Psychology of Language and Communication 2006, Vol. 10, No. 2

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NARRATIVE DISCOURSE IN SCHIZOPHRENIA

The narrative theory, built for the investigation of speech pathologies, is based upon G.M. Edelman's theory of neuronal group selection (TNGS, 1998). It is assumed that narrative procedures are linked to perceptual categorization, evaluation, feedbacks, memory, and language. The narrative units distinguished here on the basis of such an assumption, e.g. a narrative picture, narrative sequence, narrative scene and the narrative world reflect the activity of neuronal networks and processes connected with higher-order consciousness. The paper presents mainly the quantitative results of research on narrative in schizophrenia conducted in three patient groups: with chronic schizophrenia (25 subjects), with first episode of schizophrenia (21 subjects) and with child (5 subjects) and adolescent (8 subjects) schizophrenia. Utterances with the features of colloquial narrative were assessed in terms of narrative coherence (the percentage of coherent pictures, narrative sequences and scenes) and narrative complexity (the average length of narrative sequences and the number of sequences in a narrative scene). The entire research methodology and qualitative analyses was presented in the author's monograph "Narracja w schizofrenii" (Narrative in schizophrenia, 2005).

"Communication, and its study, is an essential part of psychiatry (…)
Speech is a window for the mind"
Andrew Sims, *Speech and Language in Psychiatry*, 1995

Method of analysis

The basic question for the study of narrative is: "What is narrative?" In the analysis of the collected corpus of texts, difficulties with interpretation of utterances of patients with schizophrenia prompt us to verify the existing methods and develop new ones. I present below my view on the issues relating to the theory of narrative and the application of theoretical reflection in empirical studies.

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Narrative in light of the Theory of Neuronal Group Selection – Basic assumptions

There are three initial assumptions that provide the foundation for further considerations.

The first assumption is a determinist one. I assume that narrative is determined by the biological structure of the narrator. This assumption answers the question what narrative is based on.

I assume that narrative is connected with perception, categorization, evaluation, creation of feedback, and with memory and language. These phenomena are entirely based on the functioning of the human nervous system and are related to the existence of higher-order consciousness. In describing narrative, it is necessary to take into consideration the biological determinants of linguistic behaviors because without referring to the biological perspective, each description of narrative, dealing with it more extensively than with a narrative text only, would not be complete. Such a perspective is offered by the theory of neuronal group selection (TNGS) developed by G. Edelman (1998).

The second assumption is structural and is related to the functioning of narrative structures in the human mind. It answers the question: "what comprises narrative utterances and how do they function?

Narrative should, I believe, be described as a structure and process. The narrative thus understood falls into the broadly conceived perspective of discursive analysis. This means that we can distinguish in narrative its component units and their interrelations, which become established while it (narrative) lasts. This is embraced in the most commonly accepted understanding of narrative as a structure of meaning developing over time (Rosner, 2003).

Treating narrative as a mental process, I also believe that narrative is a procedure for integrating knowledge by means of language. Its model has to conform to the principles of constructing models of knowledge-building, i.e., it has to function in the *input-processing-output* system. Narrative as a structure of reasoning and cognition is a problem, to which I would like to propose a solution. In interpreting the elements of narrative structure, the processes described by the TNGS are reflected. Narrative activity, like other cognitive processes and consciousness, is based on neuronal processes. In light of the adopted assumptions, we can speak of a complete correlation between these phenomena. The components of narrative will be the following feedback-related units: narrative picture, narrative sequence, narrative scene, and the narrative world, as the reflection of individual levels of the biological organization of the human mind. A detailed discussion of the structure and functions of the units is presented in the subchapters below.

The third assumption will be called an application assumption, involving the possibilities of application of narrative. What is narrative for?

The shortest answer would be that narrative is necessary for living in a human way. This general answer requires a word of explanation.

A. I believe that narrative as a procedure for integrating knowledge by means of language does not apply only to "noteworthy", exceptional, and rare events. I thus adopt a somewhat different stance than that of T. van Dijk (1985) and B. Bokus (2000).

Further, I do not think that narrative is something extraordinary in a healthy, intellectually normal individual who has learned to speak. We find narrative behaviors in colloquial utterances every day: they are an inherent constituent of social communication. I thereby take a similar view to that of W. Labov (1983, 1986), J. Warchala (1993), E. Ochs (1998), J. Trzebiński (2002) or K. Rosner (2003).

Narrative skills have always been highly regarded in society, and the ability to tell stories about unusual things, to create fabulous worlds with words has always ensured a privileged social position to "storytellers". These have been and are special cases, often reinforced by culture in all civilizations. Diverse forms of narrative utterances are socially determined, and narrative skill is becoming the underlying basis of culture and science by releasing the creative power of language and organizing the act of creation in an easily memorizable way for further use. The excerpt from B. Harda's paper cited by K. Rosner (2003, p.8) reads:

> "After all, both our dreams and daydreams are a kind of narrative; we remember, predict, expect, despair, believe, doubt, plan and change plans, criticize, construct, gossip, study, hate and love in a narrative way. In fact, in order to live we create tales about ourselves and others, about both our own individual and social past and future."

The excerpt quoted demonstrates the obvious fact that when we confine ourselves to studying texts only, we narrow down research perspectives. The same holds true for themes confined to the strange or the unusual only.

B. With narrative, most important is the structure of the process of utterance formation. The theme or formal elaboration is of secondary importance. I assert this despite being aware of the fact that numerous studies focus on the formal distinction of larger wholes of narrative discourse, as evidenced by earlier presentations of more or less developed models created since Aristotle, which will be eventually always reduced to establishing the beginning, the central part, and the ending. I believe that distinguishing such wholes is a natural consequence of having identified temporally developing units of the structure of narrative process in its textual realization. This phenomenon is associated with the human's temporal perception of the world and enables identification of events as separate facts.

I also believe that narrative enables building coherent texts, regardless of whether the input data are true or false. This means not only being freed from

place (the problem of reference!) but also from time. It is difficult to attribute only the category of past tense to narrative. Narrative is based upon language, and language, in accordance with the TNGS assumptions, is the basis for releasing consciousness from temporal restrictions. Therefore, why should narrative refer only to that which was rather than to that which is or to the future?

Narrative, as a procedure for integrating knowledge, describes past changes accomplished in reality, it may refer to the present, make plans and models of future events, or even create possible worlds.

C. I assume the equality of spatial and temporal elements in the process of constructing narrative worlds. Narrative may serve to narrate, describe and use other functional structures. When distinguishing structures of this kind I entirely agree with the remarks on the subject, voiced by W. Labov & J. Waletzky (Labov, 1983) and M. R. Mayenowa (Mayenowa, 2000).

