

Types of Inferences in Discourse

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Abstract

In all the diversity and manifold researches of inference its nature remains unrevealed, as there is a lack of the uniform basis of the inference occurrences. It is mainly connected with the non-homogeneity of the inference action and a huge spectrum of its occurrence in language and speech. The study focuses on the search for the universal and relative to the nature of inference criteria of the classification of inferences in language and speech to penetrate deep into the essence of the discussed phenomenon. In this regard, the paper presents an analysis and discussion of the existing inference classifications on the basis of such criteria as functionality, a vector of action, a level of cognitive procession, inferential relations, etc. The aim of the analysis is to compare the current classifications of inferences, to make a conclusion about possible vectors of the inference actions in language and speech and to find out the universal, cognitive foundation underlying inference occurrences. Taking into account the nature of inference as a way of human thinking, the types of inferences are identified according to such mental operations as comparison, filling in (framing), integration, elimination, deduction, induction on the material of various linguistic resources (texts, utterances, dialogues). The proposed classification requires further consideration on the basis of a broader linguistic material (various types of discourse, utterances involving polysemantic words or phraseological units; the study of nomination processes of complex linguistic units like idioms, derived verbs, compound nouns) and can be modified and complemented.

Keywords: classification of inferences, cognitive operations, discourse, situational context

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Introduction

The study of the relation between language and thinking has established such research objects as reflected and integrated knowledge, mechanisms of derivational knowledge and its types. In contemporary investigations into the inference phenomenon by inference is meant an operating process or mechanism of receiving inferred information in the framework of the whole cognitive process of information processing. Though the definition of inference isn't questionable, one can come across a lot of classifications of inference types that point to the unclear nature of inference and show a diversity of approaches to the phenomenon. In this regard, it appears that inferential mechanisms are less clear than it seemed, and the action of the inferential mechanism as well as the spheres where it can be applied are unclear and cause a discussion. Such questions as how we receive the inferred information; whether the material is inferred fully or partly; what mental blocks are responsible for getting inferred information are left without answer. Thus, the article presents a try to answer some of them.

Any person, as a conscious being, is forced routinely to make conclusions consciously or unconsciously in terms of linguistic or everyday situation. That is why we should not interpret the term inference only as a linguistic phenomenon, as this notion is connected with the cogitation process in general. For example, seeing an unpleasant scene, a person may turn pale or blush automatically, in this case inference occurs at a physical level, i.e., a speculation that does not appear in the "conscious gap" has a visible effect of either redness or paleness of skin. Nevertheless, the article is not aimed at describing inference as an extra-linguistic phenomenon as it would require a larger scope of view grasping such scientific spheres as philosophy and psychology to provide a deeper insight into common principles of reasoning, mechanisms of cognitive processing of speech and interrelation between memory and operational reasoning processes.

At present, there is a manifold studies attempting to explain the mechanisms of inference on different linguistic material applied to the problems of word formation and the text or discourse perception.

Thus, reviewing the inference occurrences in language three areas in the study can be considered: 1) an inference arising due to the cognates perception (for example, *graduation ceremony - graduates*); 2) an inference restoring a predicate when identifying the semantics of a denominal derivative (*a pianist is a person who plays the piano*) or arguments to the verb that expand the polysemy of a nominal (*the appearance: to have a charming appearance; the appearance of the actresses on stage; the appearance of books from the press, etc.*) 3) an inference underlying the polysemy analysis of derivatives belonging to different parts of speech (identifying the initial prototypical meaning of the word morpheme and then recognizing the entire semantic family of the words by the principle of family similarity .For example, outside a text the adjective 'forest' has a common meaning "belonging to forest", but in certain context this word can mean – 'being in the forest' (*a forest glade*), typical of the forest (*forest odor*), etc.). The research carried out on the derivative verbs can be considered another area of studying the inference in the word formation. The inference process serves here as an instrument for deducing a meaning of a derivative verb from the motivating stem, which acts as an accumulator of knowledge and the "context" in the conceptual integration of the stem and the derivational morpheme.

