Between

Beyond Suvin: Rethinking Cognitive Estrangement

Simona Bartolotta

Abstract

This article proposes a reconceptualization of Darko Suvin's notion of cognitive estrangement through affordance theory. Specifically, science-fictional estrangement is redescribed as the creation of fictional world-affordances imbued with cognitive potential. This perspective, drawing from traditional SF criticism, cognitive literary studies, and post-critical literary theory, allows taking the study of SF beyond the coordinates of critique and critical theory. On account of the profound influence of theorists such as Darko Suvin and Carl Freedman, such a critical theory has so far been the primary rhetorical and critical mode of this branch of genre criticism.

Keywords

Cognitive estrangement; Science fiction; Cognitive studies; Affordance theory; Postcritique

Between, vol. XII, n. 23 (maggio/May 2022)
ISSN: 2039-6597
DOI: 10.13125/2039-6597/4925

Beyond Suvin: Rethinking Cognitive Estrangement

Simona Bartolotta

What are we talking about when we talk about science fiction (SF)? To this day, genre theorists and SF critics are still trying to find a satisfactory answer to this question. One of the most famous and influential attempts at an all-encompassing definition of SF dates back to the 1970s, with Darko Suvin and his theory of cognitive estrangement. In this article, I will first discuss Suvin's cognitive estrangement, Carl Freedman's cognition effect, and some insights from Heideggerian aesthetics in order to indicate some directions in which the study of SF, and in particular of the genre's distinctive use of estrangement, can be expanded through contributions from the field of cognitive literary studies (which so far has failed to develop a sustained interest in SF or genre fiction in general), and I will show how this expansion participates in a larger ongoing debate in the humanities about the limits of critique and critical theory. I will then propose a new definition of science-fictional cognitive estrangement as a non-mutually-exclusive alternative to Suvin's own formulation, and I will illustrate it through a reading of Ted Chiang's SF novella "Story of Your Life", concluding with a final remark on the role of language and indeterminacy in science-fictional estrangement.

Although the notion of cognitive estrangement features in Suvin's critical writings on SF as early as 1972, its best-known formulation is to be found in his 1979 study *Metamorphoses of Science Fiction*, now considered a landmark in the history of SF criticism. Suvin presents cognitive estrangement as the key to grasping the true nature of the notoriously slippery literary category of SF, which he defines as follows: «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» (Suvin 1979: 7-8). Deeply preoccupied with the problem of establishing the literary worth of SF, Suvin maintains that, if we are to pass any sort of «value-judgement» on works in this genre, it is first necessary to confront what he calls the «*empirical realities* of SF» with its «*historical potentialities*»

(*ibid*.: viii). Accordingly, we should eschew considerations based on the genre's distinctive thematic concerns, such as its engagement with science and technology or its future-oriented scope, and focus instead on what later in *Metamorphoses* will be called "novum", that is, the element(s) of radical novelty that determines the difference between the imaginative world of the text and our own. As indexes of the "empirical reality" posited in the text, and in spite of their constitutional alterity, novums (and, by extension, the textual worlds they generate) are granted an ontological status of "non-impossibility" within the frame of the «cognitive (cosmological and anthropological) norms of the author's epoch» (*ibid*.), and it is in this sense that the particular form of estrangement that SF narratives engender is best described, precisely, as "cognitive estrangement."

Suvin openly acknowledges the debt that his theory of cognitive estrangement owes to the Russian Formalists, in particular Viktor Shklovsky and his concept of *ostranenie*, and to Bertolt Brecht's *Verfremdungseffekt*. The latter, in particular, fascinates Suvin on the account of its connections to the scientific outlook, through which Brecht aimed to foreground how the attitude of artistic estrangement is «both cognitive and creative» (*ibid*.; 6). If this specifically Suvinian conception of estrangement – i.e., the setting up of a cognitively-validated alternative to empirical reality – is what differentiates SF from realistic mainstream fiction, the presence of the cognitive element, on the other hand, sets the genre apart from sister forms of fantastic writing such as myth, the folktale, fantasy, and the pastoral. In Suvin's vision, in fact, all these genres fail in some way to open up the heuristic, genuinely revealing possibilities that the cognitive attitude grants SF, privileging instead, in their uncritical embracing of utter impossibility, reactionary stances, wish-fulfilment, and escapism (*ibid*.: 8). In a specular manner, however, there is as well a risk that undue insistence on the rational and scientific character of 'valuable' SF might translate into excessive indulgence in scientific and technological extrapolation, which Suvin sees as a juvenile and ultimately sterile pleasure that plagues lesser SF works. Thus, in a narrative where the two elements are correctly balanced, it so happens that «*a cognitive – in most cases strictly scientific – element becomes a measure of aesthetic quality, of the specific pleasure to be sought in SF*. In other words, the cognitive nucleus of the plot codetermines the fictional estrangement» (*ibid*.: 15). The clearly hierarchizing and prescriptive tendencies both implicitly and explicitly central to Suvin's argumentations have been the focus of many of the objections levelled at them

