    Kostiantyn Raikhert

HEURISTICS AS A COGNITIVE FUNCTION

The study conceptualizes science fiction as heuristics. To implement this conceptualization, a hybrid definition of science fiction is proposed: science fiction is a kind of fiction whose works can be characterized by secondary artistic conventionality, cognitive estrangement, and test of an intellectual idea or fantastic assumption. As an operational characterization of heuristics, V. Spiridonov's concept of heuristics is used. Science fiction can be considered as a kind of heuristics under specific conditions, for example, when science fiction work contains the reflected-out heuristics or when heuristics are brought as science fiction work to stimulate the intuitive flash of the thought or insight. However, science fiction can only be regarded as heuristics with certain reservations: science fiction primarily solves artistic problems while heuristics primarily solve cognitive problems: and they can function independently of each other. But it shows that a heuristic function can be attributed to science fiction to solute a problem or to gain a piece of new knowledge (to make a discovery) in an intellectually and creative way.

Keywords: *artistic conventionality, cognitive estrangement, heuristics, intellectual idea, science fiction.*

Humanitarian, philosophical, scientific, and technical disciplines have heuristic devices that are now common and standard (read: legitimate) strategies for thinking and creativity. Such devices include, for example, stereotyping, the rule of thumb, etc. Even though heuristic devices are common, standard, and legitimate, they are not universal, that is, are not being used by all Humanitarian, philosophical, scientific, and technical disciplines: for each discipline, there are their own legitimate heuristic devices. This can be explained by fact that each discipline has developed its own heuristic devices for its own needs, which may indicate the need for heuristics as a cognitive tool for humanities, science, and philosophy. But how does a cognitive tool become a heuristic device? I assume that a cognitive tool becomes a heuristic device when a heuristic function is attributed to it, that is when a cognitive tool is forced to play an unusual role as a creative intellectual device aimed at solving a problem or obtaining new knowledge (discovery). Next, I will give reasons for my assumption that heuristics is a cognitive function with a specific example, though somewhat unconventional and probably marginal.

Science fiction belongs to the reign of art: it is the genre of the artistic narrative, as usual, represented in literature, films, theatre, and video games. But simultaneously science fiction is such a contemporary academically marginal

("para-academic") field where "innovation flourishes" [Fuller 2009: 50], according to British philosopher and sociologist of science Steve Fuller. It means that science fiction participates in innovation on an equal footing with philosophy and sci-tech.

But why is science fiction so important for innovation? I suppose that science fiction might be a kind of heuristics. This idea that science fiction is heuristics or a thing that has the heuristic features is not a novelty; at least, there is one example of the research where science fiction is being got closer to heuristics – the study of feminist science fiction conducted by Alcena Madeline Davis Rogan. A. M. Davis Rogan used feminist science fiction writings as the heuristic models. Starting from the conceptions of Fredric Jameson, Jacques Lacan, Gy?rgy Luk?cs, and, probably, Darko Suvin, A. M. Davis Rogan assumes that "science fiction's generic capacity to configure cognition as estrangement – as the feminist moral pornographer represents oedipal sexuality as an estrangement in need of critical cognition – is a potential way to achieve the imaginative imperative of Utopian consciousness" [Davis Rogan 2004: 455]. To put it another way, science fiction produces the heuristic models for a strongly-felt principle that compels that Utopian consciousness to act, at least, within the imagination.

I will conceptualize science fiction as heuristics. My study involves two logical operations: the concept definition and the conceptualization[1].

