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Kostiantyn Raikhert**SCENARIO BUILDING AS A HEURISTIC AND LOGICAL PROCEDURE**

The study examines scenario building as the secondary procedure of the “heuristic logic”. Scenario building is the extreme case of heuristic and logical procedure. The procedure involves constructing certain sequences of fictional utterances to realize certain goals and tasks (in the case of heuristics and logic to solve cognitive problems). Fictional utterances constitute fictional worlds, which can include possible and impossible worlds. Scenario building is a creation of a fictional world, which evaluation as the possible or impossible world depends on the conditional denotation (matter-object or designation) of fictional utterances and the plausibility of relations between the conditional denotation and the fictional utterances. The plausibility of fictional utterances is characterized by such properties of fictional utterances as a possibility, credibility, and relevance. These properties are related to the concretizations of the selected types of plausibility (referential, logical, poetic, and topical) and the selection and combination of elements transferred from the actual world to the fictional world.

Keywords: *fictional utterances, heuristic logic, plausibility, possible worlds, scenario building.*

The Italian philosopher Emiliano Ippoliti develops the so-called “heuristic logic”. By “heuristic logic” E. Ippoliti understands “[a] set of rational procedures for scientific discovery and ampliative reasoning – specifically, the rules that govern how we generate hypotheses to solve problems” [Ippoliti 2019: 191]. E. Ippoliti divides these rational procedures (or rules) of “heuristic logic” into primary and secondary ones. Primary procedures include analogy and induction of various kinds. Secondary procedures include the so-called “inverse heuristics” and “heuristics of switching”. Among the secondary heuristic and logical procedures stand out the extreme cases: thought experiments and scenario building (planning). **The study examines the procedure of scenario building as a heuristic and logical one.**

Scenario building as a procedure is related to another procedure, the thought experiment. Thought experiment as a heuristic and logical procedure in the search for solutions to problems uses scenarios because thought experiment requires thinking about scenarios and their possible consequences [Ippoliti 2019: 204]. Hence: those advantages that thought experiment has can also have in the construction of a scenario; these are the advantages: “[1.] It enables us to overcome technical or technological limitations, and hence to

consider situations that cannot be set up practically at the time of their conceptualization (e.g. a macroscopic object moving to the speed of light). 2. It is particularly effective to highlight surprising or paradoxical consequences of a theory or hypothesis” [Ippoliti 2019: 204].

By “scenario” E. Ippoliti understands a scheme of the natural or anticipated course of events, in simple terms: stories or narratives that describe plausible predictions of a certain part of the future. Importantly, scenarios answer the question “What if?” to explore what the consequences might be, for example, of a decision made. At the heart of the construction of a scenario is the storyline: “[a] combination of events whose unfolding can be foreseen and of other events for which it cannot be foreseen” [Ippoliti 2019: 204].

In general, E. Ippoliti believes that scenarios are projections of a possible future: “[T]he scenarios do not, in fact, intend to prove that what is projected will take place: they simply highlight possible trajectories for critical events” [Ippoliti 2019: 204]. This is the heuristic function of scenario building. From a logical point of view, however, projection is not enough; the scenario must be *plausible* based on assumptions and justifications that are *possible* (to show that the projected story can take place), *credible* (to show how the projected story can take place), and *relevant* [Ippoliti 2019: 204–205] (to show the relevance of the projected story in already defined or known circumstances). Scenario building then appears as the construction of plausible reasoning, in which there is a transition from the actual state of the world to an interesting (interesting for us) version of the future. This transition can be apprehended in two ways [Ippoliti 2019: 205]: 1) first, interesting variants of the future are chosen, and then attempts are made to form paths leading to these variants; here the point of account of the forming paths is often the actual situation; 2) first, the actual situation is analyzed (the so-called “factual forces”), and then a plausible future (plausible developments) is designed based on the results obtained in the analysis. One way or another, both ways involve knowledge (or information) about the current state of the world and probably background knowledge, only the first way requires first making an assumption and then finding justification with the help of what is already known (the “facts” are “fitted” to the assumption), while the second way requires “deducing” possible consequences from what is already known (“facts”).