In the reviewed areas, the inference is taken as an operational process, which plays either a cohesive or an expansion role. Nevertheless, in reality the spectrum and nature of the inference action is much broader. This statement can be supported by a number of works in which the inference is studied within the framework of various types of discourse: narrative (Clark, 2009), scientific, argumentative (Graesser et. al., 1997) as well as the works studying inferential processes while reading (O'Brien, Cook & Lorch, 2015; Helder et al., 2015; Goldman, McCarthy & Burkett, 2015). The discursive study of inference began with a number of pragmatic theories: text-processing models (van Dijk & Kintsch, 1983), the situational model (Sperber & Wilson, 1986), etc. In these studies there was an attempt to step aside from the formal logical approach in understanding of the inference. The inference was viewed as a set of deductive or exclusion rules. For the first time the influence of internal, cognitive information within the current situation and social context was taken into account. Later, the effect of the inference in the discourse was considered in relation to the level of text processing; the type of inferred semantic relations; the type of the knowledge structure and context, etc.

Relying on the text processing model (van Dijk & W. Kintsch, 1983) some authors identify the vertical and horizontal types of inference action in text. Vertical inference occurs in the process of organizing atomic propositions into higher-level structures: macro propositions and then into macro propositional schemes. Horizontal inference can be coherent or extensive ones: the first one is necessary to fill the gaps on the micro or macro propositional level, the second one is for a more complete, broad understanding of the text base (Ballstaedt et. al, 1981). The types of the above mentioned inferences correspond to the types of inferences identified due to the place of their action in the text. Carpenter & Just (1977) suggest defining inferences as forward and backward. A forward inference is directed to the parts of the text following the inference-generating passage, the backward has an effect on the parts of the text preceding the inference-generating passage. As a similar example, one can refer to the identification of inference types according to a functional criterion. Analyzing a structure of a paragraph and how it correlates with the inference mechanisms, Crothers (1979) finds it necessary to separate deductive logic from plausible types of inference, which he defines as a priori inference and a posteriori inference. Crothers' inference-based theory of text structure, as well as the theories discussed above, are based on the fact that the underlying structure of the text is formed due to the explicit, surface text by making some propositions, elements of propositions and linking inferences. If the inferences are based on the information external to the text, such as the background knowledge, Crothers classifies them as a priori ones. A posteriori inferences are deduced the course the semantic processing of the text / utterance on the basis of the received information. An important feature of a plausible inference is its optionality. Thus, the structure of the text becomes dependent on the personal inferences deduced in the course of the text perception. In this regard one should mention the inference distinction offered by Reder (1980). He distinguishes obligatory and facultative types of inferences. The obligatory inference is necessary for the reconstruction of the text coherence and the filling of semantic blanks; the facultative one enriches the text content without performing the cohesive function.

In contrast to the theory of van Dijk & Kintsch (1983), the lexical decomposition theory serves as another basis for distinguishing types of inferences (Schank, 1979), (Sanford et. al, 1981). Dividing a text into semantic primitives and their interrelations, Sanford & Garrod (1981) identify

an "automatic" type of inference, believing that the inference is built in the underlying conceptualization. For instance, when perceiving the second of the two related sentences: *Mary dressed the baby. The clothes were made of pink wool*, the word "clothes" is already presented in the form of a semantic primitive, as it is deduced when the word "dressed" appears (Sanford et. al, 1981). In their further researches (Garrod & Sanford, 1982) they go even further, considering two types of inferences: an "automatic", unconscious one and a mentally controlled, that appears on the level of consciousness. There is a similar type of an inference that occurs when a general term is replaced by a specific one. The perception of sentence *The fish attacked the swimmer* lasts longer than the perception of the sentence *The shark attacked the swimmer*, because the addressee is forced to infer what underlies the general term 'fish', by substituting it with specific terms 'shark', 'piranha', etc. M. Singer analyzes the inference that is deduced when filling such slots in a sentence, as an agent, a patient, a tool. He classifies it as a case-filling inference. So, the sentence *The tooth was drilled* can be easily supplemented with the words "by a dentist" (Singer, 1979).

