On the Nature of Literary Discourse: Fictional Reality in the Context of String Theory

Maroš BUDAY

Abstract

Literary theorists have strived to understand the nature of literature and it has proven to be a herculean task. Yet, contemplating this question reveals that fictional reality is not so different from our own, and that is what makes it possible for literary theory to turn to the natural sciences, in this case, theoretical physics. This article deals with the application of the concept known as the holographic principle onto literary discourse. This principle arose in recent decades from string theory. The foundation of this maxim is based on the thermodynamics of black holes and it attempts to explain the nature of reality. It states that our three-dimensional reality is a mere projection of the information stored at the very edges of our universe. This idea fits the nature of written discourse very well and it offers an explanation for the platonic dualism which determines literature. The use of this principle onto the written word uncovers two fundamental constants of the written discourse. Firstly, a single literary universe has its surface which is represented by purely textual content of a work of art and, secondly, it also has its volume which represents the metatextual content that dominates literary analysis. This paper argues that by paralleling fictional and extralinguistic reality, through the application of the holographic principle, it becomes possible to finally deconstruct the nature of literary discourse.

Key words: Fictional Reality, Literary Universe, The Holographic Principle, Literary Holography, Metafiction, Physics

Abstrakt

Literárni vedci sa pokúšali pochopiť podstatu samotnej literatúry, no toto úsilie sa ukázalo byť neobyčajne ťažkým. No dôslednejší pohľad na túto problematiku svedčí o tom, že literárna realita nie je príliš vzdialená tej našej - fyzickej, a preto je v otázke literárnej podstaty možné, aby sa literárna teória obrátila na vedy prírodné, predovšetkým na teoretickú fyziku. Tento príspevok sa zaoberá aplikáciou fyzikálneho konceptu zvaného holografický princíp na literárny diskurz. Tento princíp sa vo fyzike objavil v posledných dekádach a je súčasťou známej teórie strún. Podstata tejto maximy vychádza z oblasti termodynamiky čiernych dier a pokúša sa vysvetliť podstatu našej fyzikálnej reality. Daný princíp hovorí o tom, že naša trojdimenzionálna realita je iba projekciou informácií, ktoré sú uchované na samotnom okraji nášho univerza. Spomínaný princíp zapadá do otázky podstaty literárneho diskurzu veľmi dobre a je schopný vysvetliť Platónsky dualizmus, ktorý determinuje literatúru. Použitie tohto princípu na písané slovo odhaľuje dve fundamentálne konštanty vlastné literárnemu diskurzu. Po prvé, literárne univerzum má svoj sférický povrch, ktorý reprezentuje čisto textuálny obsah literárneho diela, a po druhé, toto univerzum má taktiež svoj sférický obsah, ktorý reflektuje metatextuálny obsah daného diela, čo je vlastne aj dominantou literárej analýzy. Autor tohto článku predpokladá, že ak dáme do paralely svet literárny so svetom fyzikálnym, a to prostredníctvom aplikácie holografického princípu, bude možné skutočne dekonštruovať podstatu literárneho diskurzu.

Kľúčové slová: fikčná realita, literárne univerzum, holografický princíp, literárna holografia, metafikcia, fyzika

Introduction

Ever since the inception of the field of literary theory, literary scholars have strived to understand the nature of literature as such, and it has proven to be a herculean task. Yet, contemplating this question reveals that fictional reality is not so different from our own, and that is what makes it possible for literary theory to turn to the natural sciences, in this case, theoretical physics.

Physics makes up, much like any other form of natural science, an indispensable part of the landscape of systems through which human beings gain knowledge of the physical world around them. However, when the human thought process crosses the gap dividing natural sciences and humanities, we tend to suddenly appear in the ethereal realm inherent chiefly to our ability to express our thought through the medium of language. Where natural sciences stand on firm ground, the humanities seem to stand on quicksand. It is so because whereas sciences like physics work predominantly with the tangible nature of a given system, seemingly working with hard evidence; the human sciences mostly stay curled up in their shells, afraid to venture beyond the realm of their own narrative structures.

One of those human sciences is literary theory. Although literary theory is an established science with a long-standing tradition, has its own terminology, methodology, and subject of research, and also, I believe, ranks among the boldest of human sciences; it also tends to be rigid when it comes to establishing ground outside its comfort zone; that is, to seek knowledge and understanding in the physical world rather than the world which is exclusive and open to suggestion, and speculation. This trail of thought is mostly uncharted territory, and there have been only few pioneers who dared to seek truth outside the fictional world of literature, and other human sciences. And so, there is the question of relevance of going beyond that cozy shell of a system which embodies literary theory.