In the present perspective, both description and narrative are varieties of the same process, the same structure. The difference between them is reduced to the predomination of one of the two types of sequence organization in a narrative scene: temporal organization (narrative) or spatial organization (description). Obviously, we can find differences between the two types of narrative utterances. It appears that the first need to organize the current linguistically recorded categorizations is their temporal categorization. Social situations require retrieving past events when changing a place or social environment (Kowalski, 1962). For example, a child coming back from the kindergarten gives an account of the day to his/her parents. Narrative in the past tense would be something we might call "primary narrative". Description may come later because to linguistically express the picture of "now", presented "easily" to conscious perception, does not seem possible. This also requires learning to linguistically express spatial relations.

This is a similar case with narrative in the present and future tenses. The structure of a sequence of events, the memory of a sequence of narrative pictures that were, enables us to better mould current or future events.

Description and accounts of current events, and utterances that make projections and models of the future, can be regarded as "secondary" narrative.

D. I assume the subjectivity and intentionality of narrative. Narrative is always somebody's narrative, as B. Bokus (2000) contends. It is also always for something.

This conclusion is entirely concurrent with the TNGS, which recognizes the existence of qualia. Remember that qualia are recategorizations made by higher-order consciousness. Their object is the perceptual relations in each sensory modality and their conceptual combinations, free from time and usually connected with values. They speak of "what things appear to be to us". We report on our experience to the interlocutor but it is always a partial account, imprecise and

dependent on a personal context. The possibility of communication exists only because qualia exist in other people.

Therefore there is no fully objective narrative. There is only narrative more or less consistent with the accounts given by others.

Summing up the discussion on the assumptions for investigation of narrative, I adopt the following definition of narrative: *narrative is a procedure for interpreting the world by means of language*. This means using language in distinguishing, organizing, integrating, and memorizing linguistic information. The result of narrative is the creation of a mental model of reality in order to use it cognitively. This is a dynamic creation of the representation of images of the reality perceived, or representation of the narrator's inner experiences.

Narrative picture

The first component of analysis of narrative is the narrative picture. In accordance with the assumptions, I define this unit in relation to the TNGS.

The narrative picture is a linguistically formulated result of perceptual categorization. It is expressed by one or several utterances with a dominant cognitive function (referential or evaluative).

This means that the narrative picture is determined in its foundation by perception and feedback connections between various groups of neurons. This fact has many consequences.

Firstly, *it combines narrative with consciousness*. The narrative picture is intentional but anchored in primary consciousness – in the perception of the present, in which it is only "semantic anchoring" that takes place with the participation of the brain speech centers. Owing to this, the "remembered" present is released from time to time. Originally, this is the linguistically expressed picture of an event that took place; it can secondarily relate to the past or the present (described this time on the meta-conscious level: I am aware that I am conscious of perceived reality.)

Secondly, *the narrative picture has its inner structure*, which is based on perceptual categorization and neuronal processes connected with it. This structure is composed of distinction of the object, of an event or state, and attribution of value to it or predicating something of it. Predication is usually concerned with the organization of changes or activities in time and space.

At this point we should start a discussion on the inner structure of the narrative picture.

The structure of the narrative picture is first of all organized according to the principle of value: something is valuable, something is less so. This is undoubtedly reflected in biological structures. But this structure is also a mental, linguistic one; the narrative picture is expressed by means of syntactic structures. What therefore determines its internal divisions, organization, and boundaries? Are we dealing here with linguistic or conceptual structures?

In the TNGS interpretation, the grammatical (syntactic) order is only a stabilization of sequences of the linguistic expression of concepts. The perceptual categorization is the supreme quality. For the description of the narrative picture, the concepts of theme and rheme now become important.

Theme is an element in the sentence which is more important or occupies a more central position in the structure of discourse. This element serves as a conceptual starting point, or is an element that is predicated of. This is the focus of attention, a characteristic psychological subject. However, this need not be an item of known or given information. Theme can be treated as a sentence element, of which the rest of the sentence predicates something, but this does not denote equivalence with the argument, because sometimes predication becomes a theme.

Rheme is the information-bearing focus of the utterance, referring to that which the listener should learn about the highlighted element (theme). Rhematization is associated with highlighting information and focusing attention (in the TNGS, attention is defined as a choice of action at a given moment, emerging a motor basis in the evolutionary process).

I believe that the structure of the narrative picture is binary and the most appropriate way to describe it is to distinguish theme and rheme. These concepts, developed in linguistics, best satisfy the demands of phenomena at the level of conscious perceptual categorization. The theme-rheme organization also delimits the boundaries of the narrative picture.

We now tackle the issue of the internal coherence of the narrative picture, which in turn is associated with the concept of connotation.

By connotation I shall understand a system-provided set of lexical feedback connections, which a given lexeme can realize in the text line and decides, in a given context, about the choice of the next lexeme. This is how I would define "textual" connotation, which I prefer to call linear connotation (taking into account the requirements of occurrence of successive words in the "line of text".

Connotation is a process that reflects the systems of connections in neuronal networks.

It does not therefore have purely formal structures, each word having its range of connections assigned by the system. Each next lexeme is feedback-connected with its preceding one via the conceptual and syntactic system. Connotative processes are very well motivated by the TNGS because this theory very explicitly emphasizes the existence of feedback connections within various categorizations (perceptual and conceptual), which makes it possible to account for the fact that there are many simultaneous semantic relations and formal requirements for the lexemes to occur (regarding their order and form of occurrence in an utterance). This means that we cannot create new connected combinations – poetry would then be impossible.

Thirdly, *the narrative picture, like perceptual categorization, is feedback-connected with memory and scene*, and thereby with units that are linguistic represen-

tations of these abilities, i.e., with the narrative sequence, narrative scene, and the narrative world.

Ascertaining, after the TNGS, that feedback connections exist is, I believe, a new quality in describing narrative, for we are dealing not so much with simply building larger units from smaller ones but rather with a spatial construction, where units at all levels form mutually impacting relations with one another. Additionally, through memory, it is possible to use the stored knowledge about the narrative worlds of other people.

Possible similarities of basic units of analysis in other theories – e.g., the concept of situation in Bokus's methodology (1991, 2000) – turn out to be superficial only. In her method, B. Bokus understands a situation as a temporal representation of the state of reality in the mind, i.e., presented from the narrator's standpoint, she does not assume the internal structure of situation (as an analytical unit), and does not define the requirements of coherence of such a structure; nor does she assume the existence of feedback connections. She does not exclude, however, that these phenomena exist, and should be taken into consideration.

Fourthly, we can distinguish *three types of narrative pictures* (constantly referring to the TNGS):

1. pictures that are the result of perceptual categorization in all sensory modalities; pictures of the world perceived by the senses;
2. pictures that are the result of current categorizations of emotions, values, judgments, i.e., pictures of the world of consciousness (the world of qualia);
3. pictures that are the result of recategorization of memory traces, mostly of a generalized character – I shall call them the pictures of memory traces.

Narrative sequences and their organization

There is one more narrative unit related to the working of memory processes. The TNGS describes memory features as properties of the whole system, whole populations of neuronal groups. Some features of memory are especially important to us. These are: continuous recategorization of memory traces, creation of associations and the ability to generalize, and above all, the possibility of organizing sensory sensations and motor sequences into a temporal sequence.

