to the deep ones <sup>HAD NOT BEEN</sup> ~~was not~~ yet studied as carefully as it ~~is~~ <sup>HAVE BEEN</sup> should. That is why a special system systematic study of the process of transition from the superficial syntactical structures to the deep (or ~~basic~~ <sup>basic</sup>) ones <sup>MUST</sup> ~~has~~ to be done. That has to be the program of the next investigations. (The authors remark, 1971).



V. The breakdown of <sup>intentional</sup> voluntary (conscious) operations upon <sup>the</sup> speech verbal structures.

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All the defects ~~to~~ in operation conscious with grammatical forms resulted, of course, in an inability to manipulate ~~with~~ verbal processes at the voluntary level. It is easy to foresee that even in cases when ~~the~~ fluent syntagmatic speech was preserved - & conscious operations on grammatical structures were markedly damaged in our patients.

To realize ~~conscious~~ operations with verbal processes at a voluntary level means, first of all, to be able to make ~~the~~ verbal processes the aim of his own conscious awareness, to aim not at the ~~real~~ events of ~~the~~ reality but on <sup>at</sup> the processes taking part in ~~the~~ speech itself.

It is well known that in the course of ~~its~~ <sup>its</sup> development, practical performance and conscious awareness of ~~the~~ verbal processes ~~themselves~~ <sup>THEMSELVES</sup> are divided by a series of steps and - as ~~it~~ <sup>it</sup> was already ~~indicated~~ <sup>INDICATED</sup> - children of 3;0-3;5 can practically master a ~~significant~~ wealth of speech performances, whereas even children of 6;0 are yet lacking the ability to concentrate consciously on speech and to fulfill formal ~~structures~~ operations on verbal structures (a short period of ~~the~~ early childhood when children from 3;0 to 5;0 perform all kinds of artificial constructions <sup>WITH</sup> of words in their play does not contradict our statements).

That is why we decided at last to turn to a more detailed study of the difficulties of voluntary operations on speech in patients whose fluent speech was practically preserved <sup>IN PRACTICE</sup> (the basic opposition of fluent vs non-fluent after ~~its~~ was proposed and intensively discussed ca 20 years after its publication of this paper in 1946).

(1) Analysis of syntagmatically incorrect structure of a sentence.

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Up to now we ~~dealt~~ <sup>HAVE DEALT</sup> with some changes in position of words which ~~it~~ resulted in ~~some~~ semantic changes of a sentence.

Now we shall move to another series of experiments. We presented our patients <sup>WITH</sup> ~~some~~ sentences which had ~~a~~ not semantic ~~or~~ incorrectness, but some syntagmatic mistakes and in-coordinations in their syntagmatic organization and we asked the patients firstly to find the mistake and then to construct a sentence with a similar



mistake. That such experiments made it possible to compare the immediate perception of a ~~type~~ syntagmatic mistake with its ~~possibility~~ ability to operate on the speech structures consciously.

In the experiments we mentioned, the syntagmatic mistake did not evoke any semantic (paradigmatic) change or incorrectness. That is why our patients who could not grasp the lexical-grammatical mistakes or changes of speech, grasped very easily defects in its syntagmatic organization, and ~~then~~ corrected the mistake. (By using the well imprinted usual syntagmatic form.)

We presented the patient a sentence with a marked mistake in co-ordination of words, such as "Parokhod idet po vodoi" (instead po vode, instrumental case instead dative) = ~~The boat~~ <sup>an English equivalent</sup> "The boat is ~~was~~ sailing ~~of~~ the water" instead "on the water. An identical English version can not be ~~be~~ found because ~~the~~ <sup>English</sup> inflections ~~don't~~ are not expressed by <sup>was</sup> suffixes.)

The patient had to tell whether the sentence <sup>was</sup> right, to correct the mistake if it was found and last, but not least, to make a transfer, constructing a sentence with an analogous mistake in ~~its~~ <sup>its</sup> structure.

It was seen that all our patients were able at once <sup>to</sup> realize the mistake and to correct it; but all attempts to construct an analogous mistake in the structure of a sentence failed and the patients replaced the formal (syntagmatic) mistake he was requested to ~~do~~ <sup>make</sup> by a concrete semantic mistake.

