

## EPISTEMOLOGY AND LANGUAGE OF SCIENCE FICTION

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Background knowledge plays an important role in understanding and appreciating both visual and literary creations. As society becomes more knowledgeable, more mature, technologically more advanced, and more sophisticated, the knowledge required to appreciate arts, including verbal art, increases greatly. In the comprehension of science fiction (SF), equal to reading experience, a substantial degree of background knowledge is needed to perceive the narrative and the plot devices, properly appreciate the informative and the aesthetic aspects of the discourse, and contemplate its consequences. This background knowledge challenging human intellect in SF is based on epistemology – the theory and construction of knowledge and the study of knowledge acquisition addressing cognitive sciences, involving an awareness of certain aspects of reality and seeking to discover what is known and how it is known. Moreover, in its relation to SF, epistemology explains why our minds relate to reality and how these relationships are either valid or invalid. Hence, the results of the present study based on case study, extrapolative and linguostylistic methods of investigation, show that epistemology helps to distinguish between the truth and falsehood as we obtain knowledge from the world around us and, in this case, from such a literary genre as SF.

**Keywords:** *Epistemology, science fiction, epistemic value, extrapolation, cognitive estrangement/novum*

### *Introduction*

Epistemology (derived from the Greek *episteme* – *knowledge* and *logos* – *logical discourse*), according to D. B. Annis, N. Porter and G. Graham<sup>1</sup> is the science concerned with the theory of knowledge and encompasses the study of construction and comprehension of knowledge. Ferrier, as H. Chisholm and Epistemology<sup>2</sup> claim, coined the term *epistemology* on the model of *ontology* to designate the branch of philosophy which aims at discovering the meaning and understanding of knowledge and refers to studying and evaluating the world around us. Accordingly, without epistemology, we would have no reason to believe in our thoughts and actions. We need epistemology in order to accept

<sup>1</sup> **Annis D. B.**, A contextualist theory of epistemic justification // American Philosophical Quarterly, 2015 15, p. 213–219, **Porter, N.**, Epistemology. Stanford Encyclopedia of Philosophy. Stanford, CA, 2005: The Metaphysics Research Lab, **Graham G.**, Scottish philosophy in the 19<sup>th</sup> century. Stanford Encyclopedia of Philosophy. Stanford, CA, 2020: The Metaphysics Research Lab.

<sup>2</sup> **Chisholm H.**, Ferrier, James Frederick. Encyclopedia Britannica, 10, 287-296. Cambridge: Cambridge University Press, 1911, **Epistemology** // Oxford English Dictionary, (2014). <https://www.oxfordreference.com/view/10.1093/acref/9780199976720.001.0001/acref-9780199976720-e-685>Oxford Reference.

reality and live our lives in a successful pursuit of truth. Extrapolation<sup>3</sup> alludes that extrapolation or inference “of an unknown from something that is known” and prediction of the future is “projecting, extending, expanding known data or experience” in order to guess, think, imagine and create.

Then, one of the major questions that we might ask, will be where the known or knowledge comes from. We assert that knowledge comes from epistemology and the human ability to reason, and, therefore, obtain the power to know. We can also contend that humans become knowledgeable when they experience certain life situations, when they learn and imagine, for example, while painting, watching a movie, playing a musical instrument or reading a book. We may insist that man can only learn when s/he experiences life through her/his own senses.<sup>4</sup> D. M. Borchert, M. Steup and R. Neta<sup>5</sup> argue that whatever senses teach us, is based on three main conditions of epistemology: *belief, truth and justification*. Truth occurs when we believe that no false propositions are discerned. Consequently, in order for something to be regarded as knowledge, we must believe it is true and logically justified. In speech, truth is typically an expression of trust towards what is said or written, what we believe is true or can be true, everything we accept as true for ourselves from a cognitive or conceptual point of view.

One of the central questions of epistemology in general, and of science fiction (SF) in particular is the relationship of reason and emotion, intellect and imagination, fact and fiction. SF writer and theorist D. Suvin<sup>6</sup> names the split between reason (and/or cognition) and emotion (and/or imagination) “bourgeois polarization of reason and emotion” or “unhealthy polarization” because both in the real world and in science fiction the two are mutually constitutive rather than oppositional or polar, and both are modes or subdivisions within the overarching domain of people’s cognition, knowledge and comprehension of their common world and existence. Therefore, science fiction is “a literary 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”<sup>7</sup>. “[...] it is distinguished by the narrative dominance or hegemony of a fictional ‘novum’ validated by cognitive logic”<sup>8</sup>.

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<sup>3</sup> See Extrapolation // Cambridge Dictionary, 2021. Retrieved April 7, 2022, from <https://dictionary.cambridge.org/dictionary/english/extrapolate>, Extrapolation // Merriam Webster Dictionary, 2022. <https://www.merriam-webster.com/dictionary/extrapolate>

<sup>4</sup> Further, there is a theologically-driven concept of knowledge, which suggests that knowledge is God-given. This suggestion pertains to divine revelation and tends to blur the line between belief and knowledge, since there are many different religions. Thus, the religious approach cannot be accepted from the point of view of epistemology and SF.