The contextual theory can be considered as another approach to the classification of the types of inferences. Considering the general characteristics of the context, Clarke & Carlson (1981) come to the conclusion that the context can be intrinsic and incidental. The former is subjective and has an external impact on the process of perception, namely, on the emotional-personal attitude to the statement, the situation, the physical state of the listener, etc. The latter is the "common ground" for the speaker and the listener at the moment of speech, derived from three main sources: physical co-presence, linguistic co-presence and an equal social background. According to the authors the processes of inference are based on mutual knowledge obtained from the above mentioned sources of experience. Thus, the inference linking the previous statements to the newly perceived ones, is based on the linguistic co-presence, suggesting that the listener takes his own knowledge and the knowledge of the speaker as mutual. The output information is also influenced by physical co-presence, implying that the emotional and physical perception of the communicative situation is common to the speaker and the listener. Belonging to the same community is the source of relevant background knowledge necessary to understand the linguistic realities and eliminate misunderstanding in the communication (Clark, 2009; Clark & Carlson, 1981).

There are also theories considering online inferential processes in both passive and reader-initiated comprehension (Graesser et. al., 1994; Isberner & Richter, 2014). Thus, the constructivist theory (Graesser et. al., 1994) is based on the types of knowledge structures used to create the reference situation model of the narrative text. The theory is built on the principle "search after meaning". According to this principle, the reader seeks to create a notional representation in line with his own goals and coordinates it at the global and local levels, explaining the actions and events of the text. Thus, the reference situation model becomes a mental representation of heroes, events, actions, the environment, etc., which are explicitly mentioned in the text or are filled in inferentially by means of activating the background knowledge structures. Background knowledge is activated through the recognition of patterns, the explicit content of words and their combinations, the interpretation of the text. If the structure of the background knowledge is familiar, most of it is automatically activated in the working memory. With regard to the content of the inference generated from the background knowledge structures and in accordance with the level of the structure of the reference situation model, the authors distinguish 13 classes of

inferences tracking the local and global coherence, the reader's emotional state, the ideas and goals of the author, etc.

Having done a retrospective analysis of the existing inference classifications and the criteria underlying them, we have identified two general approaches in the classification of the inferences. The first one is taken according to the way of inference generating. The inference can be triggered either automatically (van den Broek, Beker & Oudega, 2015) or it can be preceded by evaluating the existing information and processing of knowledge structures (Yeari & van den Broek, 2015). The second approach is based on the time characteristics of the inference generation: the inference can occur in two modes: on-line or off-line. The inference generated on-line can be called a bridging inference. It serves to link words or small parts of text at the local level (they are deictic, antecedent, instrumental, role, etc. elements). To it belongs the inference which helps to deduce the main idea of the text by linking large textual segments. The inferences generated off-line are either automatic inferences or inferences broadening and enriching the perceived meaning. It should be stressed that mainly narrative texts were analyzed when distinguishing the above-mentioned approaches to the inference classification. Unfortunately, this fact significantly reduces the perspective of the study and does not allow working out a unified approach to the analyzed phenomenon. In our opinion, inference as a process having a universal character should not be reduced to a narrowly focused analysis of narrative texts or chains of logical conclusions used in analytical texts. To determine the essence of the inference and, as a consequence, its types, absolutely different, deeper basis for the classification of the inference types are required.

Research Questions

1. Search for the universal basis for the classification of inference types that would be relevant to the inference nature;
2. Study of the types of inferences in relation to the linguistic material; analysis of the results.

Purpose of the Study

The purpose of the study is to examine the nature of the inference as thoroughly as possible via studying all sides of the phenomena and classifying its types. In the present research the inference is primarily viewed as a way of thinking and, consequently, the search for the basis of the classification of its types is carried out through the analysis of the mechanisms of human thinking taking into account various areas of the inference functioning.

Research Methods

The discursive and contextual types of analysis were chosen as the primary research methods. In the process of the contextual analysis the inference was studied on the material of different language resources such as a text, an utterance or a dialogue. The aim of the discourse analysis was to identify the context, underlying a piece of oral or written speech, and to study the correlation between the choice of the vocabulary and the context.