Currently, there is no conventional definition of the term of science fiction, not only among scholars but among science fiction authors. For example, Russian historian of science K. Ivanov defines "science fiction" as the genre of fiction which "differs from the closely related fantasy genre in that, in contrast to the unconstrained imaginary worlds of fantasy literature, it deals with the impact of imagined or real scientific technology on an imagined society or individual, under the necessary condition that some degree of plausibility in terms of empirical thinking and technological progress be maintained" [Иванов 2018: 163-164]. Here are a few other definitions of the term of science fiction [Definitions… 2018] to illustrate the point: «Science fiction is sociological studies of the future, things that the writer believes are going to happen by putting two and two together» (writer *Ray Bradbury*); "Science fiction frequently tries to imagine what life would be like on a plane as far above us as we are above savagery; its setting is often of a kind that appears to us technologically miraculous. It is thus a mode of romance with a strong tendency to myth" (philologist *Northrop Frye*); "Science fiction represents the modern heresy and the cutting edge of speculative imagination as it grapples with Mysterious Time – linear or non-linear time" (writer *Frank Herbert*); "A science fiction story is a story built around human beings, with a human problem and a human

solution, which would not have happened at all without its scientific content" (writer *Theodore Sturgeon*); "By challenging anthropocentrism and temporal provincialism, science fiction throws open the whole of civilization and its premises to constructive criticism" (futurologist *Alvin Toffler*).

Moreover, there is no convention about the usage of the word-combination «science fiction» to mark the genre of the artistic narrative. Except for «science fiction», there the «scientific romance» and the "Vernian fiction" are in use [Stableford 2006: 463]. Also, "speculative fiction" [Streeby: 19] becomes more and more popular.

In this paper, I define the term "science fiction" through the hybridization of other definitions and characterizations of the term "science fiction". My strategy here is termed by my own experience of reading, watching, and listening to science fiction works but not the attempts to compare different opinions about science fiction to generalize. So, I think that science fiction has the following characterizations:

1. Science fiction is a kind of fiction. Fiction is a type (genre) of the artistic narrative shaped into the work of film, literature, radio, theatre, video game, or others.

2. Science fiction is based on secondary artistic conventionality. Russian literary scholar Elena Kovtun notices that the general basis for artistic conventionality is "acknowledgment of the relative incomplete (intentionally inadequate) compliance of the specific forms of the mirroring in the art to reality" [Ковтун 1999: 25]. The very artistic conventionality can be divided into primary and secondary ones. Primary artistic conventionality is based on the relativity of the views of the specific epoch on objective reality [Ковтун 1999: 23] and begs for the author subjective and emotional reconsideration of reality [Ковтун 1999: 22] that can be represented in the human ability to make in her / his mind the images on objective reality which already have the conventionality, shared philosophical (including ethical and aesthetic) and other attitudes of the own epoch which in turn can be perceived as the conventional ones from the standpoint of other epochs, and to make the individual concept of being correlated to the general one [Ковтун 1999: 23].

Secondary artistic conventionality is (1) "a usage of explicitly impossible in real situations, an explicit fiction (an element of the unusual)" [Ковтун 1999: 24] and (2) "a specific way to reproduce the being that supposes to shift the proportions, change the logic, the unusual combinations of the usual realities, etc." [Ковтун 1999: 31]. Scilicet's secondary artistic conventionality is explicit fiction. From this standpoint, for the reality models created by the explicit fiction all the laws of the levels of primary artistic conventionality, the determination by its tradition (e.g., the fiction in fairy-tale), the functioning in the

shape of the product of "the special type of the author Weltanschauung that interprets the world in the fictional forms which don't have equivalents in real" [Ковтун 1999: 24] are right. Secondary artistic conventionality is expressed either in form of alogism, grotesque, hyperbola, metaphor, symbol, and other ways of typing which "shift the actual proportions and change the usual appearance but are not out of line" [Ковтун 1999: 31], or in form of the explicit fiction, i.e. that one that "has no direct analogies in real", "it isn't and can't be" [Ковтун 1999: 31], an element of the unusual or fantastic beginning [Ковтун 1999: 31]. E. Kovtun refers to the works based on secondary artistic conventionality science fiction, fantasy, literary fairy-tale, myth, philosophical fable, and satirical work.