through the years[1]. In what follows, however, I wish to address a different aspect of Suvin's formulation of cognitive estrangement, not primarily in the attempt to offer a critique of or to supersede this model, but rather to suggest a parallel and complementary line of reasoning to Suvin's own.

To recapitulate, Suvin defines cognitive estrangement as the effect generated when the imaginative world postulated in the SF text triggers and stimulates a critical juxtaposition with the world of the author – or, in Suvin's vocabulary, the "zero world". Although we should not forget his Formalist and Structuralist inspirations, possibly the strongest influence on Suvin's critical work, including his writings on SF, is Marxist thought. In *Metamorphoses*, he explicitly associates the cognitive interest of SF with «the rise of subversive social classes and their development of more sophisticated productive forces and cognitions», as opposed to the numbing escapism found in «second-rate SF» (*ibid*.: ix). He also affirms that, as used in his study, «the concept of "cognitiveness" or "cognition"… implies not only a reflecting *of* but also *on* reality», and that this «typical SF methodology… is a *critical* one, often satirical, combining a belief in the potentialities of reason with methodical doubt in the most significant cases» (*ibid*.: 10). Furthermore, in the context of his insistence on the close alliance between his idea of cognition and scientific thought, Suvin also points out that while «cognition is wider than science», the two concepts can be made to align more closely if one takes "science" «in a sense closer to the German *Wissenschaft*, French *science*, or Russian *nauka*, which include not only natural but also all the cultural or historical sciences and even scholarship» (*ibid*.: 13). Elsewhere, he openly contrasts "cognition" with "ideology", writing that «the horizon of a modern, epistemologically self-conscious and self-critical *science or cognition*» is the only frame within which a truly critical attitude is possible, because this perspective alone can incorporate «the viewer (experimenter, critic) into the structure of what is being beheld (experiment, text)» (Suvin 1988: 49). In Suvin's conception, then, "cognition" constitutes an approach to historical understanding, critical in the Kantian sense, always open-ended but also always «codetermined by the social subject and societal interests» (Suvin 2010: 293), rebuffing final closure as it does unruly formlessness and responding to the «meta-principle» of «not only but also (or both/and)» (*ibid*.: 295). It is well worth noting here that at the heart of Fredric Jameson's seminal *The*

[1] Suvin himself later revised his appraisal of fantasy and related genres, too quickly dismissed in *Metamorphoses* as simplistic forms of "irrational" estrangement and thus intrinsically less "significant" than pure SF. See Suvin 2000.

Archaeologies of the Future lies a cognate conception of the estrangements performed by SF as fundamentally social, often expressed by direct reference to Suvin's pioneering work (see, for example, Jameson 2005: 63), and even, across the career-spanning selection of essays that forms the second part of the book, by anticipating some of Suvin's key intuitions (*ibid*.: 256).