Findings

The inference is a form of mental activity; therefore, it is thinking that could constitute the foundation for penetrating into the essence of the inference process. Thinking is a mental process of generalized and indirect reflection of constant, regular properties and relationships of present,

significant to the solution of cognitive problems. Thinking sets the structure of individual consciousness, forms the values governing the personal assessments and the interpretation of events and phenomena, provides their interpretation. To understand something is to include something new into the present cognitive space. In the course of the historical development and social work practice being in close link with the development of language a human has mastered stable forms of objectification of mental activity results: concepts, judgements, and inferences. Mental activity may be purely algorithmic, logically structured, for example, when doing mathematical tasks and lining up the arguments logically, and, on the other side, may have a heuristic and creative nature. Inference, as a phenomenon different from syllogisms formulated by Aristotle, should be referred to the latter of the mentioned forms of mental activity, as one of the major signs of inference are guess and heuristics. If the following algorithm means forming a chain of consecutive arguments and rigidly determines a conclusion, then heuristics only sets the probable line of possible outcome, but does not guarantee its correctness. ***All horses are mammals. Horses are herbivores. Therefore, all mammals are herbivores*** is a logical chain of assumptions with a logically correct, but practically false conclusion. This chain of reasoning is an artificial equivalent of human thinking, but quite far from reality. Let's consider another example. ***Well, to be honest I am not happy with the way you run the department. The trouble with you is you always want to know where I am, every second of the day. How can I meet my sales targets if I have to spend all the time writing reports, telephone messages and attending meetings.*** This fragment of discourse shows that there is no sequence in the chain of put forward arguments, and the implied meaning is a completely different from what is said 1) I am tired of nit-picking; 2) I don't have enough time to perform the primary work; 3) there is a lot of unnecessary work in the office, etc. However, the conclusion that the interlocutor makes is right - ***You should take some days off, Mary. I see you are tired, but if you really want to help, write down your suggestions.*** It happens because the basis of inference is heuristics and guess, which modify what is inferred by the speaker. Perceiving an implicit statement, one does not get the literal meaning of the words, rather refers the third meaning, which is created not solely on the basis of the literal meaning of the words, but one's own personal background and extra-linguistic context. The extra-linguistic context in this case refers to the current situation, bringing out certain emotions of the listener and making him evaluate the ongoing event. The main thinking operations are considered to be comparison, analogy, generalization, abstraction, systematization, concretization, induction, deduction, analysis, synthesis, etc. However, not all of these operations can be considered in relation to inference. Therefore, analyzing inference we started out from the linguistic material and sought the correspondence between the received conclusion and the underlying mental operation.

Comparison is a mental operation, revealing similarity and difference among the phenomena and their properties, forming a basis for the classification and the generalization of these phenomena. The need for the selection or juxtaposition of an object to the class of similar ones causes a comparative inference in which a prototype as an abstraction from a set of incentives, serves a model for comparison. In cognitive psychology a sample is some internal structure, which, when compared to sensory stimuli, helps to identify the object. After comparison of the object with its sample is over, further processing of information may occur as well as interpretation of the object. Prototype-based comparison is viewed by cognitive psychologists as a more likely economical model of comparison in human thinking as compared to the above one, since "prototype is not only an abstraction from a set of incentives, but also a "synopsis", the best

representation of this pattern". For example, the analysis of polysemy of derivatives of different parts of speech shows that identification of words belonging to the same semantic root, occurs due to their comparison with the prototype in the basis of this semantic family. An adjective *road* means relating to a road, *roadworks* mean *works on the road*, *road pavement is the surface that covers the road*. In our case, the road is a specific object that has both sensory standards and prototypes in the minds of native speakers, with which all subsequent objects are compared. Thus, inference is an operation of comparison, where the recipient makes a conclusion on the belonging of the compared object to the total assembly of the objects (e.g. associated with the road) and then adds evaluative characteristic to the final conclusion, which is often supplemented by personal emotional experiences, images, sensory feelings (smell of fresh asphalt-pavement, hard work in characterizing road works, etc.) This hypothesis is reflected in the works by A.A. Zalevskaya (2005), who compares the process of word perception with the action of holographic beam, which highlights affective-cognitive- perceptual basis, revealing deep layers of its meaning. Any process of inference, in this case comparative inference, is based on this principle. Comparative inference is usually accompanied with integrative inference involving the connection of mental fields or frames of knowledge, on the basis of metaphor or metonymy (Fauconnier, 1997).