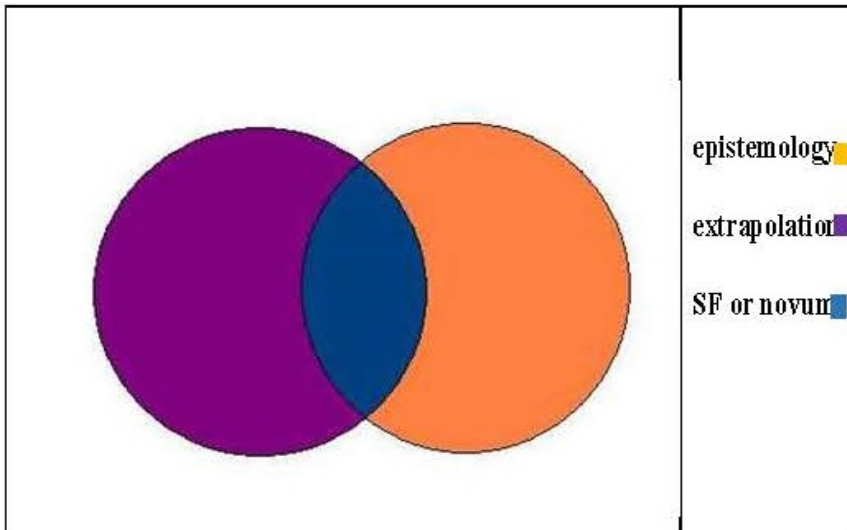
<sup>5</sup> **Borchert D. M.**, Epistemology // Encyclopedia of Philosophy, 3, US: Macmillan, 2006, p. 140-152, **Steup M.**, **Neta, R.** Epistemology. Stanford Encyclopedia of Philosophy. Stanford, CA, 2020: The Metaphysics Research Lab.

<sup>6</sup> **Suvin D. R.** On cognitive emotions and topological imagination. Conference on after Postmodernism at University of Chicago, 1997, 68, p. 151-187.

<sup>7</sup> **Suvin D. R.** Metamorphoses of science fiction: On the poetics and history of a literary genre. New Haven and London: University of Yale Press, 1979, p. 8.

<sup>8</sup> **Suvin D. R.** Estrangement and cognition. Strange Horizons, 2014, p. 17. <http://strangehorizons.com/non-fiction/articles/estrangement-and-cognition/>

## Novum



For D. Suvin, the key to cognitive estrangement or epistemic extrapolation is the presence of novelty/innovation – the novum or the cognitive novum – the device that is absolutely new, that converges epistemology and extrapolation, and whose presence compels us to imagine in a logical way of conceiving our world. Those works of SF that could be characterized as using cognitive estrangement rely on no one particular hypothesis, but instead on the epistemic presentation of alternative realities and imaginative pictures. In other words, no matter how much imaginative a SF creation is, it has a unique *epistemic value* which can neither be denied, nor neglected.

In the analyses of SF contexts in the following part of the study we intend to show that science-fictional novum, even when expressed in immense “proportions” of extrapolation (projection of known data or experience), never becomes unreasonable, illogical or thoughtless because it is based on epistemology (comprehension and construction of knowledge) which is a means of distinguishing between truth and falsehood as we obtain knowledge, a means of perceiving the narrative and the plot devices, properly appreciating the informative and the aesthetic aspects of the discourse and contemplating its consequences.

### *The Epistemic Value of SF Contexts in Discourse*

Thus, epistemology envisions that the science fictional imaginative is cognitive, that all the scientific notions in the genre should function within human logic, being scientifically possible or thought to be possible. The following terms and word combinations used to characterise SF are good examples of convergence of epistemology and extrapolation (concepts and images) and, respectively, of the cognitive novum: *intellective fiction*; *epistemic fiction*, *rational fiction*; *speculative fiction*; *scientific fiction*; *imaginary science*; *art dependent of intellect*; *speculative imagination*; *imaginative speculation*; *technology of emotions*; *reasoned*

*extrapolation; logical imagination; cognitive imagination.* They also show that SF is a discourse based on the juxtaposition and correlation of factitious and fictitious linguistic units. This means, according to D. R. Suvin<sup>9</sup>, that the novum is expressed in a modern, original and unique language which is based on linguistic units juxtaposing epistemology/cognition and extrapolation/ imagination. By emphasizing the epistemic basis and the rational scientific dimension of SF discourse, Suvin excludes flights of fancy associated with fantasy and realistic/traditional fiction. Therefore, science fictional epistemic truth is closely connected with scientific extrapolation which itself includes the SF key concept of change and is linguistically presented as an imaginative modification or transformation of a certain scientific notion, fact, theory or principle. In other words, extrapolation applies to linguistically expressing human experience to project, extend or expand known experience into an area not known or previously experienced so as to arrive at the knowledge of the unknown. We will proceed to discuss this notion in SF contexts which present linguistic or discourse pieces from physics, philosophy, anthropology, sociology.