No wonder, then, that this sociologically oriented approach, also due to Jameson's titanic influence, has informed the quasi-totality of SF criticism from its beginnings to the present day, greatly improving the latter's fertility and even its currency for mainstream literary criticism. Nevertheless, the possibility arises that Suvin's characterization of the source of the historical potentialities of the genre as "cognitive" (by which he roughly means, as we have determined, "socio-political" or "socio-politically aware," and allied with modern scientific thought) might have stalled the study of SF and non-mimetic fiction at large from the perspective of the extremely ample and variegated critical frameworks that fall under the rubric of cognitive studies. Suvin's cognition, in fact, arguably shares little with what is normally meant by the same term in the field of the cognitive sciences[2]. Without necessarily displacing Suvin's meaning, which retains its own invaluable relevance for a vision of SF as a form chiefly concerned with social criticism, we can also wonder if and in what ways a theory of cognitive estrangement revised in the light of contemporary cognitive literary studies – and thus envisioning "cognition" as the subject matter of the cognitive sciences, that is, as the ensemble of mental processes and phenomena associated with perception, knowledge, memory, language use, emotion, and so forth – could contribute to the study of SF. Carl Freedman's notion of the cognition effect, which significantly re-examines some of the key points of Suvin's theory, and the Heideggerian conception of aesthetic defamiliarization (which, as I shall argue, offers unexpected contributions with a view to understanding the specificity of the type of estrangement produced by SF), both indicate some possibilities for integrating the cognitive outlook into a theory of science-fictional estrangement.

Freedman expounds his theory of the cognition effect in his 2000 study *Critical Theory and Science Fiction*, whose title already signals the influence

[2] In the account of *The MIT Encyclopedia of the Cognitive Sciences*, research in at least six general fields of enquiry on «questions about the mind» participates in the construction of a broad taxonomy of the cognitive disciplines. These are: philosophy; psychology; the neurosciences; computational intelligence; linguistics and language; culture, cognition and evolution (Wilson and Keil 1999: xii).

of Suvin's sociological approach on Freedman's work. Freedman's main proposition is that the category of "cognition" as employed by Suvin is at fault insomuch as it ties the definition of what constitutes SF to extraliterary criteria – specifically, the attitudes and scientific principles which are recognized as empirically valid at the time of the composition of the text. Thus, Freedman's crucial argumentative move consists in detaching the meaning of "scientifically sound" from "cognitive" (a semantic identity which Suvin took for granted), and reconfigure the definition of SF on the basis of «the attitude *of the text itself* to the kind of estrangements being performed» (Freedman 2000: 18). On this account, SF generates what Freedman names, after Roland Barthes' *effet de réel*, "cognition effect". What is important to note here is that such reformulation, as Freedman argues, allows for a deeper understanding of SF not merely as the instantiation of a set of generic conventions, but rather as a tendency which, to a degree, is inherent to all fiction: if we were in fact to envision the narrative interplay of cognition and estrangement assumed by Suvin to be the marker of true SF as a continuum, we would find a combination of maximum estrangement and minimum cognition at one extreme of the spectrum, and, complementarily, maximum cognition plus minimum estrangement at the other. For Freedman as for Suvin, the former option is best embodied in fantasy literature, whereas the latter corresponds to realist fiction. On these grounds, it is possible to argue that even the most referential and realistic of fictions rely on an irreducible degree of estrangement. Although far from ground-breaking, Freedman's argument that «the estranging tendency of science fiction» supplies «some of the power of great realistic fiction» is crucial in this context, as it suggests that «the science-fiction tendency», that is, what we might call 'textually-' or 'discursively-cognitivized estrangement' (as opposed to Suvin's reliance on extraliterary criteria to determine the text's compliance to the requirements of cognition) is in fact «the precondition for the constitution of fictionality – and even of representation – itself» (*ibid*.: 21).

Heideggerian aesthetics presents several surprising affinities with Freedman's model, especially in that both provide a focus on the text as an active participant in the determination of how the narrative strategies that the text implements affect its reception. The relevance of Heideggerian thought to SF theory has already been pointed out by Adam Roberts (2016), who, through a compelling rereading of Heidegger's "The Question Concerning Technology", has put forward the contention that SF is the literature capable of operating what in Heideggerian jargon could be called 'technological enframing'. In his 1953 essay, Heidegger recovers the

original meaning of the Greek word *technē* to famously define technology as a "mode of revealing"; *technē*, in fact, was employed to indicate at least three interrelated areas of human culture and experience: the activity of the craftsman, philosophy and the fine arts, and also, similarly to *epistēmē*, the ability and process of «knowing in the widest sense» (Heidegger 2008: 318). It is true that modern technology, for Heidegger, is guilty of "enframing" the world as "standing-reserve", blocking off its revealing potential and reducing its resources to assets to be stored and then used in the aimless system of large-scale production; in its original meaning, however, technology represents a particular intellectual stance – indeed, a mode of knowing or revealing – that allows human beings to relate to the world in such a way as to bring forth *alētheia*, truth (*ibid*.: 319). From this poietic function of technology stems, for Heidegger, its affinity with art, which in ancient Greece shared, significantly, precisely the humble name of *technē* (*ibid*.: 339).