1 Theoretical Physics and Literature

Ever since the emergence of postmodernist thought, literary theorists have begun to understand the importance of straying from convention. Among the most important, the name Patricia Waugh stands out. In her book, Metafiction: The Theory and Practice of Self-conscious Fiction, Waugh admits that part of the basis for her formulating this rather prominent tendency inherent predominantly to postmodernist literary discourse, was what is known to quantum mechanics as Heisenberg's uncertainty principle. This principle is a well-documented phenomenon where "for the smallest building block of matter, every process of observation causes a major disturbance" (Heisenberg, 1972, p. 126). In essence, what happens in the realm of quantum physics is that when someone wants to observe the behavior of an electron, whenever the electron is looked upon, it behaves differently than it does when it is not observed by the scientist. This is the 'major disturbance' that Heisenberg mentions, and it has tremendous implications, not just in physics. It then becomes impossible to "describe the objective world

because the observer always changes the observed" (Waugh, 1984, p. 3). It is the same with metafiction. This literary tendency bears the mark of physical reality implicit to quantum mechanics. A metafictional writer builds walls that preemptively destabilize the flow of the narrative in question which forces the reader to view the work of art in a different way. It makes the reader aware of the fact that s/he is reading a work of art which prevents her/him to be transported into the world of fiction, leaving the reader in a semi-corporeal state of mind. Not in physical reality; but not in the fictional one either.

Though, both in physics and literature as well, this is a fascinating phenomenon, it is crucial to realize the implications of Waugh adopting Heisenberg's notion, and in a very real way applying it to literary theory. By this act, Waugh achieves something extremely rare in the discourse of human sciences; she is able to pierce the veil between reality and fiction, and go to places hitherto unknown to literary theory.

There are always two sides to every story involving two systems which, however unlikely it may be, intersect, much like in the case of literary theory and physics. This brief excursion into the argument that it is possible to build bridges between the human and natural sciences, instead of burning them, is also worthwhile to explore in terms of what physics has in common with literature, rather than the other way round. With the fall of structuralist way of thinking, even theoretical physicists have begun to spin their tales. Physics, always established as the queen of natural sciences, has become a shifting composite. With the rise of quantum mechanics, and the attempts at reconciling the quantum world with the world of Einsteinian general relativity, physicists were offered two choices. Either they forfeit, and admit defeat; or, ironically, they partly abandon their own ground, and venture into the worlds of narrative structures. In the chapter entitled "Six Possible World of Quantum Mechanics" from the book Speakable and Unspeakable in Quantum Mechanics, John S. Bell writes:

To what extent are these possible worlds fictions? They are like literary fictions in that they are free inventions of the human mind. In theoretical physics sometimes the inventor knows from the beginning that the work is fiction, for example when he deals with a simplified world in which space has only one or two dimensions instead of three. More often it is not known till later, when the hypothesis has proved wrong, that fiction is involved. When being serious, when not exploring deliberately simplified models, the theoretical physicist differs from the novelist in thinking that maybe the story may be true" (1987, p. 194-5).

Literary fiction is indeed akin to narratives which emerge in physics, and Bell aptly points out that these narratives spun by physicists significantly differ from fiction created by the writers; however, this article is about the nature of literature itself through the eyes of theories proposed by physics which are, in turn, applied to literary theory. When we substitute literary fiction for literary theory and adapt it to Bell's statement, there is virtually no difference in the two fields. Literary theory thus becomes a science equal to physics itself. Both fields of study have their equipment for analyzing data, and in a way, both are dependent on each other.

Furthermore, there is one more thing which the two fields have in common, more than anything else, and that is the notion of aesthetics. Beauty, elegance, and symmetry; the holy grail of physics. It is precisely what is sought after by the creators of contemporary physical narratives – a unifying field theory. A theory which is believed to be the theory of everything, reduced to a single, so far elusive, equation. "Like a great work of art, a beautiful equation has among its attributes much more than mere attractiveness – it will have universality, simplicity, inevitability, and an elemental power" (Farmelo, 2003, p. 14). As Farmelo notes, the aesthetic appeal may not be the priority of physics, but it is the inevitable consequence; the will of the universe. Much like literature, physics is not exempt from the rules of its cosmos which seems to be governed by simplicity, and beauty. However, simplicity, "does not indicate any kind of banality, but rather a clarity or lucidity that is fully compatible with the complexity of the phenomena under scrutiny" (Vanderbeke, 2011, p. 201).