### ***Epistemology of Hard SF (Physics)***

Let us try to demonstrate how epistemology and extrapolation function in a discourse context of Hard SF (based on natural sciences), which is considered to be scientifically more “serious”, as compared with Soft and Social SF (based on social sciences and the humanities). The scientific methods of analyses to be applied to interpret and reveal the epistemic value of pieces of SF discourse will be the methods of extrapolative and linguostylistic analyses. The context of *Physics SF* below is an utterance taken from D. Brin’s *Heaven’s Reach*:

*Caterpillar ribbed, with rows of talonlike protrusions that bite into spacetime, the vessel claws its way against a bitter gale.*<sup>10</sup>

Brin’s novel is about the human and dolphin crew members of the spaceship *Streaker*, their flight to remote galaxies, their relation with new societies of refugee species and usage of machinations of ancient alien intelligences. The names of the societies – *Jijo, Jophur, Hydrogen Breathers, the Retired, Machines, the Transcendent* – are typically science fictional invented proper-name neologisms. At first sight the one-sentence utterance seems to be an extended metaphor including the following linguistic units realizing their functional goals on the metasemiotic level: *Caterpillar ribbed* [...] *vessel* (indirect comparison); *to claw* (adherently connotative word) which describes through the verbal syntagma *claws its way* how the spaceship is managing the counter-storm; the lexical syntagma *talonlike* (-like is a productive suffix) and the epithet *bitter gale*. However, the SF discourse marker *bite into spacetime* which is not an imaginative metaphor as it may seem at first sight, but a scientific syntagmatic term used in its direct meaning, shows that we have come across an example of epistemic extrapolation closely related to the cognitive science of physics. The fact is that the permanent extension of space is a scientific truth, and the author’s extrapolation is based on this principle – if it were possible to create powerful blades (which has been done by the scientists in the

<sup>9</sup> Suvin D. R. 1979. Op.cit.

<sup>10</sup> Brin D., *Heaven’s Reach*. NY: Bantam Books, 1998, p.8

novel), which could somehow *tear the membrane* of space time, spaceships flying at the speed of light would become a reality. It is this very, theoretically possible scientific fact that – serving as a source of extrapolation – has become a means of realizing the age-old human dream of flying at the speed of light.

K. Sullivan<sup>11</sup> argues that extrapolative analysis is a good means in the study of metaphor in general, and in metaphor created through extrapolation in particular. According to M. S. McGlone<sup>12</sup>, the linear extrapolation function or equation can serve as a linguistic and conceptual tool for the analysis of metaphor. As the metaphor is an inherent comparison, and not a categorical statement, it could easily adjust to the mathematical linear extrapolation equation  $y = cx + a$ , where  $x$  and  $y$  are the variables of the comparison and  $c$  and  $a$  are the constants (invariables). Below is an example of a linguistic extrapolation from a cyberpunk novel of Gibson's *Neuromancer*, in which linear extrapolation serves as a conceptual/cognitive tool.

Night City was like a deranged experiment in social Darwinism, designed by a bored researcher who kept one thumb permanently on the fast-forward button.<sup>13</sup>

The city which is of great interest to the author is the *Night City*, which, extrapolating through the simile *like a deranged experiment*, presents itself as the crazy, insane city of the computerized future. In the linguistic structure of the utterance the constituent *Night City* ( $y$ ) is a variable in the sense that the city absorbed in the virtual reality could be described in other ways, say, the real name of the city or the same word-combination with a definite article and in lowercase, and naturally with a weaker stylistic charge. The constituent *was like a deranged experiment* ( $c$ ) is invariable in the sense that the city with its craze pulse – the indispensable part of the protagonist's life and the hypertechnological dystopian reality – could not be characterised otherwise than *frantic, desperate* and *wild*. The stylistic impact of the invariable is doubled by the epithet *deranged experiment* and multiplied by the variable *in social Darwinism* ( $x$ ), which is an epistemic unit and as such realizes a cognitive function. On this greatly depends not only the epistemic value of the utterance but also that of the variable  $y$  (*Night City*), as well as the further extrapolation of the invariable  $c$  (*was like a deranged experiment*). Without being aware of the epistemology of Social Darwinism, it would not be easy to perceive the author's extrapolation and interpret the negativity/pessimism characterizing the city.

Therefore, the theory of Social Darwinism refers to various ways of thinking that emerged in the 1870s in Europe and America attempting to apply the evolutionary concepts of natural selection and “survival of the fittest” to human society. This means that in any human society the poor and the weak should perish and the rich and the strong should survive and reproduce. After World War II, as R. Williams and G. Claeys<sup>14</sup> confirm, the theory of Social Darwinism was rejected

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<sup>11</sup> Sullivan K., *The linguistic structure of literary metaphor*. Berkeley: University of California Press, 2007.

<sup>12</sup> McGlone M. S. Conceptual metaphors and figurative language interpretation: Food for thought? *Journal of Memory and Language*, 1996, 35(4), p. 544-565. <https://doi.org/10.1006/jmla.1996.0029>

<sup>13</sup> Gibson W., *Neuromancer*. NY: Ace Books, 1986.