- You can owe me small sum money.*
- *But I'm as poor as a church mouse.*

In a comparative metaphorical model poor as church mouse the focus is made on the knowledge of such monastic tradition as moderation in eating. A church mouse, due to such moderation, does not have enough stocks and lives from hand to mouth. Thus, the listener comes to conclusion that the person does not lend him money because he himself lives in straitened circumstances.

Filling in or framing (the term framing is derived from the word *frame* (Minsky, 1974); a frame is a structure of the information storage in our memory that can reflect a stereotyped situation and the typical components) is a cognitive thinking operation by which the missing components or details of the situation are filled in. The examples of filling in inference are great in number.

- A – We need to talk seriously.*
- B – Where else was I wrong?*

In the given example A is an adult or a teacher who verbally indicates the frame of future communication "a serious talk", B is a junior or a student who interprets the A's replica not as an invitation "to talk seriously", but as an inevitable reprimand completing the situation to their own understanding of a "serious conversation". A serious conversation for an adult implies a "heart-to-heart talk", where everyone should try to understand one another; an adult should explain some important things to the child who should to take them into account in the future. For a child a "serious conversation", due to the existing child's experience becomes a reprimand, a discussion of unpleasant things that he/she is ashamed of discussing with an adult. In this case, a filling of certain slots of a "serious conversation" for an adult and a child takes place. For each of the participants the slots of a "serious conversation" may be different. In our case they differ from agents and patients. There is no patient for an adult in the situation of "a serious conversation", but

there are two equal agents. A child, in his/her turn, completes the patient, attributing to him the role of a defendant, or even a victim of parental upbringing. A similar functioning of inference can be seen when perceiving a newspaper title, for example, Case Mr N Finished In Court. This heading makes the reader recreate the situation in court and refer Mr N to either the offender or the victim.

The effect of filling in inference can be seen when interpreting words having the same root in a text. *There was too much noise at the school graduation party. The guys had fun celebrating the end of their study. This assembly was special; such abundance of diplomas with Honors was for the first time.* When comprehending this statement the components of the situation are completed: the guys turn into graduates, an assembly into graduation, etc.

Integration is mental linking of concepts or mental spaces through such types of projection as conceptual metaphors, conceptual metonymies and schematic inductions. According to the theory of conceptual integration (Fauconnier & M. Turner, 1995) the domains or mental spaces include the elements represented by groups of nouns which can be either the objects constructed on-line, or the existing objects in a conceptual system. The connection of two or more mental spaces occurs through a generic space, which provides common information for all the spaces. The fourth integration space is a blend. Blend gets the elements from both the original spaces and converts them into a new emergent structure that is different from the original mental spaces. The principle of action of the integrating inference is the same. It can be seen in particular on the example of forming a nominative meaning of a compound word or phraseological unit. The perception of such structures in a text is usually contingent with the double inference (Suvorova & Polyakova, 2016) (when the conceptual integration occurs simultaneously when interpreting a compound word or phraseological unit and connecting it with the rest part of the text). The example of integral inference can be the interpretation of a phraseological unit *A bad dancer always complains of his legs*. It is possible to distinguish two original mental spaces *a dance* and *legs*. These mental spaces are connected with each other through metonymic conceptual projection and form a common blend, which includes, on the one hand, grace and lightness, inherent to *a dance*, and on the other hand, such a flaw as clumsiness when *walking* common to some people. Cognitive processing results in the integrating inference *a bad work is explained by a ridiculous reason*. If this phraseological unit occurs, for example, in the following situation *Even if you learn math, or not - A bad dancer always complains of his legs*, the phenomenon of double inference occurs, when the inferred meaning on the bases of a phraseological unit is subjected to a secondary rethinking on the basis of the existing text. It still remains unclear how the whole process of double inference occurs: either inferring of meaning of a phraseological unit is combined with inferring of general meaning of a saying, or these processes represent a chain of sequential findings. In any case, in the process of thinking the key concepts are included in all new links and, therefore, they acquire new qualities, from which the most relevant are selected, which are suitable for linking with other concepts and in this way common sense of saying is generated. We will emphasize that the bases of this link form personal meanings influencing the identification of qualities of an object, as well as adding to sensor, evaluative and emotional components. In such a way a new content from the statement is derived, on the one hand, it acquires a different meaning every time; on the other hand, new properties may be elicited in it.