2 The Vacuous Center of Literary Discourse

The change in the wind indicated by the need for an interdisciplinary approach which has gained prominence over the recent decades exhibits a certain sense of renewal and freshness in the scientific climate. No longer are we bound by the rigidity and restraint imposed upon us by systems which represented the ephemeral and ever-elusive framework brought to the foreground by structuralist way of thinking. Systems were perceived as an integral part of every research area, and were believed to be the bearers of all the answer buried in the recesses of their own structures. However, as Derrida pointed out in his lecture *Structure, Sign and Play in the Discourse of Human Sciences*, the sole accumulation of data becomes simply insufficient for explaining every given variable within a certain system. As Derrida explained it, "the whole history of the concept of structure, before the rupture [...] must be thought of as a series of substitutions of center for center, as a linked chain of determinations of the center." (Derrida, 1987, p. 36) In short, a structure is defined by its center that stands for the core concept around which each and every piece of knowledge inside the given system centers. According to Derrida, this poses a problem because the core concept of a system is never fully defined and it is impossible to do so in the framework of only one given system. Derrida thus proposes a solution in the form of what he calls *freeplay*. In essence, *freeplay* is the way out of this conundrum because it allows a trans-systematic approach to gaining knowledge. It allows for an accumulation of data from a different system in order to explain the core concept of the former system.

Contemplating Derrida's point of view, and applying it to literary studies leaves us utterly perplexed. It is so because the deeper we excavate in the system of literary theory, the more baffled we are at the realization that we don't know much about the nature of what stands as the center of literature itself – a fictional universe. A fictional universe truly is what stands at the heart of literary discourse, yet the center of this system, as Derrida points out, remains completely vacuous. A literary theorist is thus faced with a series of fundamental questions akin to the

questions all too frequently raised by human beings pertaining to the meaning of life. When pondering the nature of a literary universe, the very core of literature, it is realized that virtually nothing is known about the center of this structure because literary theory alone doesn't have the terminological and theoretical apparatus to sufficiently deal with demystifying this problem. That is why it is important to tear down the barriers surrounding the structure of the field of literary theory, and immerse it in *freeplay* thereby filling in the vacuum which has defined the core of literature itself. And this is why it is justifiable to turn to the unlikely source of information – the realm of theoretical physics.

3 On the Nature of Literary Discourse

It has been implied that, under certain conditions, it is relevant to turn to the physical world for knowledge about the center of literary studies. Patricia Waugh is a shining example of that. However, the technique called metafiction is much more than just a mere example of the use of models from physics in literary theory; it is also a gateway to the first step at understanding what a literary universe is, and how it functions.

Waugh's concept of metafiction is a superb study of how two distinctly opposite worlds collide and interact with each other. They do that via the metafictional element of *frame-breaking*. According to Waugh, "contemporary metafiction […] foregrounds 'framing' as a problem, examining frame procedures in the construction of the real world and of novels. The first problem it poses, of course, is: what is a 'frame'" (Waugh, 1984, p. 28)? A 'frame' is something that implies constrictiveness, an automatic lens through which to view the phenomenon in question. In essence, it is the synonym of Derrida's structure. It prevents the *freeplay* of the thought process. Therefore, much like the sciences in the postmodern era seek knowledge and truth outside of their respective systems, contemporary literature does this as well. It basically raises the status of fiction, and brings it closer to extralinguistic reality, our reality. Literature simply breaks the frame imposed on it by literary theory, and is cut loose to explore what lies beyond its borders. This element inherent to contemporary postmodernist fiction, though not exclusively, is what allows us to explore fictional universes in a new context, a context previously unknown to literary theory; that is, to search for the illusive answers pertaining to the nature of literary universes in the realm of physics by examining what the fictional, and physical universes have in common.

3.1 The Holographic Principle

In the recent decades, among the vast number of physical narratives, a revolutionary new idea has begun to gain prominence in the field of string theory. It is called *the holographic principle*. The holographic principle was first formulated by a Stanford physicist called Leonard Susskind, to whom even the giant of physics, Stephen Hawking, conceded defeat. The dispute between the two started when Hawking postulated his idea of a phenomenon called Hawking

radiation. It's a concept of an energy which is released when something approaching a black hole is swallowed by it, and the information embedded within that something is lost. However, as Susskind found out, information, the very building blocks of matter, is impossible to destroy. Hawking's idea was in firm opposition to the one of the most sacred laws of physics there are – the conservation of information. This theorem states that any information encompassed within any form of matter, or energy can never be lost, but is subject to entropy; that is, the rearrangement of particles from order into chaos.