Because we are moving at the level of higher-order consciousness, while considering memory processes, we have to take into account all types of memory: short- and long-term, perceptual, and conceptual. We can quite safely assume that in the case of narrative picture and narrative sequences, a special part is played by short-term ('working") memory enabling storage of memory traces of currently used lexemes and their conceptual and syntactic connotations.

This is an especially significant conclusion in reference to research on the occurrence in schizophrenia of serious deficits of linguistic behavior in relation to working memory disturbance (Bagner, Melinder, & Barch, 2003). We can expect disturbances of narrative at the level of picture and sequence caused by the defi-

cits in recording lexemes and their connotations in memory, even those following one another within one utterance.

I consider the narrative sequence a more complex unit than the narrative picture. By the narrative sequence I understand a minimum of two pictures organized in temporal, spatial or conceptual relations. Sequences can be composed of pictures of known and unknown events, with known events relating to new events.

The most important at this point is the requirement of coherence. We are dealing here with a phenomenon corresponding with episodic coherence [see Tomlin, Forrest, Pu, & Kim, 2001]. Especially important is the clarity of references (referential organization), consequently, the ease of distinguishing what is spoken of in each next picture, and the possibility of distinguishing the main object, event, state – the theme predicated of in a sequence of pictures (thematic organization). It is in the possibility of distinguishing the theme that the foundation for distinguishing sequences lies. Sequences are organized around themes recurrent in successive pictures.

Sequences are fed back on narrative pictures, memory, and the narrative scene they make up. This ensures their grammatical, semantic and pragmatic coherence. The main research problem at the level of sequence is to define coherence between two consecutive pictures arranged in a sequence. This applies not only to temporal sequence, or spatial or logical organization. This must also mean finding the relations of individual themes of pictures with the overarching theme of a sequence. Therefore, at the level of sequence, the fundamental requirement is one of semantic coherence.

The narrative scene

In the TNGS, a major concept is the scene. Remember that the scene is understood as a temporally and spatially organized set of categorizations of known and unknown events. One scene may contain events that have necessary physical or causal connections with others and those that do not have them. It should be remembered, in addition, that in accordance with theory, qualia are categorizations, the higher-order consciousness of which is realized on scenes and memory traces. These assumptions should now be compared with the concept of narrative scene.

I understand the narrative scene as a set of pictures and sequences made intentionally and subjectively by the narrator. The condition for highlighting a narrative scene is to establish the speaker's intentions in relation to the whole utterance being highlighted. In relation to the TNGS, the narrative scene rather reflects the qualia or is in fact the way of presenting them.

From the logical standpoint, a sequence can be a scene if it was made in such a way as to satisfy the condition for "expressing one's point of view on some theme and vis-à-vis someone". But a scene is in fact the correlation of several narrative sequences and pictures. This is a unit belonging to a different level of description than sequence, while the basic requirement of the scene

coherence is pragmatic coherence based on the correlation of a greater number of less complex units. The grammatical coherence of a narrative scene can be assessed in terms of its illocutionary power, chiefly as assertion (Searle, 1987). Moving at the level of scene, we move on the level of the global meaning, global intention of discourse. This macro-level determines the most important information of a given narrative utterance and is central from the standpoint of communication (van Dijk, 2001).

In considering the concept of scene, we can examine all the existing structural models of narrative. A narrative scene is the most obvious unit belonging to narrative in cultural experience. It is at the level of scene that literature begins, and literary analysis also begins at this level.

At the level of scene we can consider narrative patterns. According to J. Trzebiński (2002), narrative patterns are the basis for narrative and its basic structure. The pattern is made up of 1) the heroes of narrative, 2) values, intentions, plans of realization adopted by the heroes, 3) complication, 4) determinants, chances of overcoming difficulties and realizing the planned intentions.

The existence of such patterns is confirmed by observation of the social behavior of people, where the organization of narrative data is always organized into categories: time and place of events, actor, intentions, ways of realization, obstacles. The beginning and end of narrative are thus determined culturally by the adopted narrative pattern. Narrative patterns control the processes of understanding and making decisions, and by suggesting special categorization they enable the integration of data and creation of a sensible story. Activation of particular patterns produces the narrative construction of reality.

From my standpoint, especially significant is the analysis of coherence in the perspective of the narrator's intended conversational implicatures, when the next picture or sequence in a scene is interrelated not by means of direct linguistic features or via the categories of narrative pattern, but rather through inference, based on implied meanings, on the point of view decoded by the listener on the basis of his/her own qualia. We are then moving at the macro-level, assessing the global theme of narrative discourse or its global intention (see van Dijk, 2001; Blum-Kulka, 2001). The problem of highlighting the dominant, global theme/intention seems to be fundamental in distinguishing the narrative scene.

The texts investigated can be also analyzed in quantitative terms. I propose the following categories in the quantitative assessment of narrative:

1. percentage of coherent narrative pictures [PCNP]
2. percentage of coherent sequences [PCS]
3. percentage of coherent scenes [PCSC]
4. averaged sequence length [ASL] (expressed by the average number of narrative pictures in a sequence)
5. average number of sequences in a scene [ANSSC]

I shall use these categories of quantitative assessment further on in the study. In light of the proposed categories, the assessment of the analyzed part of the utterance yields the following results: PCNP 100%, PCS 100%, PCSC 100%, ASL 3, ANSSC 9. The quantitative data show coherent narrative, fairly extended.

I believe that the import of quantitative data may be significant for the comparison of results of pathological narrative in many individuals.

Narrative worlds

The last unit which I propose to distinguish is the narrative world. A narrative world arises as a result of combination of connections of narrative scenes, which are feedback-linked via memory blocks. It is the effect of the network of internal relations in the mind, embracing all narrative units and their memory traces.

Neuronetwork Narrative Theory (NNT)

The foregoing discussion allows us to formulate a narrative theory, which I shall call the neuronetwork narrative theory (NNT). The whole of the previous line of argument can be reduced to one proposition stating that narrative understood as the procedure for interpreting the world by means of language operates as processes in the neuronal network, described by the TNGS.