Elimination is a cognitive operation by which the elimination of some irrelevant information occurs in the course of comprehending, processing and semantic inference. In this case we deal with eliminating inference. When comprehending the utterance *As soon as I started working, I began to put away for a "Moskvich"* such unnecessary details as the time when the work started, the type of the car, etc. are eliminated and the most necessary information is interpreted *the speaker really wants to buy a car "Moskvich", but he cannot do it immediately because the sum of money is too much for him*. The effect of eliminating inference is based on the principle of economy that is why only those signs are capable of elimination which "don't have new information, and serve as a sort of auxiliary elements for an adequate perceiving of information". If every time we expressed our thoughts to their full extent, showing all the links among them, verbal communication between people would be impossible. Therefore, the principle of elimination forms the basis for creating implicit statements and their inference. One of example of double functioning of eliminating inference can be elliptical sentences.

-Are you done?

-In the beginning.

Compare these elliptical sentences with their complete counterparts.

- Have you finished your job?

-No, I just started this job.

In implicit statements the speaker relies on extra-linguistic context which includes 1) common to both interlocutors theme - work that is currently being done; 2) belonging to a certain group that performs this work; 3) emotional and evaluative perception of this work (for example, its labor intensity, sustainability, deadlines, etc.) 4) knowledge on the essence of this work, etc. When decoding this utterance a similar extra-linguistic context has the same components which may vary only by emotionally-estimative perception. Thus, the effect of eliminative inference caused by conventional omissions in the structure and fabric of the text does not affect communicative-pragmatic potential. Elimination of semantically relevant quantum of information can also be described due to its pragmatic reasons, to which peculiarities of target, set by the subject of speech, should be ascribed. This factor determines the subject of the communication, which is different from the underlying fragment of reality in becoming a subjectively perceived reality. If a statement contains semantically relevant information, which, however, is contrary to communicative intention of subject of speech, it is reduced by the recipient as unnecessary one (and it may sometimes lead to misunderstandings and distortion of perceived meaning).

In addition to the juxtaposition action of eliminative inference in building and perceiving the utterance of speech, it is possible to specify different mental levels of the process described. In the above given examples we have seen the so called superficial level of eliminative inference action. A deeper level of inference understanding should be considered the interaction of two types of inference: integrating and eliminative ones, because the action of integrating inference is always determined by extraction of key information quanta due of one concept to connect them with relevant information quanta of another concept.

Deduction (lat. deductio – extraction) is a reflection of the general cohesion of phenomena or a categorical coverage of a particular phenomenon by means of its general links, the analysis of

the specific concepts in the system of generalized knowledge. Consequence of deduction is logical conclusion, which is based on a chain of reasoning, where its parts (utterances) are linked each other with logical conclusions. The start (intentions) of deduction is a hypothesis, which can be characterized as a general statement ("common") and the end is a conclusion based on them. Deduction is the basic means of a logical proof. The concept of deduction is very close to the concept of inference, if it implies a logical conclusion.