Let us turn to some examples.

Patient Pros.

The sentence "Parokhod idet po vodoi" (instead "po vode") is given and the patient has to grasp the mistake, to correct it and to tell what of the mistake consists. "No, one has to say "Parokhod idet po vode" (correct). And where is the mistake? (The patient reads the sentence several times). "Po vode vode... po vodoi... No, I really cannot definitely tell where is the mistake... Perhaps "po" is incorrect ("po" remains in all cases) No, I can't..." (Both sentences, the incorrect and the correct one are presented to the patient simultaneously. The patient reads

1) Ca 30 years after this paper we had <sup>an</sup> opportunity to show that in patients with anterior lesions of the brain and with ~~the~~ non-fluent aphasia the whole picture was reverse (cf. A.R. Luria, The understanding on two forms of disturbances in understanding of speech. "Linguistics", 1975)



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but still remains unable to tell what is the real ~~error~~ mistake. After an immediately, step-by-step comparison of both sentences he corrects the mistake but he still remains not fully aware of what is the real ~~kind of~~ mistake.

Patient Out.

The same ungrammatical sentence was presented to the patient. He ~~said~~ <sup>said</sup> at once: "No, it is not correct." "Parokhod idet po vode" is incorrect, ~~the one has to say~~ <sup>has one</sup> "Parokhod idet po vode" (correct). What ~~have~~ <sup>has one</sup> you to change to have a correct sentence? "Parokhod idet no vode... One has to change the sequence of words: "Po vode idet parokhod" ("On the water a boat is sailing") What did you change in the sentence? "Idet po vode" and not "po vode" ("on the water" but not "of the water" water")... because... it has to be determined... no... I don't know" (the patient is confused). Please take a pen and show me ~~where~~ <sup>what</sup> was the ~~mistake~~ <sup>incorrect</sup>! ~~The~~ no "It was incorrect... that the boat is sailing... not on a quantity... on the water... or on the bank... not on the water or on the water side... Well... on the water the boat is sailing... how ~~could~~ should I determine?!" (The experiment was continued but the patient who made ~~practically~~ <sup>practical</sup> the ~~correction~~ <sup>correction</sup> is unable to analyse the ~~mistake itself~~ <sup>formal</sup> mistake ~~of~~ <sup>in</sup> its construction.

The next experiments ~~went~~ <sup>went</sup> a step further. They show ~~the~~ <sup>that</sup> the patient tries to replace a formal reorganization of the incorrect sentence by a ~~semantic~~ <sup>semantic</sup> re-organization and instead of trying to find a formal in-coordination of the parts of the sentence, ~~he~~ <sup>he</sup> begins to ~~constantly~~ <sup>constantly</sup> change the ~~concrete~~ <sup>concrete</sup> content of its ~~part~~ <sup>part</sup>.

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Patient Pros.

After the full explanation of the ~~an~~ <sup>an</sup> formal mistake in the sentence "The ~~town~~ <sup>town</sup> "Loshad bezit po ulitzei" (instead "po ulitzei" instrumentale instead of dative case) (The horse is running by the street (instead of on the street) - The English equivalent says) the patient is asked to make a similar mistake in the sentence "The sun shines ~~on~~ upon..." ("Solnce svetit nad..."). The patient starts ~~to~~ trying to find the answer: "It ~~shines~~ <sup>shines</sup> upon... the sun... upon the earth... No, the last is correct... I can't find... over the earth... well it can be correct too..." (further explanations and examples were given)... "On the earth... No, I can't... the sun shines upon a bad earth... a bad country... No, it isn't that... I can't!"

Patient Out.

After the sentence with a mistake "Parokhod idet po vode"



instead of vade = instum. instead of dative) was analyzed, the patient <sup>WAS</sup> asked to write a sentence with a similar formal mistake. The patient <sup>WROTE</sup> ~~wrote~~: "The train <sup>STOPPED</sup> ~~stopped~~. no locomotive is available" ... no it isn't what you want.. why did the train stop?! The train - that means people... why did it ~~stop~~ stop?.. "where is here a mistake?" "The mistake is that no locomotive is available." Please <sup>TELL WHY</sup> ~~write~~ the sentence "Ja Knochke guelit po derevne" ("I want to walk through a village" is correct. ~~to~~ (after a pause) .. ~~I~~ just a minute (a pause)... I want to walk under the earth... no... it can't be... On the earth, but not under the earth!.."