3. Science fiction is based on cognitive estrangement. Canadian literary critic Darko Suvin defines science fiction as "the genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main formal device is an imaginative framework alternative to the author's empirical environment" [Suvin 1979: 7–8]. Estrangement allows differentiating the reality of science fiction work from objective reality, and cognition from myth, fairy-tale, and fantasy [Suvin 1979: 8]. Using cognitive estrangement science fiction achieves the images of possible probabilities what radically differs it from fantasy with its images of possible improbabilities.

4. Necessary element of science fiction is "testing some intellectual idea – technical, scientific or philosophic" [Елиферова 2017] or "fantastic assumption" [Олди 2016]. In fact, science fiction is "the fiction of ideas" [Bradbury 2010].

Now to take stock of the said above I can define the term of science fiction as the following: science fiction is a kind of fiction whose works can be characterized by secondary artistic conventionality, cognitive estrangement, and test of an intellectual idea or fantastic assumption.

The term of heuristics is no less difficult to define than the term of science fiction, again, because there is no consensus on the phenomenon of heuristics, except the word "heuristics" usually refers to either creative techniques for decision making, learning or discovery, or the discipline that studies such techniques.

In humanities, science, and philosophy there are a few approaches to understanding heuristics. The first approach is bond with mathematics and related disciplines (e.g., artificial intelligence, cybernetics, information theory, mathematical decision-making theory, robotics) [Polya 2015]: "Most modern writing about heuristic comes from mathematics. Mathematicians often have particular problems to solve: how to solve the normal distribution integral (hint: you can"t do it analytically), how to create a perfect pentagon, how to categorize

all the possible types of disconnection in six-space, and so on. Mathematicians often know or suspect the answer they seek but need to be sure of how one gets there. Even when they don't know the answer, they usually have a clear idea of what an answer looks like. In such a context, heuristic means thinking creatively about how to get from problem to solution" [Abbot 2004: 81]. Thus, relatively speaking, "mathematical" approach is an approach that assumes knowledge, approximate or not, about the result of problem-solution but not about how the problem is being solved.

The second approach is bond with psychology and related disciplines (e.g., cognitive sciences, economic theory, law, psychological decision-making theory, sociology) [Gilovich (ed.) 2002; Tversky 1974]: "But in the social sciences we often have a different situation. We often don''t see ahead of time exactly what the problem is, much less do we have an idea of the solution. We often come at an issue with only a gut feeling that there is something interesting about it. We often don't know even what an answer ought to look like. Indeed, figuring out what the puzzle really is and what the answer ought to look like often happen in parallel with finding the answer itself. This is why many if not most writers of social science dissertations and books write the introductions to their dissertations and books last after all the substantive chapters have been written» [Abbot 2004: 82–83]. So, relatively speaking, the «psychological» approach is an approach that assumes the implicit idea of the problem-solution but not the very problem or result of its solution.

The third approach is related to critical thinking, epistemology, sociology of science, and philosophy of science: within this approach, heuristics is considered as an empirical rule, procedure or method that, as usual, but not necessarily, is used to build scientific theory [Lakatos 1980; Popper 2002]. Here heuristics is "a cognitive shortcut or 'rule of thumb', allowing for quick decision-making and judgment" [Chatfield 2017: 199].

Further in conceptualizing "science fiction" as "heuristics" I will use the characterizations of heuristics given by Russian cognitive psychologist Vladimir Spiridonov.

V. Spiridonov considers heuristics as an actual but very specific way of thinking [Спиридонов 2014: 105]. V. Spiridonov singles out the number of distinguishing features of heuristics (or heuristic strategies) that can be applied to science fiction.