Defining the laws of formal logics Aristotel was the first to explain the logics of inference. From that moment and up to now inference is often compared with Aristotel's syllogisms without taking into consideration that formal logic and natural reasoning are two different phenomena. Formal logic used for instance in programming languages requires strict algorithmic actions, and it can't be compared with natural logic of human reasoning that is less predictable, based on direct and indirect expression of sense and depends on a vast majority of factors that cannot be logically simulated. Background knowledge, a situation, a context, an emotional characteristic of events can't be logically built (Suvorova, 2016). The most vivid example of the artificial application of formal logic laws to the process of natural human reasoning were several semantic theories (Gamut, 1991; Montague, 1973; Carnap, 1948). In pragmatics an example of formal logic could be conventional implicatures (Grice, 2001; Leech, 1986). There are researches in the field of discourse reviewing inference as formal and stochastic induction, and studies that present an analysis of informative rhetorical utterances (idioms, metaphors, clichés) that are comprehended in the framework of formal logic. Such understanding of inference is normal, if it is equated with common understanding of the logic of a conclusion. Nevertheless, it's necessary to distinguish between such definitions as inference, implicature, inference, syllogism, taking into account that the listed notions are synonymous but unequal. Each of them defines its own segment in the spectrum of natural and logical conclusions and they should not duplicate or substitute each other. Among the enumerated notions inference explains natural logic of cognitive reasoning and it shouldn't be used to define formal logic conclusions because these ones have their own definition – syllogisms. In its turn inference is a process of natural logic or the inferred knowledge in a course of cognitive processing of information based on social and cultural background knowledge, a situational context, experience, a personal emotional and evaluative characteristic of the interpreted information as well as deduction, guessing and hypothetical justifications. In this regard, the inference of deductive nature will be considered here, but which is not equal to deduction.

A: If the weather is good, we will go for a walk.

B: It means that you do not go to work tomorrow?

In this situation, it is clear that, B relying on the fact that there is an opportunity to spend time together, comes to conclusion that A will be free (if you can go for a walk, then you are not going to work). This example shows logical conclusion, which is the result of a chain of logically related reasoning (*the weather is good* → *we go for a walk* → ~~*mom*~~ *does not go to work*). In contrast to deductive inference, which is built on pure facts, like *All human beings are mortal*, *Socrates is a man*, → *Therefore Socrates is mortal*, deductive inference is affected by context,

background knowledge, personal experience, emotions, etc., therefore conclusion in this case (e) cannot be formal, it can vary and these changes can be significant.

Induction is a plausible inference, when by individual features of some phenomena a judgment is made about all the objects of this class. Traditionally, induction is contrasted with deduction, because unlike deduction it is directed from particular conclusions to the general ones. However, the difference of inductive inference from the deductive type is of a vague nature, because it is rather problematic to see the borderline where a person starts from general and comes to particular and vice versa. Therefore, the separation of inductive inference from the deductive one is very intuitive and difficult to verify.

A: You've got a poor mark for your homework again.

B: Tamara Ivanovna just niggles to my handwriting.

A: You're just a slob.

In the conversation with a son, proceeding from the knowledge on the son's character and the keyword *handwriting*, the mother concludes that a poor mark was received because of his carelessness. As we can see, these experiences compel to do empirical generalizations based on precedents from personal background (for example, a child often gets poor marks for his/her dirty handwriting, which leads to form a general conclusion on his character that he/she is a slob). Inductive inference, therefore, is built on certain stereotypical metal models (if a child has dirty handwriting, he/she does not keep his/her room in order, he/she is carelessly dressed, etc., a stereotype of a kid is a slob is formed).

Through mental models we interpret our experience, simplify the worldview, generalize events occurred with us. On the one hand, this allows us to compress, archive our experience, and on the other hand, we lose the variability inherent in things and events. At first, the cognitive process works on mental model, then mental model adapts the perceived information. Thus, induction replaces the diversity of real life with monotonous views about it.

So, the main difference between inductive inference and deductive one is that the latter is based on stereotyped perception of reality, which brings to the conclusion, neglecting the truth. In other words, inductive inference is the result of a chain of hypotheses that are implausible and based on stereotypes.

Conclusion

The analysis of inference nature has demonstrated necessity to identify main types of inferences, which would help expose all the aspects of this phenomenon. The inference phenomenon has a multi-vector nature which is manifested in completely different fields of human activity. Studying inference in the framework of linguistics, we, nevertheless, search for the inference type classification basis in the field that is wider than linguistics – in the field of human thinking. This approach has been chosen for two reasons: 1) the universal nature of the inference (a person infers not only on the basis of what was said, but also on the basis of what was seen, perceived, emotionally experienced); 2) the relation of inference to human thinking (inference is referred to the form of thinking and cognition).

In the course of the linguistic material analysis (texts, spontaneous human speech, etc.), the following types of inference have been identified: comparative, filling in (framing), integrating, eliminating, deductive and inductive. The presented classification can be supplemented, since the scope of language material for the inference phenomenon study is rather large.

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