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It is clearly seen that instead of operating on the grammatical structures and their formal constructions, our patient operated on its level of concrete contents <sup>DESIGNATED</sup> ~~designated~~ in their speech. It is seen as well that although they fully preserved the practical performances with the syntactical structures in their communicative speech, ~~the~~ conscious analysis of their structures remained inaccessible. In other words it is clear enough ~~that~~ that patients, who preserved the immediate communication by speech, were unable to perform any conscious operations on the ~~level~~ speech they practically use.

(2) Experiments on the equivalent grammatical forms.

We shall turn now to the last link of the series of experiments ~~we~~ already mentioned.

If our patients are unable to deal <sup>immediately</sup> ~~consciously~~ with some formal grammatical structures, - it will be very probable that a conscious transition from one grammatical form to another one which <sup>is</sup> ~~would be~~ semantically identical but grammatically different would be of ~~of~~ certain difficulty for our patients.

As an example of such operations we chose that of a conversion of ~~the~~ direct speech to the indirect one.

Patients were given both kinds of ~~the~~ speech fragments and asked to find the difference or, in some cases to make the conversion from one form to the second by themselves.

Needless to say, ~~that~~ only patients with the highest educational background were chosen for <sup>this</sup> ~~that~~ experiment.

Let us turn to some examples.

Patient Petr.

He was given two sentences:

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(a) "The hostess asked the guests: "Are ~~you~~ you hungry?"

(c) "The hostess asked the guests whether they <sup>WERE</sup> hungry"

The patient had to compare these sentences and to tell what is the difference. After a long pause, and after reading each of them several times, the patient says: "Here is the word 'you', and here - 'they'. That means that there are two different guests... or perhaps three... No... it's not the essence... (a) 'you' - is a polite expression (in Russian 'you' is used as a polite <sup>FORM</sup>, and 'thou' as an intimate form) - and that (b)... there are many guests... maybe so."

Patient Aut.

(the same experiment)

"Well... (a) is the hostess... and (b) is not the hostess, but it is unknown who wants it... Well it is the same, but it is expressed differently..." and what is the difference?

"Don't he hungry... well... a transposition... Here (a) there is somebody and he was questioned 'Are you hungry?' And if he ~~is~~ would ask the hostess would give him... The sense is different... Here is a self-sustained sense, and here is somebody's request to another person... Here (a) she met her friend, and the initiative ~~is~~ comes from the hostess, and here (2) if somebody came ~~on~~ the hostess asked whether he is hungry... The mean sense is equal, but the meaning is different. Here the goal (in Russian: meaning = 'znachenije', 'goal' is 'nagnachenije')... the hostess asks: "Don't you want to eat?" and in (b) - somebody came and asked to you eat..." Who's initiative is in (b)? "Somebody is hungry, and the hostess asked... That is his initiative, and in (a) - the hostess' initiative!"

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The data of the protocols shows quite clearly that both patients are cooperating on the contents of both sentences rather than on their formal structure. They are ~~are~~ trying to analyze the differences with a certain psychological precision, trying to find slight differences in motivation in emotional background, in <sup>THE</sup> situation, but they get are unable to ~~to~~ make an abstraction from <sup>THE</sup> immediate contents and to <sup>DIRECT</sup> their attention to the formal grammatical structure of the phrases. They deal with real actions and events rather with formal differences. It is worthwhile to mention, that the patient who easily changes the forms of his verbal comm speech in his immediate communication - remains unable to do it in a conscious voluntary way, if ~~if~~ this special problem is given. Additional fragments of our protocols show titles



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Patient Pros.

After ~~an~~ ~~thorough~~ ~~careful~~ ~~and~~ ~~an~~ ~~extended~~ explanation of the differences between direct and indirect speech forms, the patient was asked to give ~~etc~~ his own examples of both forms.

"Children asked their grand father: 'Please tell us a story'"

"That's ~~a~~ direct speech! <sup>Those</sup> ~~that~~ are his immediate words!"