This theorem is crucial in understanding Susskind's idea. The holographic principle is modelled on the thermodynamics of black holes. Susskind's revolutionary claim that "entropy is not lost to the black hole but merely transferred to it" (Greene, 2011, p. 284), proposes a way out of Hawking's conundrum. According to Susskind, whenever some form of matter, comprised of pure ordered information, enters a black hole, said information is never lost, but subjected to the entropy of the black hole which destroys the form of matter but never the information. What happens is that the information is simply scrambled as the object is destroyed, and it becomes a part of the black hole itself.

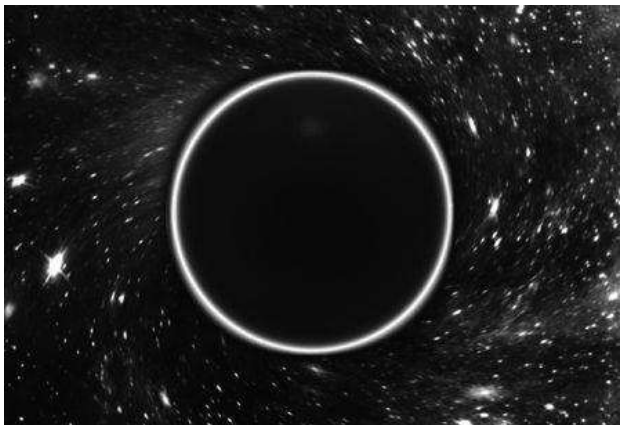

Figure 1: The event horizon of a black holes the white circular shape surrounding the black hole itself (Greene, 2011, p. 285)

Logic would dictate that the information becomes directly a part of the mass of the black hole but that is not the case. As Susskind postulated, the information which "describes a region of space is in some sense on its boundary, not its interior" (Susskind, 2005, p. 177). This means that the information which becomes a part of the black hole is first spread over the outer edges of a black hole – an area known as the *event horizon* (See Figure 1). Only then, after the information is spread around the event horizon (see Figure 2), is it projected into the interior of a black hole.

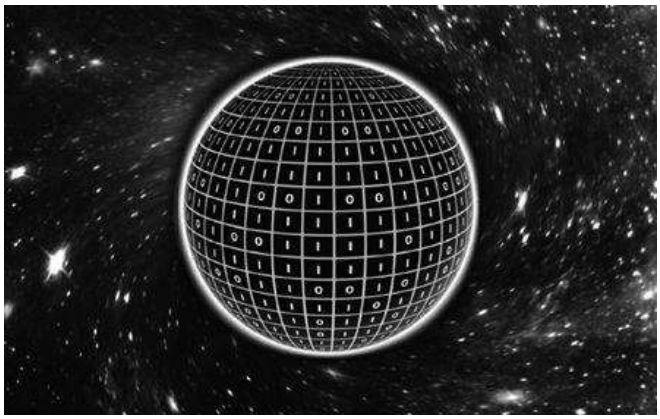

Figure 2: The information seemingly haphazardly spread over the surface area of the black hole

(Greene, 2011, p. 293)

However, Susskind went a bit further. He found out that this theory does not merely apply to the physics surrounding black holes, but any region of space which embodies a sufficient amount of mass which also applies to the whole of our universe. The holographic principle thus states that our three-dimensional spacial reality, time notwithstanding, is at its core, not three-dimensional at all. In fact, whatever happens in the universe happens at first on its two-dimensional boundary, and then it is projected into its volume. The universe is thus of a dual, Platonic holographic nature.

3.2 Literary Holography

A rather bold claim has been made during the course of writing this paper that a literary universe is, at its core, no different from our own. Not only are there rather strong ties between our reality and the fictional one, through the literary medium of metafiction, but venturing into the realm of theoretical physics allows us to answer the most fundamental question a literary theorist might ask himself – *what is the nature of a literary universe?*

Information comprises one of the most basic units of physical reality, and according to the holographic principle, it is scrambled and arranged on the boundary surface of our universe where a power, as yet unknown to us, forces the information to project itself into the volume of the sphere, making the universe appear to us as we know it.

A literary universe, be it a novel, poem, or play, is thus also composed of units of information known to us as linguistic signs; letters. When we apply the fundamental concept of the holographic principle onto a literary universe, it is not really surprising that this theory fits the nature of literary discourse perfectly. Modelled on Susskind's idea, a literary universe is essentially a textual sphere with its own surface as well as volume.