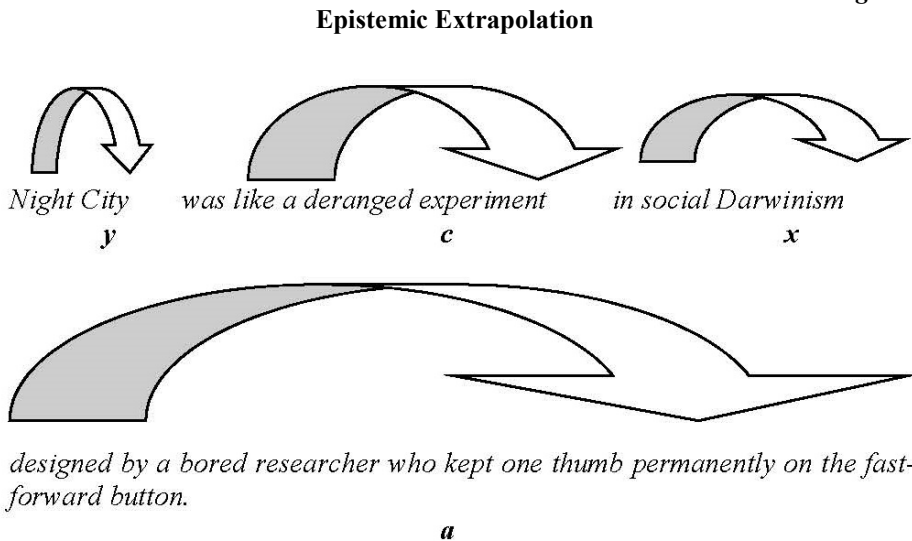
<sup>14</sup> Williams R., *Social Darwinism*. Herbert Spencer: Critical Assessment, London, NY: Routledge, 2000, p. 186-199, Claeys G., *The Survival of the Fittest and the Origins of Social Darwinism*. *Journal of the History of Ideas*, 2000, 61(2), p. 223-240. <http://doi.org/10.1353/jhi>.

because its policy designed to reward the most competitive, were considered anti-philanthropic and violating people's moral and physical right to existence.

Gibson's view of Social Darwinism, as well as the extrapolated variable *in social Darwinism* (*x*) are expressed through the invariable metaphor *designed by a bored researcher who kept one thumb permanently on the fast-forward button* (*a*), meaning that the mentioned theory was created by a bored scientist who is ready to immediately forget it. The picture of the extrapolation will be more clear if we try to start from the opposite direction – from source to target – the superficial and absurd theory of the bored scientist (*a*), i.e. the theory of social Darwinism (*x*) with its typically crazy experiment (*c*), presents the computerized city of the future (*y*). The nominative constituent *Night* in the adjectival syntagma *Night City* in its turn makes the whole utterance still more negatively connotative – it is not only a dark night, but cruelty, deceit and duplicity reign supreme in the city. At large, the semantic domain of the comparison includes two objects – the crazy city and the no less crazy theory of social Darwinism.

The figure of the mentioned comparison-extrapolation will be presented follows:

Figure 2



### **Epistemology of Philosophical SF**

Epistemology functions well in *Philosophical SF*. Moreover, S. Schneider<sup>15</sup> argues that SF at large has its roots in philosophy. Actually, the genre grew out of philosophy. The most important Discourse Philosophy theories, principles and questions that form the epistemic basis of modern SF are related to the genre's serious and imaginative engagement with reality, human existence, universal and individual, spiritual and material values, human reasonable and emotional realms,

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<sup>15</sup> Schneider S., *Science Fiction and Philosophy: From Time Travel to Super Intelligence*. Haboken, NJ: Wiley-Blackwell, 2009.

free will, morality, ethics, arts, the role and significance of social ideals in society, relativity, sexual equality, multiculturalism, ethics of revenge, and of course meaning of life and immortality.

G. Muradian<sup>16</sup> has discussed the SF immortality concept in detail, firmly believing that the best works of SF are actually thought experiments or extrapolations of philosophical epistemic notions referring to a key notion of Philosophical SF – immortality as opposed by death which is denied by both philosophy and by science, especially medical and biological sciences experiencing extension of life. SF immortality (not eternity) is not a fantasy, it must be possible even though science hasn't achieved it yet. For many SF authors longevity is essential for the full reconciliation of the individual consciousness with the broader world; a longer life gives more chances for self-realization, psychological development and contribution to humanity rather than being a way of destroying the world. J. M. Fischer stated that “A common trait of SF is its faith in the ability of technology to accelerate the moment in the process of history when desirable immortality can be experienced. And today there is already the hope that the human life span may be extended long enough to allow us to outlive to see the dawn of immortality”.<sup>17</sup>

SF offers various forms of immortality involving generating or maintaining a long life: cloning, body transfer (consciousness transfers from one destroyed body to another), physical or mental transformation, insertion of a computer chip into a human, etc. which are all manipulated in SF discourse to achieve a longer life. For example, R. Zelazny, F. M. Busby and J. Brunner have created mortal heroes that can *resurrect* or be *created* anew through biological recovery of cells or genetic engineering.