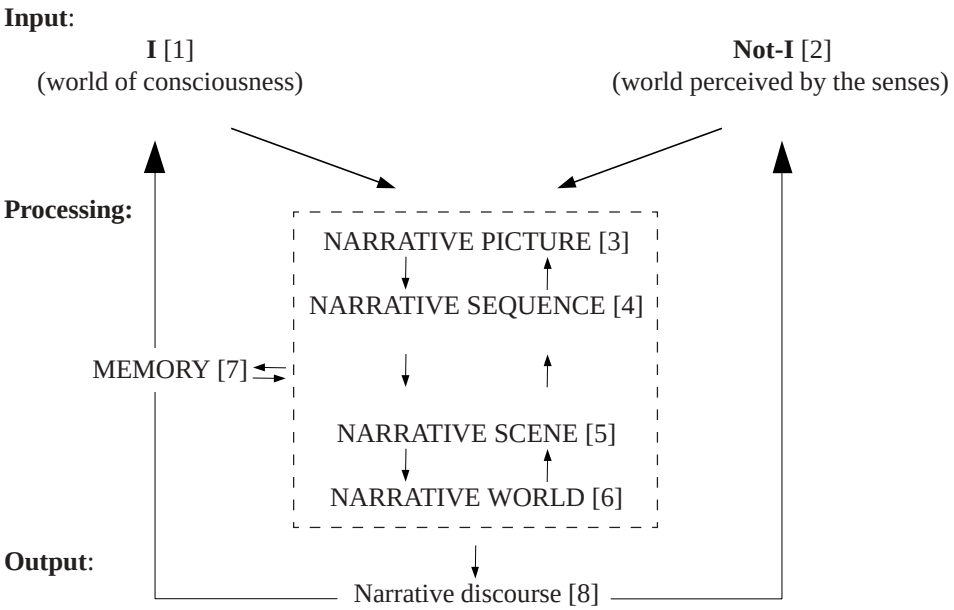
The operation of the neuronal network assumes, first, the existence of specific input information, the system being able to operate on many inputs. Second, the network processes data in a non-linear way, performing numerous parallel operations between feedback-linked neuronal groups and maps. Third, the outcome of the network operation on the output is to form functional circuits (with strengthened synapses) which lay the basis for value-based categories. The model of functioning of narrative interpreted in this way is shown in Figure 1.

As we have ascertained, the narrative model in the NNT functions in accordance with requirements applied to neuronal networks (including the models of knowledge processing and integration) i.e. *input – processing – output*.

The input to the model are:

1. Categorizations of the world of consciousness: judgments, subjective convictions and feelings (qualia), and emotions. According to the TNGS, emotions are the most complex of mental processes and composed of all the others. They include an additional cognitive factor which combines feeling with will and judgment in an extremely complicated way. Additionally, owing to feedback connections with memory [7], processing through the world of consciousness includes recategorizations of memory traces of priorly fixed categorizations of narrative units. The anatomical location of the processes described is mainly the frontal, temporal and parietal lobes.
2. Perceptual categorizations of objects and phenomena in the world perceived by the senses [2] in all sensory modalities: visual, auditory, tactile, olfactory, gustatory, and proprioceptive (responsible for deep sensing). The ana-

Figure 1. The narrative model in NNT



tomical location of these phenomena is the primary and secondary cortex of mainly occipital, temporal, and parietal lobes.

The input data is processed by means of language. The anatomical location of these processes is Broca's and Wernicke's areas. Processing covers several parallel levels:

3. Production of narrative pictures [3], which are linguistic categorizations of input data, binary units composed of theme and rheme. We can distinguish three types of narrative pictures: pictures of the external world, pictures of the world of consciousness, and pictures of memory traces.
4. Narrative pictures form narrative sequences [4], made up of a minimum of two pictures connected by a common theme. Narrative sequences are temporally, spatially and perceptually structured.
5. Creating a narrative scene [5] is another level of processing. A narrative scene is a set of pictures and sequences, made subjectively and intentionally by the narrator; it is a unit distinguished on the basis of global intention. A narrative scene denotes reporting in terms of qualia. Successive pictures and sequences are interconnected not so much by means of linguistic features, covering syntax and semantics, as on a pragmatic basis. They are connected by inference based on meanings implied by the narrator and decoded by the listener, which are the reflection of the narrator's qualia.

6. Correlated combinations of narrative scenes, feedback-connected by memory [7] create a narrative world [6]. A narrative world is the most complete unit of a linguistic interpretation of reality. It is usually realized in more extended narrative utterances of the same narrator.
7. All narrative units are feedback-connected on the basis of current patterning and through memory [7]. Memory is the property of the whole system and is the most important guarantor of coherent functioning of the whole and of internal individual coherence. Owing to feedback connections in the memory, all units relate to the whole which they create in the syntactic, semantic, and pragmatic dimensions. The operation of all processing levels and memory feedback produces coherent narrative discourse [8] as the initial effect.
8. Narrative discourse [8] is at the output of the narrative model in the NNT. It becomes the basis for further categorizations of the narrator's memory processes [1], and it can be fixed in memory via feedback connections [7]. It also becomes the object of the world perceived by the senses [2] of the narrator and by other people. As such, it can become the basis for next narrative processes. In this way, the loop closes in the NNT model, the loop enabling theoretically infinite possibilities for the creation of narrative worlds and relations between them.

The narrative model in the NNT is entirely based on G. Edelman's TNGS. As can be seen, the main assumptions of the model include:

A/ to base on analogy in the operation of narrative processes and other human cognitive processes, which have the foundation in man's biological structure, mainly in the neuronal works. This applies to the complete physicality of all mental processes, perceptual and conceptual categorizations, the qualia, language, and higher-order consciousness;

B/ to emphasize the fundamental role of feedback connections and memory processes in producing narrative;

C/ to ground knowledge processing on language as the basis of consciousness.

Narrative texts of people with schizophrenia, the manner of collecting them and selection criteria for the groups studied

According to the adopted assumptions, the objects of analysis were the texts that were the outcome of colloquial discourse. These are the texts that provide insight into the elementary processes of interpretation of reality. I analyzed longer fragments of uninterrupted utterances because on the basis of previous experience I found that we can expect a greater accumulation of pathological phenomena in such utterances. In the selected excerpts, the cognitive function (referential and evaluative) clearly dominated.

As a rule, the individuals investigated produced narratives on the following themes: childhood, family, God, their own interests. Each time the task had the form of an order: *please tell me as much as you can about your childhood/ your family/ your interests* or questions like: *Why, in your opinion, do people believe in God?*

Additionally, with children and youngsters, a picture-story was used, drawn from the "Logopedic Screening Test for School-Aged Children", and the description of a dwarf, also derived from this test (Grabias, Kurkowski, Woźniak, 2002). This story contains clearly distinguished events forming a temporally and causally structured sequence. The description of the dwarf checks, within the child's range of ability, his/her cultural competence, the knowledge of fairy-tales and another kind of knowledge acquired on the basis of language (see Grabias, 1997). One case also made use of picture-stories published in the "Syllable Test to Examine Speech Fluency" (Kurkowski, 2003).

With the stories used, there was a further opportunity to compare the patients' utterances with the authors'arrangement of events. In the case of children and youth I gave up talking on belief in God as too abstract a subject, which could have resulted in non-extended, impoverished utterances.

The whole communicative situation had the character of an examination, a conversation on general subjects. As a rule it took place in a surgery in the clinic, or at the patient's home in exceptional cases. The dominant arrangement of the conversation was that of examiner (researcher)-subject (patient), with the rare presence of a third party (the clinic personnel, cameraman) who did not affect the discourse.