It is by turning to Heidegger's theory of the work of art, however, that it truly becomes evident in what respect Heideggerian aesthetics can be thought of as an aesthetics of estrangement[3]. Heidegger's concern with the 'truth' that great art is capable of bringing forth does not evolve as a quest for referential accuracy or for an extra-phenomenal reality, but rather as a preoccupation with what he calls "unconcealment", the way in which in the world appears to us before being reformulated as representation. We find an echo of this – or rather, Heidegger's theory of art bears an echo of – in Shklovsky's own belief that art ought «to return sensation to our limbs… to make the stone feel stony» (Shklovsky 1991: 6). As remarked, moreover, this idea is prominent also in "The Question Concerning Technology", exemplified in the essay's final juxtaposition of art and technology, the latter seen as a form of poietic craft. The characteristic operation of all great art, then, consists in opening up a space in which human beings can comprehend the world by operating «a happening of truth», «a disclosure of a particular being, disclosing what and how it is» (*ibid*.: 162). Peculiarly, however, this revelation does not affect merely the subject of the work of art, but *the world* in which the subject is shown to exist and in which, by virtue of its relation to the world itself, it is revealed in its significance. In Timothy Clark's words, «Heideggerian defamiliarization has a holistic 'transcendental' aspect, i.e. in seeing its object anew it transforms our sense of the *whole* context of practices and

[3] My main reference for the discussion that follows is, of course, "The Origin of the Work of Art" (in Heidegger 2008: 143-212).

perceptions in which that object inheres» (Clark 2002: 47): in short, it calls into being a world to which we would not have attended otherwise. It is in this sense that Heidegger's rejection of mimesis as the rationale of art is to be understood: for Heidegger, the work of art cannot be seen merely as the result of a certain authorial design, nor merely as the product of its times, and its goals (if indeed one insists in attributing to art any sort of intentionality) are not referential. Rather, art «presents its own unique and ultimately inexplicable mode of being, something for the reader, beholder or listener to dwell within and not merely something to de-code» (Clark 2002: 43).

The work as a mode of being irreducible in its alterity, and, by virtue of this alterity, able to serve as a lens, a stepping stone, an affordance, a cognitive artifact[4], an aide to thought. In this light, my effort to point to a mode of reading SF that would take into consideration this potential for coadjuvancy – the capacity of texts, and specifically narratives of speculative fiction, to help create new visions, on top of their usual and widely acknowledged practice of encoding «the tendencies latent in reality» in their imaginary terms, to use Suvin's own phrase (Suvin 1979: 8) – subscribes to a larger recent debate in the humanities about what the title of Rita Felski's fundamental book on the topic condenses as *The Limits of Critique*. In this context, critique is identified as the privileged rhetorical mode of critical practices such as critical theory and ideology critique, a style of criticism that fashions itself as inherently suspicious, sceptical, demystifying, and at times even morally condemning, and which too habitually is mistaken as the norm in humanist studies, rather than being recognized as what it is – one of many available rhetorical styles. Among Felski's several suggestions for the "postcritical" future of literary studies, particularly resonant for my own project is her proposition, reliant on Bruno Latour's contributions to actor-network theory, that texts and everything that relates to their makeup and reception, from narrative devices to fictional characters, from extratextual factors such as horizons of expectation to genre classifications, can be productively thought of as nonhuman actors (Felski 2015: 154). The appeal of this outlook for cognitive literary studies – and, vice versa, the appeal of cognitive literary studies for such an approach – is clear: on the one hand, the cognitive-lit-

[4] Many of the essays collected in *Narrative Theory and the Cognitive Sciences*, edited by David Herman (2003), elaborate on the definition of texts as cognitive artifacts, including Herman's own contribution, "Stories as a Tool for Thinking".