It is a long way back from the Dung Pits of Glyve at Western Pole of the world, and one must walk. It sometimes takes years *to constitute a new body*. And again after a long while he felt himself falling – falling as from a great height, *gaining a substance*, until he realized that he was lying on his back staring upward *with the full weight of his being once again on him*.<sup>18</sup>

*Having died, he still feared death*. It would be merely a different way of ending. For he had no clear idea *how much of his life had been lived, back and forth in bits and pieces*. *One day he would use up the last un-lived segment*, and then...he supposed he simply wouldn't wake up. At his best estimate *he had lived something less than half his allotted time-years*.<sup>19</sup>

My assignment is to help actualize the potential which – I must remind you – *you arranged to build into Tim's genetic endowment*. He did not ask to be born the way he is. He did not ask to come into the world as the son of parents who were so vain *they could not be content with a natural child, and demanded the latest luxury model*.<sup>20</sup>

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<sup>16</sup> **Muradian G. H.**, The Immortality Concept in Roger Zelazny's Jack of Shadows. *Folia Linguistica et Litteraria*, 2015, 10, p. 165-177, Niksic, Montenegro: ITP Kolo.

<sup>17</sup> **Fischer J. M.**, *Our Stories: Essays on Life, Death and Free Will*. Oxford: Oxford University Press, 2009, p. 100.

<sup>18</sup> **Zelazny R.**, *Jack of Shadows*. Toronto: Fitzhenry and Whiteside, 1971, p. 11-14.

<sup>19</sup> **Busby F. M.**, *If this is Winnetka, You Must be Judy*. *Best Science Fiction Stories*, 15-40. NY: ACE books, 1977, p. 19.

<sup>20</sup> **Brunner J.**, *What Friends are for*. *Best Science Fiction Stories of the Year*, 141-161. NY: Ace Books. 1977, p. 158.

In the first two examples new life is achieved through *gaining substance* (flesh), in the third one *unlived segments* or *allotted time-years* are recovered medically, and in the last one genetic engineering creates a child of *the latest luxury model* – perfect physically and mentally. In all the contexts, the philosophical attitude to tell the epistemic truth is based on the scientific frame of mind and is expressed in the faith in the ability of science and technology to extend human life span, in the construction of knowledge to prolong life, in the achievement of a clearer understanding of life, in the subjection of many insights to change. This is how the philosophical doctrine of immortality has found its reflection in the science fictional life-death observations.

### *Epistemology of Anthropological SF*

SF epistemology is closely related to anthropology as well. *Anthropological SF* refers to the past, present and future of mankind and tries to solve human problems through investigating scientific knowledge on human and non-human life forms, languages and communication, intelligence and reason, lifestyles and emotions, peculiarities of biological, cultural, political, economic existence, achievement of social change. Moreover, L. E. Stover<sup>21</sup> believes that while anthropological science is still speculating what a human being is, anthropological SF has already found the answer to the question. And not only to this question: it also clarifies what a non-human is, investigates diverse human and non-human forms on/in the Earth and in the Universe, tells the story of mankind from prehistory to the space era. The themes vary from biological and non-biological beings inhabiting the Earth or appearing in new time-space dimensions to alien/human technological social systems and alien anthropologists investigating social and biological evolution of mankind. In fact, according to Westfahl, the extrapolated aliens of anthropological SF are as “serious” as the technology and space of Hard SF.<sup>22</sup>

For example, in M. Bishop’s *Allegiances*<sup>23</sup>, issues typical of both anthropology and anthropological SF are discussed – globalization resulting in the formation of *supra-national* (without traces of national identity) humans (1), a globalized (though stratified) coexistence in a domed city (2) and aliens (3). The larger context discloses that the title is an extended metaphor symbolizing devotion to peaceful and harmonious coexistence between all the mentioned groups in 2066 despite biological, political, ideological and class distinctions.

The epistemic notion underlies the domed city model which scientists have been seriously considering since 1970s. The model aims at regulating weather and reducing air pollution through creating an underground habitat – usually an urban area suitable for living due to air conditioning, composition and quality. This allows to solve not only environmental problems but also leaves the outside surface of the earth to be used for agricultural purposes. Actually, N. McFarlane discussed the plan for a climate-controlled domed city to be built in Dubai, and D.

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<sup>21</sup> **Stover L. E.**, Anthropology and Science Fiction. *Current Anthropology*, 1973, 14(4), p. 471-474. <https://doi/abs/10.1086/201359?journalCode=ca>

<sup>22</sup> **Westfahl G.**, Hard science fiction. *A Companion to Science Fiction*, 2008, p. 187-199. Malden: Blackwell, p.189.

<sup>23</sup> **Bishop M.**, *Allegiances*. *The Best from Galaxy*, 1978, p. 53-124, NY: Ace Books.