In the situation thus described, the interlocutors have socially unequal roles, with the rule of politeness towards the examiner/researcher, which largely comes down to maximally fulfilling the orders of the person conducting the examination (apart from the obvious metatextual exponents of the official contact). The kind of contact is official, positions socially unequal, and interaction individual (Grabias, 2001). It is possible that the recurring the arrangement of linguistic roles makes tape- or video-recorded and unrecorded conversations entirely similar to an analogous situation, which permits us to exclude artificiality of the texts. This confirms earlier observations in this area (Woźniak, 2000).

The patients always gave their consent to a conversation and recording it although they had the right to refuse. In the case of children, consent was additionally expressed by their parents or guardians.

The examination-interviews were recorded using various techniques: recordings on an analog or digital dictaphone or camcorder. These recordings were made on different carriers: cassettes, VHS, or compact discs.The diversity of recording techniques can be accounted for by the fact that the texts taken into consideration in the investigations were collected in 1991-2004 and in many places. Studies were conducted in the Lublin Medical University's Psychiatry Clinic, Białystok Medical University's Psychiatry Clinic, Child and Youth Psychiatry Department

of the M. Kaczyński Neuropsychiatric Hospital in Lublin[1], and in exceptional cases – in the patient's home.

From the standpoint of the analyses presented below, an extremely important issue was the criteria for the selection of the groups studied. Altogether, the studies took into account the utterances of 59 subjects divided into four groups. The criterion of division was the time of the onset of schizophrenia and duration of psychosis:

1. group one were children with very early-onset schizophrenia (VEOS), when the disorder manifests itself before the age of 12-13 years;
2. group two were adolescents with early-onset schizophrenia (EOS);
3. group three were adults with the first episode of schizophrenia (first psychotic episode FPE);
4. and finally, group four were patients with chronic paranoid-type schizophrenia, as the most frequent form of this disorder and most pronounced in respect of linguistic pathology and other clinical symptoms (CS)

The basic data concerning clinical studies are shown in Table 1. The figures take into account the size of groups, gender, high (H) or low (L) level of linguistic disorders assessed using the Brief Scale for Schizophasia Assessment (BSSA) (Czernikiewicz, Woźniak, 2004), mean age, and, in the case of children and adolescents, the mean period of schizophrenia onset

Groups were selected in the way described above because the objective of the studies was to assess the general impact of schizophrenia on human narrative abilities in a dynamic, developmental interpretation (understanding the narrative skills as a way of interpreting reality on the basis of language). It seems less interesting to narrow down description, for example, only to the realization of narrative structures in chronic schizophrenia.

What happens to narrative if schizophrenia starts early before language abilities, which enable the complete interpretation of reality, develop in full? What is the realization of narrative structures at the start of psychotic duration and what is it like after many years of duration? How does it go and what form does the process take of transition from normal to psychotic narrative?

These general questions are an additional complication in the description of narrative in schizophrenia. But only the answers to the questions thus posed will allow us to understand more fully the mechanisms of psychotic interpretation of reality. What is more, I would like to stress that I was not exclusively interested in cases of increased linguistic pathology. The point was rather to answer the question: what is the condition of narrative in schizophrenia?

The answers to the foregoing general questions will also enable the assessment of accuracy of the adopted methods for description of narrative.

Group One (VEOS) numbered 5 subjects (two boys and three girls), the mean

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[1] Special thanks should be extended to psychiatrists A. Czernikiewicz and M. Kaczyńska-Haładyj, without whose kindness and help it would not have been possible to conduct the present studies.

Table 1. Clinical data of the groups studied

Group	Size	M (%)	F (%)	H (%) M/F	L (%) M/F	Age (Mean age)
VEOS	5	2 (40%)	3 (60%)	0	100	15 (10)
EOS	8	5 (62.5%)	3 (37.5%)	1 (12.5%) 1/0	7 (87.5%) 4/3	17 (15)
1st episode (FPE)	21	14 (66.6%)	7 (33.3%)	1 (4.76%) 1/0	20 (95.24%) 13/7	20
CS	25	14 (56%)	11 (44%)	13 (52%) 9/4	12 (48%) 7/5	35

age being 15 years and the mean time of onset being the 10th year of life. Occurrence of schizophrenia among children is very seldom reported, only 0.5-1% of all cases of schizophrenia occur before the age of 10, this rate rising to 4% before the 15th year of life (Remschmidt et al., 1994). None of the children examined represented a high rate of schizophasia (H), all can be counted as belonging to the low schizophasia group (L) according to the BSSA scale (Czernikiewicz, Woźniak, 2004).

The group of adolescents with schizophrenia (EOS) numbered 8 subjects (5 boys, 3 girls). One boy had a high level of schizophasia (H), which was 12.5% of the group. The mean age was 17 years, the mean time of onset being the 15th year of life.

The adult group with the first psychotic episode (FPE) numbered 21 subjects (14 males, 7 females). In this group one male subject exhibited a high level of schizophasia-type language disorders (4.76% of the total group). The overwhelming majority of the group (13 males and 7 females) exhibited practically no disorders of schizophasic type (L). The mean age in this group was 20 years.

Patients suffering from chronic schizophrenia constituted the largest of the studied groups – 25 subjects. The percentage of patients with high schizophasia was also the highest, being as much as 52%. The mean age was 35 years.

As said above, the division into groups took into account only clinical data and partly sociolinguistic variables (gender, age). Territorial origin and education were not taken into consideration because of the preliminary nature of studies on the impact of schizophrenia on human narrative abilities in the developmental aspect. Further studies should be conducted on larger groups and these variables will also have to be taken into consideration.

Attention should be drawn to the fact that studies on linguistic phenomena in schizophrenia have not yet been carried out in the comparative mode described above. The purpose of the presented comparison of the realization of narrative units within the individual groups studied is in fact to answer the following particular questions, which complement the general questions posed earlier:

1. are there significant interrelations between the age of schizophrenia onset, connected with this degree of mastering speech and the manner of realization of narrative structures, their coherence and complexity?

2. does the duration of psychosis affect narrative?
3. does the early manifestation of schizophrenia become a neurodevelopmental disorder that blocks the possibility of development of narrative structures, thereby impoverishing interpretations of reality?
4. what are the kinds of psychotic interpretation of reality?
5. is narrative necessary for delusions to arise?

The foregoing questions set forth the main directions of research within the collected text corpus.

The results of studies of narrative in schizophrenia

I shall present below mainly the quantitative results of research and discuss them in brief. The presentation of the whole body of results with numerous examples of text analyses is contained in my monograph describing the problem in question, titled *Narracja w schizofrenii* (Narrative in schizophrenia, 2005).

What kind of reality emerges from the analyses of narrative in schizophrenia? The answer to the question reads: there is no single, universal type of psychotic reality.