And what would be the indirect speech? Children asked their grandfather: "Please tell us a story!" ... no... it's different... ~~I don't~~ ~~to~~ I am not sure. (the explanation of the differences of the both forms of speech <sup>was</sup> repeated).

"Children asked the grand father to tell them a story..."

no... I am really unable.. Children asked the grandfather to tell them a story!.. No, I can't (The patient who ~~was~~ ~~not~~ ~~able~~ ~~to~~ ~~give~~ ~~the~~ ~~solution~~ ~~needed~~, ~~remained~~ ~~silent~~ ~~and~~ ~~waited~~ ~~for~~ ~~it~~ and continued to try to find a right solution).

Patient Out.

After a detailed explanation of the rules of the conversion of the sentence from ~~the~~ direct to an indirect form, and after using a series of examples, a sentence was given:

"The old man <sup>SAID</sup> ~~to~~ <sup>me</sup> 'Please visit me <sup>at</sup> ~~in~~ <sup>the</sup> summer'"

"The old man <sup>SAID</sup> ~~to~~ <sup>me</sup> 'Please visit me <sup>in</sup> the summer... Wait a minute.. when ~~do~~ will you come to me? That means that is condensed!.. Now: come to me in summer..."

(The patient is prompted: "to ~~come~~ visit...") To make me... to make her... to visit (the patient cannot grasp the form given).. He said "Please, do come! Please, do start!" (the ~~past~~ explanation and the examples of conversion of an direct form of speech to indirect <sup>are</sup> repeated)

The old man asked him, to... "Come here!" - that would be right! "I should tell that myself with ~~my~~ pleasure... Well it may be... (a pause)... "Please, wait for my arrival!"

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It can be seen that even in cases of prompting, our patients' attention is fixed to ~~the~~ real events, practical forms of invitations, but never is aimed ~~to~~ <sup>at</sup> operations formal grammatical operations dealing with grammatical structures rather than the events <sup>DESIGNATED</sup> ~~designated~~ by the sentences.

The formal grammatical analysis of the verbal structure remains ~~it~~ inaccessible for our patients. <sup>They</sup> ~~show~~ <sup>never cease</sup> to be clever people and sometimes ~~even~~ <sup>even</sup> five psychologists ~~but~~ <sup>in</sup> the first stages of <sup>THESE</sup> ~~experiments~~, never became linguists. They try to analyse the slightest changes of situation, motivation, emotional attitudes of the persons mentioned, but they are unable to pass to the structural analysis of the speech itself.



Conclusions and perspectives

The analyses we made led us to a quite new <sup>AREA</sup> ~~region~~ of research. We deemed the <sup>FINAL</sup> ~~last~~ pages of this paper we <sup>HAVE BEEN</sup> ~~more~~ predominant by concerned not with <sup>neither</sup> ~~not~~ with the analysis of what changes of practical use of language <sup>WERE</sup> ~~are~~ seen in our patients nor with changes in their practical understanding of language (that will be <sup>the</sup> ~~the~~ subject of different studies).

What we wanted to explore was: how patients with lesions of the posterior parts (post-temporo-parietal) parts of the brain can be aware of the language itself, how far they can <sup>become</sup> ~~be~~ conscious not only of its events the language is designating, but of the formal (grammatical and syntactical) structures of language itself?

We started <sup>by</sup> mentioning that a conscious attitude toward the language or speech itself is a rather late result of the child's development. We asked whether this level could be especially damaged in the cases of so-called "semantic aphasia"?

What we have found was ~~of a~~ unambiguous ~~fact~~. All our patients (and only patients with high educational background and with lesions of temporo-left temporo-parietal lobe with the syndrome of "amnestic" and "semantic aphasia" were selected) ~~did not have~~ <sup>HAD NEITHER</sup> severe disturbances in ~~reading~~ in their own practical speech <sup>NOR</sup> in understanding <sup>using the least</sup> ~~simple~~ <sup>THEIR FLUENT SPEECH WAS</sup> ~~communications~~.

<sup>4</sup> ~~They~~ <sup>FULLY PRESERVED</sup> ~~their fluent speech~~ (which was broken only by <sup>some</sup> ~~attempts~~ <sup>ATTEMPTS</sup> to find the proper words), and they had difficulties only in understanding of complex ~~super-~~grammatical constructions (that problem is not discussed here, it is the subject of a series of special publications).