The first distinguishing feature of heuristics is the following: heuristics are independent of the source of the task or problem (problem situation) that makes them universal ways of thinking and allows applying them to solve any problem (task) [Спиридонов 2014: 105]. V. Spiridonov points out that heuristics can be applied not only to solve problems but to the emotional condition of the

solver. It is important that heuristics can be reflected out – by doing so they can be represented in the form of written instruction [Спиридонов 2014: 106]. Nothing stops me from considering science fiction stories as such ones that contain the reflected-out heuristics. Those heuristics in science fiction can be realized ideas or assumptions which are the basis for science fiction stories.

In addition, the independence of heuristics from the source of the task, i.e. without the binding to certain content, can be understood as a certain cognitive estrangement because heuristics deal with forms and structures rather than with specific things rooted in objective reality. This brings heuristics closer to science fiction.

The second distinguishing feature of heuristics is the following: heuristics are deprived of solution: «Only by heuristic strategies, you will not solve the problem» [Спиридонов 2014: 106]. That is, the application of heuristics doesn't guarantee the solving of the problem. Science fiction, especially that one that claims to predict the future, doesn't guarantee that what is predicted will come true or that the idea that forms the basis of the work will be realized.

V. Spiridonov emphasizes that the act of heuristics is aimed to "reformulate the problem situation, to distinguish the important conditions in the situation, to fixate made mistakes, to change the creative condition of the solver, etc. Thus, the function of heuristics in the solving of the problem is assistance in analyzing and understanding of the problem, ease the process of the production of new ideas, i.e., of insight" [Спиридонов 2014: 106]. Good science fiction stories can be involved in stimulating an intuitive flash of the thought or insight; in such case, they can be considered as detailed thought experiments (or pumps of intuitions).

The third distinguishing feature of heuristics is the following: heuristics can be considered as "one of the variants of the cultural experience of the productive thinking" [Спиридонов 2014: 106]. The creation of science fiction stories is also the creator of the cultural experience of productive thinking. The consumption of science fiction is also the formation of the cultural experience, sometimes of the productive thinking when science fiction works become a source of inspiration.

Furthermore, the cognitive quality of heuristics depends on the cultural experience gained by the solver. The cognitive quality (predicting) of science fiction also depends on the cultural experience gained by the science fiction artist. It should be noted that this cultural experience itself if the concept of "culture" is taken here in a very broad sense, may include skills of logical (or quasi-logical) thinking (analysis, synthesis, comparison, justifi-

cation, etc.).

The fourth distinguishing feature of heuristics is the following: "Heuristics doesn't permit direct control of the creative process: with their assistance, the person organizes the work with a problem situation (but not with the decision-seeking as such), with her / his thinking and occasional emotional conditions" [Спиридонов 2014: 106]. Translating an idea to be realized, or a problem situation that needs to be solved, in the form of a story, including science-fiction one, can assist in organizing work with an idea or problem situation; moreover, the narrative is already working with an idea or problem situation, and it requires the use of creative resources.

Conclusions. Science fiction can be considered as a kind of heuristics under specific conditions, for example, when science fiction work contains the reflected-out heuristics or when heuristics are brought as science fiction work to stimulate the intuitive flash of the thought or insight. However, I emphasize that science fiction may execute the heuristic functions only when it has not artistic tasks but cognitive tasks that are not the priority for science fiction but heuristics; that is, science fiction is forced to play a heuristic role (or to heuristically function).

Notes
1 About the logical operation of conceptualization see: [Райхерт 2015].

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Костянтин Райхерт

ЕВРИСТИКА ЯК ПІЗНАВАЛЬНА ФУНКЦІЯ

У межах дослідження здійснюється концептуалізація наукової фантастики як евристики з метою обґрунтувати припущення, що евристика – це пізнавальна функція, якою наділяють певні способи пізнання для інтелектуально-креативного розв'язання конкретної проблеми чи здобуття нового знання (відкриття). Для уможливлення концептуалізації пропонується гібридне визначення поняття «наукова

фантастика», згідно з яким під науковою фантастикою розуміється такий вид фантастики, твори якого мають ознаки вторинної художньої умовності, пізнавального відчуження та випробовування інтелектуальної ідеї чи розробки фантастичного припущення. Як робочу характеристику евристики в дослідженні використовують ту, яку запропонував В. Спиридонов. Результатом дослідження є наступне: наукову фантастику можна розглядати як різновид евристики за певних умов, наприклад, коли науково-фантастична робота містить відрефлексовану евристику або коли евристика представлена як науково-фантастична робота для стимулювання інтуїтивного спалаху думки або розуміння.