Studies of narrative permit us to ascertain that the structure of representation of reality in the mind of an individual suffering from schizophrenia depends on the degree of knowledge of narrative structures at the moment of onset of the disease, intensity of pathological changes, duration of psychosis, and treatment. As we have found, a narrative world carries the characteristics of the individuals that create it and is essentially entirely dependent on them.

The world that is created in our minds is subjective, it can be free from time, place, the veracity of input data or logical categories of assessment of truth or falsity. One can project potential realities in it, using the infinite capacity of the language system to generalize and categorize.

But the narrative world reflects judgments on reality contained in narrative pictures. Judgments organized into sequences in spatio-temporal and logical order make up complex structures of meaning. The correlation of complex meanings, presented from the standpoint of the narrator's intentions, creates a narrative scene. The effect of arrangement of combinations of scenes is the picture of the world emerging from this process.

A logical consequence of this state of affairs is to ascertain the interrelation between the interpretation of the world as a whole and its parts. A pathology found within constituents must be reflected in the whole. The specification of data concerning the quantitative analyses of narrative in schizophrenia is shown in Table 2. Remember that the quantitative assessment covered the utterances of patients in four groups: patients with very early-onset schizophrenia, usually before 12-13 years of age (VEOS), patients with early-onset schizophrenia, before 18 years of age (EOS), adult patients with onset of the disease, with the "first psychotic episode" (FPE), and patients with chronic schizophrenia (CS).

Tab. 2. Quantitative results of studies of narrative in schizophrenia

UNIT OF DESCRIPTION OF NARRATIVE	GROUP			
	VEOS	**EOS**	**FPE**	**CS**
PCNP	84.7	83.69	98.38	70.8
PCS	76.6	78.9	92.73	54.24
PCSC	60	71.87	89.62	36.56
ASL	4.95	4.06	3.64	5.02
ANSSC	1.7	2.1	2.1	3

Narrative utterances were assessed for their coherence in the following categories: percentage of coherent narrative pictures (PCNP), percentage of coherent sequences (PCS), and percentage of coherent narrative scenes (PCSC). The complexity of narrative was also assessed by establishing the average sequence length (ASL) measured with the mean number of narrative pictures and the average number of sequences in a scene (ANSSC).

Conclusions

The conclusions that emerge from the interpretation of the foregoing data are as follows:

Schizophrenia affects human narrative abilities

In all the groups studied, a certain percentage of narrative incoherence was reported. There are, however, no studies that assess narrative coherence in healthy individuals, using the method applied in this monograph. If we had this kind of evaluation, then and only then could we formulate conclusions comparing the scale of incoherent utterances in normal and in diseased subjects.

But while describing the specificity of schizophrenic narrative incoherence, quantitative analyses turn out to be helpful. The reported phenomena that cause loss of discourse coherence are specific to psychosis to the extent that it is difficult to say that they play a great part in the utterances of healthy individuals.

Narrative disorders in schizophrenia are found in all its entities.

Within the narrative pictures the following pathological phenomena were found:

A/ impoverished picture or changes in the cognitive value of the picture;

B/ lack or incompleteness of theme or rheme;

C/ false identification or falsification of reality;

D/ delusional pictures;

E/ pictures with disturbed thematic-rhematic coherence;

F/ combined disturbances of narrative pictures.

We should believe that some of the aforementioned phenomena (e.g., A or B) can also manifest themselves in the colloquial narrative of healthy individuals within the intellectual norm. Finding such facts does not however need to conclude about incoherence of the whole discourse. However, this calls for separate study.

The specificity of pathological phenomena associated with narrative pictures in schizophrenia is their occurrence against the background of the pathology of narrative sequences and scenes. One can even propose an emerging hypothesis about a feedback relation between units in the formation of pathologies. Then a specific type of pictures would make up certain types of sequences that would form a definite kind of scenes. The conducted analyses partly confirm this state of affair.

The following pathological phenomena were identified within narrative sequences:

1. delusional sequences, internally related;
2. delusional sequences, internally disintegrated;
3. disintegrated sequences without delusional features, with disturbed linear connotation, using accidental associations, e.g. sound similarities;
4. sequences disrupted by visions and hallucinations, with an unspecified listener;
5. sequences consisting of pictures with a disturbed relation with the superordinate theme, which do not result from delusions, maintaining the unity of listener.

A narrative pathology at the sequence level, typical of schizophrenia, will, in all probability, not occur in the utterances of healthy individuals (except perhaps for category 5). One can therefore arrive at the thesis that the specificity of schizophrenic narrative is easier to discern in relation to larger units.

We discern the specificity of schizophrenic disorders also in the case of narrative scenes, which manifest the following pathological phenomena:

1. A narrative scene does not arise. The speaker does not build narrative that is to tell about some fragment of reality from his/her point of view.
2. A narrative scene arises. It is incoherent, disorganized. It does not exhibit delusional features. The main problem of the scene is the lack of a main theme. The scene is composed mainly of sequences with disturbed internal relations, "digressive"(type 5). The pictures that make up such sequences are often those resulting from difficulties and impoverishment in interpreting reality (A, B, C).
3. A narrative scene is organized in a delusional way; consequently, it is pragmatically incoherent. The scene consists of delusional narrative sequences, internally related, sometimes already with features of disintegration (type 1). We often find delusional narrative pictures and pictures with disturbed thematic-rhematic coherence (D, E).
4. A narrative scene is disintegrated. It is formed mainly by delusional sequences with features of disintegration (type 2), made up of pictures with

combined disorders (F). Increased language pathology occurs, chiefly manifested by disturbances of linear connotation (sequence type 3). Utterances contain symptoms of manifestations of auditory hallucinations or responses to them (sequence type 4).

All the foregoing qualitative observations confirm the conclusion about the impact of schizophrenia on human narrative abilities. Detailed solutions should continue to be sought by comparing quantitative data with the results of qualitative analyses.

Narrative coherence decreases with the complexity of narrative units in all the groups studied

This conclusion confirms the thesis, resulting from the qualitative analyses of narrative utterances, that the specificity of schizophrenic incoherence is more easily observable in large fragments of the narrative text.

In all the groups, progressive incoherence can be observed as unit complexity increases.

In the VEOS group, the PCNP value is 84.7%, the PCS 76.6%, and the PCSC 60%, which means that the coherence of utterances is still fairly good at the picture level, and drops at the sequence level, but the scene is already a failed construction (sometimes it does not arise at all).

In the EOS group, the PCNP value is 83.69%, the PCS 78.9%, and the PCSC 71.87%. The number of incoherent pictures and sequences therefore assumes the values approximating the VEOS group, while the coherence rate for larger portions of utterance improves. It should be emphasized that delusional constructions already manifest themselves in this group.

In the FPE group the PCNP value is 98.38%, the PCS 92.73%, and the PCSC 89.62%. The observation of a considerable increase of coherence in the FPE groups deserves a separate conclusion and comment. Despite the highest level of narrative coherence in the groups studied, there is a persistent tendency for coherence to decrease with the degree of unit complexity. Elaborate delusional constructions also occur in this group.