Geere declared that a domed city powered by the sun (known as *Eco-city 2020*) was proposed to be built in an abandoned diamond mine in Siberia.<sup>24</sup>

In SF, as E. J. Yanarella states, the domed city epistemology which has already settled in our new millennium's cultural consciousness, is extrapolated to present protection for the human race after destruction and catastrophes. The science fictional domed city, called *Urban Nucleus*, is the former American city of Atlanta which has been razed to the ground and replaced by an immense cone-shaped hollow tapering from a circular base. The glass domed roof allows to power the whole place by the sun. In this city, hierarchically, various strata of population dwell.

As we got closer and closer to the dwelling place of our targets, I began thinking about what sort of living accommodations a man like Trap would receive if he lived in the *Urban Nucleus*. Since most of the surface-side ghettos had been razed, he would most likely go under: most likely *Level 7, or 8 or maybe even 9. The circles of Dante's Hell*, our cynical professor types always called them. A few of the absolutely *shiftless sort have been consigned to the Big Bad Basement, but you can find plenty of those upstairs too.*<sup>25</sup>

In the above piece of discourse, the domed city epistemology has been extrapolated to create the imaginative picture of the place. Through the expressive literary stylistic device of hyperbaton the lowest levels of the city where the poorest people are living, is metaphorically compared to Dante's hell (*Level 7, or 8 or maybe even 9. The circles of Dante's Hell*). The connotative syntagmatic units *absolutely shiftless sort* and *Big Bad Basement* increase the ironic effect of the utterance while *A few of the absolutely shiftless sort have been consigned to the Big Bad Basement, but you can find plenty of those upstairs too*, alludes to the fact that not all criminals live in the basement, a lot of them can be found among the privileged on higher levels.

The first meeting of humans and aliens, who coexist peacefully in the story, is a far more imaginative example of anthropological SF in general and verbal art in particular. The aliens' description seems realistic, reasonable and probable because it is epistemologically plausible.

And woke up to the shrill, repeating shouts of someone downstairs, terrifyingly *like war\_whoops* from the ghosts of murdered red men: *war whoops* rising from Jonah Trap's house *as if the prelude to a general massacre*. [...] We were midway down the steps and I could see two creatures in the parlor *as if they were lepers* hovering inside the mouth of a cave, cerements for garments, mummy-cloth unwinding from their arms – except that what I first saw as unwinding bandages were in reality the loose, *ribbonlike* extensions of their *incredibly long forearms*. *Each creature, behind its head, had a corona of bone or cartilage that extended its height and gave it an out-of-time, out-of-place regality.*<sup>26</sup>

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<sup>24</sup> **McFarlane N.** ,Dubai's Mall of the World no Longer Going to be Globe's Largest. What's On, 2016. <https://whatson.ae/2016/01/dubais-mall-world-no-longer-going-globes-largest/>, **Geere D.**, Russia Plans Domed City in Siberian Mine. Wired UK, 2018. Retrieved May 27, 2021, from <https://www.wired.co.uk/article/russia-domed-city-siberia>

<sup>25</sup> **Yanarella E. J.**, *The Cross, the Plow and the Skyline*. Irvine, CA: Brown Walker Press, 2001, p. 86.

<sup>26</sup> **Yanarella E. J.**, 2001, op.cit., p. 116-119.

Expressive literary devices communicating the dramatic vision of the author to the readers abound in the passage: similes (*like war whoops, as if the prelude to a general massacre, as if they were lepers*); repetition (*war whoops*); inherently connotative lexical and syntactical syntagmas formed with productive suffixes to intensify the stylistic charge of the utterances (*terrifyingly, ribbonlike, incredibly long forearms*); the climax which somehow sums up the expressive description of the aliens (*Each creature, behind its head, had a corona of bone or cartilage that extended its height and gave it an out-of-time, out-of-place regality*).

At large, the two passages presented above, are not only excellent examples of anthropological SF, but also of convergence of epistemology and extrapolation depicting the human species and the human society in a new context.

### ***Epistemology of Sociological SF***

The object of study of both sociology and *Sociological SF* is society and social relations. It is not by chance that this genre of SF is characterized by R. Ofshe as sociology of the possible, because it investigates past and present sociopolitical relations striving to create future utopian or dystopian social models.<sup>27</sup> Depictions of diverse social class models in sociological SF are thought experiments and extrapolations based first of all on epistemological theory referring to principles and assumptions of sociological science. They are closely related to and based on actual social relations, mechanisms of labour division in society, industrialization, urbanization, overpopulation, politics, human vices and virtues and aim at solving such universal/global (not national or local) problems as social justice, harmonious coexistence between different strata, equality, fair allocation/distribution of resources among diverse groups and members of a community. The thematic diversity of the genre derives from the mentioned principles or concepts and includes social change, creation of new societies, multi-layered cultures, colonization, newcomers and indigenous peoples, democracy and dictatorship, nationalism and genocide, biological and genetic machinations, gender discrimination, relations of the computer age state and the individual.