Subsequently, scenario building, and thus the creation of a story or narrative, can be seen as the construction of plausible reasoning. If the conceptualization of scenario building as the construction of plausible reasoning is recognized (“legitimized”) as something quite justified or meaningful, then one can look at plausible reasoning not simply as a connection between, for example, the premises and the conclusion, but as a transformation of some

given elements into a causal sequence: the premises are the causes of the conclusion. Plausible reasoning (as, however, probably also demonstrative reasoning) can be viewed as a series of interrelated discrete elements (events, facts; judgments in inferences may well be viewed as facts, that is, as judgments about the actual state of affairs, or as fixations of events), that is, as a kind of narrative.

Considering plausible reasoning as a “narrative” lets me look at the plausibility of such reasoning differently, for example, from the structural-semiotic point of view. In structural semiotics, there is such a concept as “ideology,” which refers to a system of secondary signifiers (connotations) [Ильин 1975: 456]. Ideology is based on the relation between a given discourse (mechanisms of generation of statements or texts) and topics (concepts accepted in a given community). This relation itself is accepted as plausible. However, here plausibility can be of four kinds: 1) referential plausibility: the relation to “reality” accepted in a given community; 2) logical plausibility: “laws of the genre,” the rules of a given discourse or narrative; 3) poetic plausibility: used figures of rhetoric; 4) topical plausibility: common places (“tops”) dominant in a given discourse [Ильин 1975: 456–457].

If we accept the structural-semiotic consideration of plausibility and look at plausible reasoning from the position of this understanding, we can propose the following typology of plausible reasoning: 1) referentially plausible reasoning; 2) logically plausible reasoning; 3) poetically plausible reasoning, and 4) topically plausible reasoning.

Referentially plausible reasoning is such reasoning, the plausibility of which depends directly on what and how “reality” is understood, what types or kinds of reality are accepted, etc. (here, too, the question of actual/possible/impossible worlds, the problem of truth, the problem of fact, and the problem of the event can play a special role).

Logically plausible reasoning is such reasoning, the plausibility of which depends on the rules of the preferred discourse (super-phrasal, stable unity, the mechanism of generation of statements or texts). Here logic is understood not in a narrow sense (as a discipline of philosophy or mathematics), but in a broad sense – as ways of transition from some statements (or texts) to other statements (or texts) on certain grounds. In this context, the various formal and informal logic, starting from Aristotle’s syllogistic, seems as discourses, and logic as a whole as a set of certain kinds of discourses. The logical constructions themselves are seen as super-phrasal unities arranged according to logical rules or schemes.

Poetically plausible reasoning is such reasoning, the plausibility of which depends on the rhetoric that has been preferred to capture the imagination of

the person they want to convince, whom they want to impress, or whom they want to manipulate.

Topically plausible reasoning is such reasoning, the plausibility of which depends on appealing to someone’s authority (e. g., in the form of quotations, references to research data, references to authority, references to similar cases) or on assumptions that are accepted or agreed upon by members of that community.

Combinations of these four types are possible. At the same time combinations are possible according to the number of the types of plausible reasoning involved: from two to four. Combinations according to a co-subordinating principle are possible. For example, adequate or relevant discourse (logic), rhetoric, and topics are selected for the chosen understanding of reality. Combinations according to the free principle are possible, when, for example, between the chosen reality, discourse (logic), rhetoric, and topics there are no adequate, relevant, possible, probable, or necessary connections, but only random, contingent connections.

In the meantime, it is important to think that plausibility in any of its forms is responsible for creating a referential illusion, that is, the illusion of imitating reality or representing reality, but not the imitation or representation itself. Plausibility (like fiction) functions based on a relation of contiguity between the reality of the text and actual reality [Зенкин 2017: 176]. Plausible reasoning, then, does not represent actual reality but is in a metonymic relation to actual reality, which is achieved through reference, logic, rhetoric, or topics. The metonymic relation is a semiotic fixation of ontological relations in things, including an identifying function [Райхерт 2015].