In the CS group, the PCNP value is 70.8%, the PCS 54.24%, and the PCSC 36.56%. These figures are proof of a dramatic drop in the coherence of narrative discourse in chronic schizophrenia. The decrease in coherence between the successive units of the quantitative description of narrative is also the highest. One out of three narrative pictures is incoherent, and so is every other sequence. Only one out of three scenes is coherent.

How can these data be interpreted? I believe that the results obtained can be related first of all to the theories establishing disturbances of working memory processes in schizophrenic patients (Czernikiewicz, 1998; Bagner, Melinder, & Barch, 2003) or to the thesis about generalized disturbances of feedback connections (Edelman, 1998).

The time element is significant in the case of both solutions. More complex units require longer processing time. That is why a working memory defect, causing loss of data necessary for building up an utterance, may significantly affect its coherence. This is also the case with the lack of feedback: the longer the time of processing, the greater the chance of straying off the subject, of random associations or breakdown of other intratextual relations.

Probably for this reason, in order to maintain coherent discourse, schizophrenic patients also build shorter and less complex utterances and make use of a concrete code at the time they lose symbolic relations in an utterance (Woźniak, 2000).

The collapse of coherence therefore relates primarily to complex units and is connected with the disturbances of the narrative pattern, of reporting on the course of events, distinguishing the most important information.

In light of the foregoing findings, we can confirm the conception of dissolution of psychic functions developed by J. Mazurkiewicz (1980). This psychophysiological conception assumes that in the course of schizophrenia, a process occurs which is the reverse of evolution. A breakdown therefore takes place starting from complex functions to elementary functions, from functions acquired latest to those acquired earliest. This also applies to linguistic and cognitive functions, which was confirmed in studies by Czernikiewicz (1998). Incoherence first applies to discourse, then to the text, sentence, and the word.

What does this mean to the narrative world presented in the patients' utterances?

This observation indicates difficulties with giving sense to larger fragments of reality, problems with interpreting emotions, events and more complex structures of social life. Patients perceive individual facts but these form larger, meaningful wholes with difficulty. Or they form patterns according to some rules other than those that we are taught by social behaviors. It is then that the problem of delusions and loss of the pragmatic coherence of linguistic behaviors appears.

Schizophrenia is such a socially distinctive disorder mainly because it prevents the correct interpretation of reality, thereby exerting a negative effect on the social functioning of the diseased person. The possibility of a correct assessment of events and the right response to them is a fundamental ability that enables the survival of individuals and the species. In the case of humans, this ability has been developed through evolution and is guaranteed by higher-order consciousness, language, and related narrative behaviors. The present studies clearly show a deficit of these phenomena in schizophrenia.

The greatest narrative coherence is exhibited by adult patients in the first episode of schizophrenia

As we have noted before, this conclusion calls for a separate comment. It points to the fact of relations between the age of schizophrenia onset, the degree

of mastery of speech, narrative ability, and the coherence of the picture of the world in the mind.

The world presented in the narratives of FPE patients is fairly coherent, and even if delusions and loss of pragmatic coherence occur, it "demands" internal connections. This means that at the onset of the disease, the world of psychosis is not the world that determines an interpretation of reality. The diseased person experiences the new perceptual and emotional sensations induced by the disease as strange, differing from the world previously known. It should be remembered that in the EOS and FPE groups, developed delusional systems start to be evident.

A. Kępiński (1981) called the schizophrenic state the "phase of overwhelming seizure". It can have a more or less violent course but experiencing the disease always initiates a certain process of changes. As a result, a new view of oneself and the surrounding reality develops in man. The psychic tension associated with this process tends to be so intense that the diseased persons may not feel pain, cold, or the need to eat, drink or sleep.

However, something else draws our attention in light of the studies presented here. The observation of the highest coherence of utterances in the adult group at the onset of disease is the reason for posing several questions:

– At what age does the use of narrative units as cognitive structures become stable?
– What happens with narrative in the course of schizophrenia? Why are the earlier onset and the narrative condition in the long duration of psychosis characterized by greater incoherence of social behaviors?

The acquisition of narrative structures takes place in the course of speech development but after having mastered the most important skills in the system. At any rate, children of preschool age start to use narrative. But when does the use of narrative structures stabilize and start to play a basic role in the interpretation of the world?

It follows from the author's own studies presented here that this process occurs between 10 and 18 years of age. Patients who began to suffer from schizophrenia, the earliest (VEOS), exhibit certain differences in narrative building as compared with the other groups. The EOS group patients, with the schizophrenia onset at about the age of 15, exhibit significant similarities to adults (e.g. the presence of delusions, similar complexity of sequence or scene), but they are still a certain transition category manifesting resemblance to the VEOS group, at least in the kinds of narrative pictures used in utterances. However, the onset of schizophrenia after the age of 18 is marked by a statistically increased narrative coherence, which means that the narrative units and process are fully developed and stable. This changes in the course of psychosis duration.

What happens if schizophrenia has a very early onset?

A very early onset of schizophrenia produces diminished narrative coherence and diminished narrative complexities

In the VEOS group, the number of sequences in a scene is only 1.7, the percentage of coherent scenes, however, being 60%. The higher percentage of coherence applies to pictures and sequences: PCNP 84.7%, PCS 76.6% , these being almost identical results as in the EOS group (PCNP 83.69%, PCS 78.9%).This may mean that the basic narrative units already function in a more established way; the problem, however, relates to larger wholes. It should be remembered that in this group, statistically most often, there did not arise narrative scenes describing reality from outside the current communicative situation. With regard to the kind of narrative scenes, there are undeveloped scenes with a low degree of organization. Likewise, with the narrative sequences and pictures, most often there are those with a simplified, impoverished construction. Delusional constructions were not reported.

The aforementioned observations confirm the thesis about the domination of negative (deficit) symptoms among children suffering from schizophrenia (Betts & Walker, 1987). Conclusions about linguistic disorders found in narrative and dialogical pictures by means of various methodologies were also confirmed (Caplan et al., 1996, 2000; Woźniak & Kaczyńska-Haładyj, 2003).

The thesis which defines very early-onset schizophrenia as a developmental disorder is therefore valid. In this case, the breakdown of narrative coherence probably does not take place. The emergence of coherent narrative may simply not occur because such coherence arises only as high as at the scene level. One can imagine a situation, where, as a result of the diseased process, an incomplete narrative pattern is formed.

What does this mean for the world of child narrative in schizophrenia?

The interpretation of reality is incomplete and substitutive in nature. Narrative categories do not develop, that would allow us to understand the world to a degree that would be accessible to colloquial reflection. Adducing G. Edelman's theory of neuronal group selection, one could probably also ascertain deficiencies in the processes of higher-order consciousness – there must be an incomplete collection of the qualia: subjective convictions, judgments, or values, which are an integral part of each of us and determine our choices of the directions of action (Edelman, 1998). To some extent, they are after all a result of narrative.