Ключові слова: *евристика, інтелектуальна ідея, наукова фантастика, пізнавальне відчуження, художня умовність.*

Константин Райхерт
ЭВРИСТИКА КАК ПОЗНАВАТЕЛЬНАЯ ФУНКЦИЯ

В рамках исследования осуществляется концептуализация научной фантастики как эвристики с целью обосновать предположение, что эвристика – это познавательная функция, которой наделяют некоторые способы познания для интеллектуально-креативного решения конкретной задачи (или проблемы) или получения нового знания (открытия). Для того, что концептуализация осуществилась, предлагается гибридное определение понятия «научная фантастика», согласно которому под научной фантастикой понимается такой вид фантастики, произведения которого обладают признаками вторичной художественной условности, познавательного отчуждения и проверяемости интеллектуальной идеи или разработки фантастического допущения. В качестве рабочей характеристики эвристики в исследовании используется предложенная В. Спиридоновым. Результат исследования состоит в следующем: научная фантастика может рассматриваться как разновидность эвристики при определённых условиях, например, когда научно-фантастическая работа содержит отрефлексированную эвристику или когда эвристика представлена как научно-фантастическая работа для стимулирования интуитивного «всплеска» мысли или понимания.

Ключевые слова: *интеллектуальная идея, научная фантастика, познавательное отчуждение, художественная условность, эвристика.*

Александр Афанасьев, Ирина Василенко
ЛИТЕРАТУРНЫЕ СОБЛАЗНЫ ФИЛОСОФИИ

Существует множество различий между философией и литературой и в средствах, и в целях, и в восприятии. Но периодически философия и литература взаимодействовали. Литература не раз ставила философские проблемы, философия нередко анализировала литературу, порой соблазняясь литературным стилем. Литературные соблазны многообразны, но особую привлекательность имеют: 1. понятность и доступность литературного языка, 2. чувственно-эмоциональное воздействие литературы как создание особого переживания прочитанного, 3. нарративный способ репрезентации мира.

Ключевые слова: *философия, литература, нарратив, рациональность, текст.*

Философия и литература стали самостоятельными игроками на поле культуры еще в античные времена и с тех пор периодически вступают в некоторые отношения друг с другом и с другими феноменами человеческого бытия. Они определенным образом относятся к миру природы, осмысливая и выражая его в онтологических философских концепциях и, соответственно, описывая его различными литературными способами. Аналогично они относятся к миру культуры, общества, человека: как-то отражают этот мир, когда ставят такую цель, или, напротив, нечто навязывают этому миру, формулируя идеалы, нормы, цели, ценности, делая это разными способами. Тут и философия, и литература выглядят как конкурирующие субъекты, осваивающие общий для них объект – мир человека.

Различия между ними оформились сразу при рождении: философию отличает постановка проблемы или вопроса и ответ, обязательно аргументированный, а литература сориентирована на описание интересного приключения. Институциализация закрепила различия и навсегда развела философию и литературу, а их эволюция в самостоятельных нишах привела к накоплению громадного количества отличий и в средствах, и в целях, и в восприятии. Тем не менее, периодически философия и литература взаимодействовали и даже «заступали» на чужую территорию. Этим больше грешила философия как «царица наук», периодически пытаясь анализировать литературу, ее средства и созданный ею литературный мир [Хайдеггер 2008], и изредка использовать литературный стиль, как, к примеру, Ф. Ницше. Но и литература не