The surface of the textual sphere represents the pure unaltered textual content of any literary universe in question. It is a disordered heap of broken images; linguistic signs which are seemingly chaotically arranged on the boundary surface of a piece of literature. Much like the

information spread around the event horizon of a black hole encoded in the binary code of the universe in zeroes and ones (Figure 2), the textual content embodied in linguistic signs lies on the surface of a textual sphere. It is a matter of simple substitution of one type of information for another when we can arrive at a conclusion that the nature of a literary universe is also dual. Linguistic signs by themselves mean very little. It is only when they are decoded by the reader of literature, when they gain a purpose in the form of linguistic meaning. They are forced into informational clusters – words, phrases, and sentences – and only by the act of reading are decoded, and projected into the volume of the textual sphere.

Taking a closer look at the seemingly chaotic arrangement of information in our universe as well as the fictional one, it appears the information embedded on the boundary surface of a given universe is not random at all. When matter falls into a black hole, and is destroyed, the information encoded within it is spread on the boundary surface, but not haphazardly. There has to be an underlying pattern to the arrangement of the information on the boundary surface because the projection of said information within the volume of the black hole is again uniform because the interior of a black hole is pure matter. Similarly, the linguistic signs encoded on the boundary surface of a textual sphere are not random at all; they are systematically arranged to make up the volume of the sphere which, however, may be deciphered only by decoding the linguistic signs via the act of reading.

Same as the interior of a black hole is composed of matter which is the projection of the information stored on the boundary surface, the interior of a literary universe makes up the whole of the decoded linguistic signs. The volume of a literary universe is thus represented by the linguistic meaning. In essence, the volume of a literary universe represents the multiplicity of meanings encompassed in literary discourse.

Conclusion

The focus of this article was put on the attempt at understanding, and examining the very nature of literary discourse itself. This article proposes that literary theory does not possess the terminological apparatus to satisfyingly answer the most fundamental question inherent to literary studies – *what is the nature of a literary universe?* Instead of dwelling solely on the field of literary theory, an interdisciplinary approach is proposed.

Firstly, the relevance of literary theory in explaining the very center of literary studies – a literary universe – is rejected based on Jacques Derrida's premise that the center of any human science is vacuous because the theories of said science merely circle around its center, and fail to fully explain it. That is why a connection to the field of theoretical physics is proposed.

Secondly, the link between the physical and fictional worlds is established based on the justification of using models from physics in literary studies. This examination has shown that it is indeed relevant to use concepts from physics in literary theory because, in many ways, the fundamental nature of physics is akin to the nature of literary studies. Both fields of research have

their own terminological apparatus, both of them have a similar center of their studies (physical or fictional universes), and both of them are dependent on each other. Furthermore, physics as well as literature are heavily dependent, and actively search for aesthetics within their recesses. The connection between the physical and fictional worlds is also deepened by closely examining the literary-theoretical concept of metafiction, proposed by Patricia Waugh, which describes the efforts of levelling fictional reality with the extralinguistic one. In addition, Waugh's concept of metafiction serves as a prime example of using physical models in literary theory because of her inspiration by Heisenberg's uncertainty principle in quantum mechanics while formulating her theory.

Based on the reasons given above, the nature of literary discourse is explained on the basis of a hypothesis inherent to string theory, called the holographic principle. This principle was developed by Leonard Susskind, and it is modelled on the thermodynamics of black holes. It states that the information embedded in any matter which falls into a black hole is not lost but stored on the boundary surface of the black hole. This information is then projected into the center of black hole. Susskind also expanded his idea on the whole of the universe, and formulated the statement that our reality as we know it is in its nature only two-dimensional, and our three-dimensional reality is a projection of the information stored on the boundary surface of the whole universe.

This theoretical basis for explaining the nature of literature has been chosen because it fits the Platonic dualism which defines a literary universe. Applying the holographic principle onto the model of a literary universe has uncovered that the literary universe in question is indeed dual. It embodies its own surface as well as a volume. The surface of a literary universe is represented by purely textual content of a given work of art, and the volume thus equates to the metatextual content of a given literary universe. In short, the holographic principle has shown definite potential in explaining the nature and function of literary discourse.

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Author: Mgr. Maroš Buday, full-time PhD. student, Institute of British and American Studies, Faculty of Arts, University of Presov, Slovakia. E-mail: maros.buday@smail.unipo.sk