What is clearly seen - it is the difficulty the patients showed in any ~~other~~ <sup>conscious</sup> approach to the formal grammatical structure of ~~the~~ speech itself.

They showed some trouble to <sup>IN SINGING</sup> ~~to~~ <sup>out</sup> ~~and~~ words and <sup>TO ABILITY</sup> ~~to~~ <sup>clarify</sup> parts of speech according <sup>TO</sup> ~~the~~ formal grammatical rules. They were unable to pass from the superficial ~~and~~ syntactical structures to the deep ones, analyzing the formal, structural features of a ~~con~~ verbal commun-



mication. In all these cases they showed a tendency to deal with immediate objects, action or events mentioned in the communication, and remained ~~close to~~ <sup>ALMOST</sup> unable to deal with the formal grammatical structures of the language. As a result of such difficulties, the patients, who ~~remained~~ could easily use ~~grammatical~~ <sup>CONTACTICAL</sup> forms in their own fluent speech, to ~~change~~ <sup>CHANGING</sup> them according to contents they wanted to express, - remained unable to ~~to~~ acquire another attitude and to ~~to~~ <sup>DIRECT</sup> their activity ~~to~~ <sup>AT</sup> the formal structures of language.

~~All~~ <sup>HAVE</sup> what ~~was~~ <sup>WAS</sup> said up to now ~~is~~ <sup>A</sup> clear ~~and~~ description of some basic facts.

Now the question remains, how these facts can be explained?

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We ~~hardly~~ <sup>COULD SCARCELY</sup> ~~could~~ accept the H. Goldstein's assumption that our patients <sup>HAD</sup> lost <sup>THE</sup> "an abstract attitude" or "categorical behavior". This assumption would be too vague, and the loss of "abstract attitude" or of "categorical behavior" itself is rather a problem, the roots and mechanisms of which have to be explained, than a starting postulate which does not require any explanation.

The question remains: what are the basic changes of the brain processes which underly the defects we described? What factors are responsible for this basic changes of attitudes?

Are there some more general and physiologically more understandable factors which inevitably result in the deviations ~~in~~ <sup>of</sup> verbal behavior we described.

And last but not least: what are the defects in mastering some forms of linguistic constructions which can be seen in our patients?

A careful & psycholinguistic - or it would be better to say "neurolinguistic" analysis of ~~the~~ verbal behavior of our patients is <sup>NECESSARY</sup> ~~needed~~, - and ~~to~~ <sup>FURTHER</sup> a series of ~~more~~ studies will deal with these problems.

After the text of this paper was published in 1946



thirty years passed.

They were years of a tremendous development of ~~the~~ linguistic science. New fields were elaborated, new concepts were proposed. The field of ~~the~~ "trans-structural" or "transformational" linguistics was established, basic problems of the relation of morphological, syntactical and semantic events were carefully ~~approached~~ <sup>studied</sup>. New problems of generative semantics ~~were~~ <sup>were</sup> approached.

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It is clear that all this progress ~~became a~~ <sup>was</sup> ~~to~~ <sup>FOR</sup> become a basic background ~~for~~ <sup>FOR</sup> the further neuro-linguistic studies.

Some attempt ~~for~~ <sup>AT</sup> a better understanding of the problems mentioned ~~was~~ <sup>WAS</sup> made in the author's books "Traumatic epistaxis" (1970), "The Higher Cortical Functions in man" (1966), "The Human Brain and Psychological Processes" (v.I-1966, v.II-1970) and "Neuropsychology of Memory" (v.I-1973, v.II-1975, English version 1975), and ~~the~~ <sup>THE</sup> Working Brain" (1973) and - last but not ~~the~~ <sup>least</sup> - "Basic problems of Neuro-linguistics" (1975-76).

This papers reflects only the first steps in this new area, and hence ~~with~~ <sup>with</sup> all ~~its~~ <sup>ITS</sup> ~~the~~ <sup>the</sup> findings, and all ~~the~~ <sup>its</sup> ~~limits~~ <sup>shortages</sup> it has ~~its~~ <sup>ITS</sup> ~~the~~ <sup>the</sup> shortages.

July. 1975.