The absence of delusion formation is proof of "consent" to the image of reality, not calling for full explanations. The shocking world of madness will not arise. The behaviors of these patients will be dominated rather by apathy and retreat from the incomprehensible external world. This process takes a different course when schizophrenia manifests itself after one has learned to use the cognitive structures based upon language. Then, due to the system of relations inherent in language, an individual possesses the outline of the whole of the surrounding world (obviously in the area of colloquial knowledge, necessary for life).

The schizophrenic process must therefore be reflected in the change of functioning or in the dissolution of cognitive structures, which are narrative units and units of a language system. What remains only is to reach the linguistic determinants of these processes and describe them.

The coherence of narrative is significantly disturbed in the course of chronic schizophrenia

Disturbances of narrative coherence in the group of patients with chronic schizophrenia are very distinct. In comparison with the adult patients at the onset of schizophrenia, the diminution of coherence regarding particular units of narrative description is as follows:

– Percentage of coherent narrative pictures (PCNP) dropped by 27.58 %;
– Percentage of coherent sequences (PCS) dropped by 38.49 %;
– Percentage of coherent narrative scenes (PCSC) dropped by 53.06%.

Diminished narrative coherence correlates with the occurrence of schizophasia. In the group studied, as much as 52% of patients exhibited a high-level of schizophasia assessed with the BSSA scale categories (Czernikiewicz & Woźniak, 2004). This observation also coincides with the conclusion following from the extensive research by A. Czernikiewicz (1998) that schizophasia is to be recognized as a distinguishing characteristic of chronic schizophrenia.

On the basis of the presented results, we shall include disturbances of narrative, along with linguistic pathology, in the basic symptoms of chronic schizophrenic psychosis.

In the group of patients with chronic schizophrenia, disturbances related to narrative scenes were associated with the previously distinguished types of disturbances. Pathological changes occurred only more frequently and with greater intensity. The observation may be interesting which ascertains a lack of interrelated delusional constructions. Delusions in this group are always associated with increased semantic-grammatical incoherence. This shows a progressive process of the breakdown of language which is the basis of narrative.

A specific characteristic of this group is disintegrated narratives, in which it is the narrative scene that is disintegrated. Disintegrated scenes are mostly created by delusional sequences with disintegration features. These sequences are composed of pictures with combined disturbances.

Always, when pathological narratives of this kind arise, heightened linguistic pathology is revealed, manifested first of all in disturbances of linear connotation. This shows the breakdown of coherence connections already at the level of basic syntactic units.

In the disintegrated narrative discourse, we find manifestations of auditory hallucinations or responses to them.

From the standpoint of discourse coherence, the ascertainment of manifestations of auditory hallucinations is very important. Linguistic interaction

intersubjectively accessible to the speaker and the listener is disturbed. In such a situation the schizophrenic speaker constructs an utterance that is a contamination of two or more possibly originally coherent utterances. Only one of them is intended for the external listener, the others are a response to auditory hallucinations. From the listener's standpoint, such an utterance will be incoherent. What is disturbed above all is the pragmatic dimension of the utterance.

The effect of "hearing voices" additionally intensifies the other aforementioned problems with controlling an utterance, with maintaining its coherence also at the semantic and grammatical level. This produces, inter alia, visible difficulties with maintaining the overriding theme, accidental associations, and the disturbed activity of connotative processes. These can be observed already at the level of narrative picture formation.

In disintegrated scenes, basic narrative categories are disturbed: characters, intentions and their realization, complication and the order of the course of events. They are realized fragmentarily or not at all.The survival of syntactic structures of the language in cases of narrative disintegration is another proof confirming the theory of dissolution of mental functions in chronic schizophrenia (Mazurkiewicz, 1980; Czernikiewicz, 1998). Loss of narrative skills occurs in reverse order to their acquisition.

Apart from disintegrated scenes, of great importance to the description of narrative in chronic schizophrenia are cases of narrative scenes where the narrative pattern is partly realized but there is loss of the goal of utterance. A narrative utterance arises but it is difficult for both the speaker and the listener to establish what it is for.

What could have happened during the dozen or so years of the disease duration that narrative ceases to perform its function? How does this affect the narrative world in patients with chronic psychosis?

An additional mystery is the fact that the length of incoherent sequences increases (to 5.02 narrative pictures in a sequence) and so does the number of sequences in a scene (up to 3). The phenomenon of the increased complexity of incoherent narrative units can be interpreted in terms of the TNGS (Edelman, 1998), as a manifestation of disturbed feedback. We explained this hypothesis earlier and would like to sustain it here. There is much evidence of the occurrence of diminished coherence in longer utterances, and accounting for it by disturbed feedback is one of the hypotheses with the firmest biological foundations. The utterance develops only by "racing forward", without a suppressing factor, which is the controlling mechanism guaranteed by properly working feedback connections.

This observation also has a general dimension, enabling an answer to the question about the causes of loss of narrative functions.

The lack of feedback in the model of narrative proposed by the NNT causes a total chaos of information processing. Consecutive input data is not coordinated with the foregoing. The regulatory operation of working memory, which enables the creation of connections between each unit and the whole, is blocked. Some-

times this lack of connection is manifested already at the level of perceptual categorization, at the level of the narrative picture, and is expressed in a lack of relation between theme and rheme.

The discourse that arises as a result of the narrative process thus operating is incoherent not only from the standpoint of the listener but also of the schizophrenic narrator him/herself. He/she cannot explain the interrelations of narrative units because there are none.

Narrative ceases to perform its fundamental role, which is to interpret the world for the needs of human life.The narrative world in chronic psychosis is slowly eroded. Causal, temporal and spatial relations cease to be valid. The picture of the world reflected in the mirror of the mind breaks down into tinier and tinier pieces that do not form a whole. Erosion affects the great narrative scenes that make up the story of our lives: memories, family, work, love affairs, as well as the scenes that form social life: religion, politics, and morals. This is evidenced by the patients' utterances about childhood, family or faith in God. A chronic schizophrenic process leads to the breakdown of narrative in an individual and social dimension, as evidenced in the present studies.

Final remarks

As we stated at the outset, there is not one world of schizophrenic narrative. Different versions of psychotic narrative worlds can be measured by the distance from the world created by colloquial narratives of healthy individuals.

If the disease is manifested very early, the world we know is created only in an impoverished, surrogate way.

At the onset of the disease at the adolescent and adult age, a delusional interpretation of reality, different from the colloquial, may arise. The worlds of delusional narrative are variants of the world we know. They are created based on the creative possibilities of language.

With the prolonged duration of the disease there is disintegration of the picture of the world both in the colloquial and delusional versions. This observation correlates closely with the disturbances of the functioning of the language system and loss of its creative possibilities.

Summing up, it should be said that the foregoing conclusions can be a contribution to a discussion on the generally understood theory of schizophrenia, especially regarding the model of the mechanism of behavior disturbances observable in this disease, as well as the problems of classification of schizophrenic psychoses.

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