A good example of Sociological SF and epistemic extrapolation is U. K. Le Guin's *The New Atlantis* in which the author, on the background of social change, converges masterfully factitiousness and the fictitiousness<sup>28</sup>. This convergence is first of all expressed in the title which is not only an allusion to the lost continent Atlantis but also, as D. R. Suvin claims, an obvious reference to its rebirth symbolizing "a true and beautiful collective or classless society" – the political alternative to "the ultimate class society of the corporate state".<sup>29</sup> The protagonists, despite contradiction of professional interests (the husband is a mathematician, the wife – a violinist), make a good couple thus epitomizing a metaphorical convergence of art and science. A. Maxwell argues that the love of the scientist and the artist "preserving the dream of a better world" is the only bright spot on the

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<sup>27</sup> **Ofshe R.** *The Sociology of the Possible*. Haboken, NJ: Prentice Hall, 1970.

<sup>28</sup> **LeGuin U. K.**, *The New Atlantis*. The Norton Book of Science Fiction, 1993, p. 317-337. NY: Norton and Company.

<sup>29</sup> **Suvin D. R.**, *Parables of De-alienation: Le Guin's Widdershins dance*. Science-Fiction Studies, 1975, 2(4), p. 265-274. Greencastle, IN: DePaw, p. 269.

background of a land “besieged by massive earthquakes, constant power cuts, catastrophic pollution, and a desperate, authoritarian government”<sup>30</sup>.

“*The state owns us,*” he said, “because *the corporative state has a monopoly on power sources*, and there’s not enough power to go round. But now, anybody could build a generator on their roof that would furnish enough power to light a city.” I looked out the window at the dark city. “We could completely *decentralize industry and agriculture. Technology could serve life instead of serving capital.* We could each run our own life. *Power is power. The state is a machine. We could unplug the machine*, now. *Power corrupts; absolute power corrupts absolutely.* But that’s true only when there is a price on power. *When groups can keep the power to themselves; when they can use physical power – to in order to exert spiritual power – over; when might makes right.* But if *power* is free? If everybody is equally mighty? Then everybody’s got to find a better way of showing that he’s right [...]”

“*That’s what Mr. Nobel thought when he invented dynamite,*” I said. “*Peace on earth.*”<sup>31</sup>

The epistemic basis of the above passage is sociology, although the modes and methods of solving most important social problems are being discussed in the prism of science fictional subjective, utopian viewpoint. In the context of the passage, the epistemic cognitive notion underlying the metaphor *The state owns us*, is human exploitation, or, to be more exact, the sociological notion that *the corporative state has a monopoly on power sources* which enables it keep society under control. Other sociological concepts are expressed in the assumption that there’s a possibility to *decentralize industry and agriculture*, as a result of which *Technology could serve life instead of serving capital*. The two concepts are extrapolated through stylistic devices and expressive means: punning (*Power is power*); cognitive metaphor (*The state is a machine*); genuine metaphor (*We could unplug the machine*); climax expressed through repetition and punning (*Power corrupts; absolute power corrupts absolutely*); punning based on the polyphony of the word *power* (*When groups can keep the power to themselves; when they can use physical power – in order to exert spiritual power*); aphorism (*might makes right*). Adhering to the protagonist’s (Simon’s) utopian sociological ideology, his wife Bell, however, interrupts him using an expressive figure of speech – aposiopesis – *That’s what Mr. Nobel thought when he invented dynamite [...] Peace on earth.*

There is rationality even behind the structure of the story. Successive paragraphs, semantically differing from each other, are presented in typographically different modes. Those depicting the collapse of tectonic plates or the demolition of the physical environment, and those depicting an island with a new harmonious civilization arising from the depth of the sea – oscillate – moving back and forth in a regular rhythm. The dystopian picture of the immersing city is given objectively and realistically in big uppercase letters, while the picture of the newly emerging world is extremely imaginative and is presented in small lowercase letters.

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<sup>30</sup> Maxwell A., The Utopian Impulse in Ursula Le Guin’s *The New Atlantis*. *Social Alternatives*, 2009, 28(3), p. 15-19, p. 15 <https://doi.org/10.3316/ielapa.201001857>

<sup>31</sup> LeGuin U. K., op. cit., p. 330.

There are many other social epistemic notions that are extrapolated in the story. Interestingly enough, all of them refer to the future, but the reader clearly perceives and attributes them to the present world, thus emphasizing the idea of universal social change. For example,

The six o'clock all-American Broadcasting company news announcer announced that peace was at hand in Uruguay, the president's confidential aide having been seen to smile at a passing blonde as he left the 613<sup>th</sup> day of the secret negotiations in a villa outside Katmandu. The war in Liberia was going well; the enemy said they had shot down seventeen American planes but the Pentagon said we had shot down twenty-two enemy planes.<sup>32</sup>

The police action in Arizona was also successful. The neo-Birch insurgents in Phoenix could not hold out much longer against the mass might of the American Army and air force, since their underground supply of small tactical nukes from the Weathermen in Los Angeles had been cut off.<sup>33</sup>

The government must look after him and restore him to health, because health is the inalienable right of the citizens of democracy. He refused to sign the consent forms so the chief health officer signed them. He refused to get up, so two of the policemen pulled him out of bed. He started to try to fight them. The chief health officer pulled his gun and said that if he continued to struggle he would shoot him for resisting welfare, and arrest me for conspiracy to defraud the government.<sup>34</sup>

Thus, by expanding or extrapolating social epistemic concepts outside the confines of the academic discipline and relying on thought experiments, authors of social SF emotionally engage readers in appreciating the informative and the aesthetic aspects of discourse, and contemplating its consequences for the present world.