Based on the above, plausible reasoning is reasoning based on a referential illusion. And further: scenario building, viewed as the construction of plausible reasoning, is the creation of a referential illusion. In heuristic-logical terms this can be expressed, for example, as follows: “[T]o construct a plausible future, of course, we must use knowledge of the past, or better, of how past events unfolded in circumstances similar to those of the present, circumstances similar to those that characterize the present state of the world, and then we can project parts of the past into the future” [Зенкин 2017: 205]. In other words: to reason plausibly about the future, one must refer to connections already known in or between things; this reference is the referential illusion.

Yet, not only plausibility but also fiction can be responsible for creating a referential illusion. Fiction characterizes the “[c]onditional denotation of literary statements” (i.e., fictional statements), different from actual reality [Зенкин 2017: 169]. The concept of fiction is associated with the concepts of

possible and impossible worlds. Possible worlds are holistic worlds that contain fictional, non-existent things, but have sufficient coherence like our own: “[i]n every single work of literature such a special world is formed” [Зенкин 2017: 172]. Possible worlds are characterized by incompleteness; “[t]hey are always less rich than the actual world, although the degree of their relative scarcity may, as we have seen, vary for different reasons” [Зенкин 2017: 172]. This is because the possible world is relatively abstract, thinned out compared to the actual world. At the same time the possible world still somehow communicates with the actual world; otherwise, this world would not be realized as a world. The communicability of the two worlds, the possible world, and the actual world, is based on the presence of common elements, such as characters, everyday life, places, customs, typical actions, etc. [Зенкин 2017: 174]. Something similar can be said about the communicability of impossible and actual worlds. For example, the world of fantasy is impossible, since this world is built on notions of impossible probabilities in contrast to possible worlds, which are built on possible probabilities (such include worlds in works in the genres of drama, detective, science fiction, even utopia, and dystopia). However, even though the fantasy world is impossible, it still borrows something from the actual world, for example, in a fantasy world characters may fight with swords or may show behavioral traits characteristic of the people of the actual world.

It is important to understand that possible worlds are not models of the actual world, at least those models which are based on analogy, based on similarity. Possible worlds, being fictional worlds, do not metaphorically “reflect” the actual world, but are metonymically adjacent to the actual world. Possible and actual worlds “[a]re connected by a relation, not of similarity but juxtaposition, or, more precisely, of partial overlap; the sets of their elements overlap” [Зенкин 2017: 174]. Such juxtapositions and intersections arise through the selection of elements of the actual world, which are transferred from the actual world to the fictional world, and combinations of these elements, which may take on unusual configurations in the fictional world that differ from the actual [Зенкин 2017: 174]. The selection and combinations of elements themselves may depend on the intention (intent) of the author of the fictional statements and on the plausibility that the author of the fictional statements achieves. Here plausibility turns out to be a technical accompaniment of fiction, namely a way to create the illusion of reality in fictional utterances or worlds.

Based on the above, plausible reasoning can be viewed as a sequence of fictional statements, the plausibility of the conditional denotative of which is created using reference, discourse (logic), rhetoric and/or topics, and the scenario building is the creation of a sequence of fictional statements, the plausibility of the conditional denotative of which is created using reference, dis-

course (logic), rhetoric and/or topics.