## Conclusion

The unique epistemic value of SF is conditioned by cognitively processed thought experiments able to arouse emotional response in the readers. By its use of vivid narrative, SF allows for a stylistically charged evaluation of scientific notions and concepts and a better appraisal of the consequences of scientific ideas. Hence, epistemic background knowledge plays an important role in understanding and appreciating the imaginative worlds of SF, comprehending the narrative and the plot devices, properly appreciating the informative and the aesthetic aspects of discourse. No matter how much imaginative a piece of SF is, it cannot be extrapolated infinitely due to its epistemic roots. Therefore, epistemic extrapolation is a means in SF to conceive vivid worlds in a logical way, to use estrangement relying on epistemic presentations of alternative realities and imaginative pictures, to extrapolate (guess, think, imagine, create) within the frames of the rational, never turning to unreasonable, senseless, illogical or thoughtless notions. This is because in the background SF is based on episte-

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<sup>32</sup> LeGuin U. K., *op. cit.*, p. 326.

<sup>33</sup> LeGuin U. K., *op. cit.*, p. 326.

<sup>34</sup> LeGuin U. K., *op. cit.*, p. 335.

mology (construction and comprehension of knowledge) – the tool to distinguish between truth and falsehood. Today human society has become more knowledgeable, more mature, technologically more advanced and more sophisticated, but as always, the knowledge required to appreciate arts, including verbal art, is as important as ever. Conversely, we would support the hypothesis that SF allows to better understand certain epistemic truths due to its emotional engagement, due to human ability to feel, imagine and dream. To be more exact, the aesthetic segment of SF is coexistent with its epistemic segment. Its notions are non-traditional but however different from reality, the discourse is at large connected to the central concerns of our own society, human problems and solutions. The rational content which is essential for this genre of fiction, is based on and aimed at realizing important epistemic and creative functions.

**ԳԱՅԱՆԵ ՄՈՒՐԱԴՅԱՆ, ՇՈՒՇԱՆԻԿ ՊԱՐՈՆՅԱՆ – *Իմացաբանություն և գիտաֆանտաստիկ գրականության լեզու*** – Ընթերցողների հենքային գիտելիքները կարևոր են գրական ստեղծագործությունները հասկանալու և արժևորելու համար: Հոդվածը իմացաբանական լեզվաբանության շրջանակներում կատարված հետազոտություն է: Հեղինակների նպատակն է մեկնաբանել գեղարվեստական երկերի հասկացման գործընթացը և ցույց տալ, որ գիտաֆանտաստիկ գրականության սյուժեն ըմբռնելու, գեղարվեստական դիսկուրսի տեղեկատվական ու էսթետիկ ասպեկտները մեկնելու և նկարագրված իրադարձությունների հետևանքները գնահատելու գործում հատկապես կարևորվում է ընթերցողի հենքային գիտելիքների պաշարի առկայությունը: Գիտաֆանտաստիկ գրական ստեղծագործությունների նմուշների լեզվաոճական ուսումնասիրությամբ հեղինակները եզրակացնում են, որ մեզ շրջապատող աշխարհից, տվյալ դեպքում՝ գրական ստեղծագործություններից, գիտելիք ստանալիս իմացաբանությունը ընթերցողին օգնում է տարբերելու ճշմարիտը կեղծից:

**Բանալի բառեր** – *իմացաբանություն, գիտաֆանտաստիկ գրականություն, իմացական արժեք, էքստրապոլյացիա, նորարանություն (novum)*

**ГАЯАНЕ МУРАДЯН, ШУШАНИК ПАРОНЫЯН – *Эпистемология и язык научной фантастики***. – Базовые знания читателей необходимы для понимания и оценки литературных произведений. Статья представляет собой исследование, выполненное в рамках эпистемологической лингвистики. Цель авторов - интерпретировать процесс понимания художественной литературы и показать, что при понимании сюжета научно-фантастической литературы, интерпретировании информативных и эстетических аспектов художественного дискурса, а также при оценке последствий описываемых событий, особенно важную роль имеют фоновые знания читателя. В результате лингвостилистического анализа образцов научно-фантастических литературных произведений, авторы приходят к выводу, что при получении знаний из окружающего мира, в данном случае - из литературных произведений, эпистемология помогает читателю отличить правду от лжи.

**Ключевые слова:** *эпистемология, научная фантастика, эпистемологическая ценность, экстраполяция, когнитивное отчуждение/novum*