Thus, a scenario is a sequence of fictional utterances. The plausibility of the scenario will depend on the goals and objectives of the author of the scenario. If we are talking, say, about forecasting, the scenario should be, first of all, referentially and logically plausible, and here the referential plausibility should be directly related to physical reality and the logical plausibility – to the “logic” that works most effectively with physical reality. In the case of prediction, one creates a scenario not just of a possible world, but of a probable world. This requires such a selection and combination of elements of the actual world that would greatly increase the probability of a particular possible world occurring. Such an increase in probability can be achieved, for example, by the rules of incomplete induction, which apply to inference by analogy, modeling, perhaps abduction, and in general to all plausible reasonings. Such rules include, for example, 1) the elements should be as many as possible; 2) the elements should be the most varied; 3) the elements should be the most typical; 4) the elements transferred from the actual world to the possible world should be as uniform as possible [Уёмов 1997: 273–280]. In this case, prediction is presented as plausible reasoning in which elements of the actual world (facts) are the premise, elements of the possible world are the conclusion, and the transition from the premise to the conclusion is a highly probable connection between elements of the actual and possible worlds. Here the referential illusion comes closest to ceasing to be an illusion.

To **summarize** everything said above, scenario building is such a heuristic and logical procedure to which knowledge-seeker resorts in extreme cases, because this procedure implies constructing certain sequences of fictional utterances to realize certain goals and tasks (in the case of heuristics and logic to solve cognitive problems). Fictional utterances constitute fictional worlds, which can include possible and impossible worlds. Scenario building is a creation of a fictional world, which evaluation as the possible or impossible world depends on the conditional denotation (matter-object or designation) of fictional utterances and the plausibility of relations between the conditional denotation and the fictional utterances. The plausibility of fictional utterances is characterized by such properties of fictional utterances as a possibility, credibility, and relevance. These properties are related to the concretizations of the selected types of plausibility (referential, logical, poetic, and topical) and the selection and combination of elements transferred from the actual world to the fictional one.

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СТВОРЕННЯ СЦЕНАРІЮ ЯК ЕВРИСТИКО-ЛОГІЧНА ПРОЦЕДУРА

Розглядається створення сценарію як вторинна процедура «евристичної логіки». Створення сценарію – це крайній випадок евристико-логічної процедури. Ця процедура передбачає побудову певних послідовностей вигаданих висловлювань для реалізації певних цілей і завдань (у випадку евристики та логіки для розв'язання пізнавальних проблем). Вигадані висловлювання формують вигадані світи, до яких можуть належати можливі та неможливі світи. Створення сценарію – це створення вигаданого світу, оцінка якого як можливого чи неможливого залежить від умовного денотату (предмета чи десигнату) вигаданих висловлювань і правдоподібності відношень між умовним денотатом і вигаданими висловлюваннями. Правдоподібність вигаданих висловлювань характеризуються такими якостями вигаданих висловлювань, як можливість, вірогідність і релевантність. Ці якості пов'язані з конкретизацією обраних видів правдоподібності (референційної, логічної, поетичної та топічної), а також з відбором і комбінацією елементів, які переносяться з реального світу у вигаданий світ.

Ключові слова: вигадані висловлювання, евристична логіка, можливі світи, правдоподібність, створення сценарію.

Константин Райхерт

СОЗДАНИЕ СЦЕНАРИЯ КАК ЭВРИСТИКО-ЛОГИЧЕСКАЯ ПРОЦЕДУРА

В исследовании рассматривается создание сценария как вторичная процедура «евристической логики». Создание сценария – это крайний случай эвристико-логической процедуры. Эта процедура предполагает

построение определённых последовательностей фикциональных высказываний для реализации определённых целей и задач (в случае эвристики и логики для решения когнитивных проблем). Фикциональные высказывания образуют фикциональные миры, к которым могут принадлежать возможные и невозможные миры. Создание сценария – это создание фикционального мира, оценка которого как возможного или невозможного мира зависит от условного денотата (предмета или десигната) фикциональных высказываний и правдоподобия отношений между условным денотатом и фикциональными высказываниями. Правдоподобие фикциональных высказываний характеризуется такими свойствами фикциональных высказываний, как возможность, достоверность и релевантность. Эти свойства связаны с конкретизацией выделенных типов правдоподобия (референциального, логического, поэтического и топического), а также с отбором и сочетанием элементов, переносимы из реального мира в фикциональный.

Ключевые слова: возможные миры, правдоподобие, создание сценария фикциональные высказывания, эвристическая логика.

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