erary research project, in its multiple and variegated instantiations, can provide numerous specific directions to investigate the idea that the text is powerful in its nonhuman agency, and that in their being enmeshed in a complex network of phenomena, texts can produce an effect on the other actors to whom or which they are connected. (To illustrate the workings of a nonhuman agent, Latour uses the example of a speed bump: inert, strictly speaking, but with an undeniable effect on the movement of human actors.) Conversely, the reorientation of critique carried out by Felski and similar-minded critics opens up a new intellectual space where cognitive-literary studies can find renewed legitimacy and momentum, contributing to the common enterprise of understanding how texts deploy their power to point to new visions and frames for interpretation, rather than only stand by as objects to be scoured in search of 'symptoms'[5]. Cognitive studies, moreover, also offer an invaluable frame of reference to explore the affective dimensions of texts and of our interactions with texts, which for Felski should be a crucial component of the postcritical mode of reading which she envisions.

It is in this view, then, that I advance the proposal of a new conception of what we mean by "estrangement" (and more specifically, "cognitive estrangement") when we apply the term to the study of SF – not, as I have explained, with the intention to supersede the Suvinian model but simply to offer an alternative perspective on what the representational strategies

[5] With regard to the larger problem of the compatibility between hermeneutics and cognitive studies and the relation of both to SF studies, to which I cannot do full justice here, let me refer back to my reference to Heidegger to briefly acknowledge that if we can say, with Roberts, that Heidegger (as any thinker linked to philosophical hermeneutics, which has generally been not too sympathetic towards the methods of the empirical sciences) is indeed an «unlikely figure to bring into a discussion» of SF (Roberts 2016: 13), he is an even more unlikely figure to bring into a discussion of SF that relies 1. on the insight of cognitive studies and 2. on Felski's proposition to explore alternatives to the "hermeneutics of suspicion" that shapes the rhetoric of critique. With regards to the first point, see for example Shaun Gallagher's article "Hermeneutics and the cognitive sciences", in which the author sketches some premises for a hermeneutics that combines philosophical understanding with the explanatory power of science (Gallagher 2004: 163). As for the second, Felski herself provides a more than valid justification: "Hermeneutics simply is the theory of interpretation and leaves room for many different ways of deciphering and decoding texts…. While the retrieval of hidden truths is one kind of hermeneutics, not all hermeneutics require a belief in depth or foundations" (Felski 2015: 33-4).

of SF[6] are especially suited to do, and what their study can reveal about the ways in which human beings use art and narrative to express, elaborate on, and even create or otherwise affect aspects of their experience of being-in-the-world. If, like Suvin and Freedman, we take estrangement to mean what we might roughly call representational estrangement, that is, the depiction of storyworld features that are imaginary in that they find no empirical validation in the reality of our experience, then it is possible to think of the text's estranged (and thus estrang*ing*) elements as a particular kind of literary affordances able to extend the semantic, connotative, and meaning-making reach of the text itself. I also contend that one of the preferred uses (though by no means the only use) to which SF puts its estranged affordances seems to be characteristically cognitive: SF loves to think about how we think – or rather, to stress the inherently self-reflective character of this particular use of literary affordances, we love to think about how we think *through* SF.

Before I proceed to illustrate these points with a concrete example, a few notes are due on the meaning of the term "cognitive affordance." Literary studies are no strangers to the notion of affordance, first developed by psychologist James J. Gibson to signify features of the environment which lend themselves to specific uses by living creatures. Felski mentions this concept briefly to note its compatibility with the notion of the text as non-human actor (Felski 2015: 164-5), but my choice of this idea to illustrate what I see as a key feature of science-fictional estrangement is especially influenced by Terence Cave's *Thinking with Literature: Towards a Cognitive Criticism*, in which an entire chapter is dedicated to exploring the advantages of affordance theory for a cognitive model of literary phenomena. «The notion of 'affordances'» writes Cave, strikingly in tune with Felski's own vision, «might provide a different perspective on the things that literature can make happen – the ways in which it can change our cognitive environment» (Cave 2016: 47). Since affordances exist at multiple levels of the text, they can also form «complex ecosystems» (*ibid*.: 49), either horizontally, interacting with other same-level affordances (generating, for example, cross-genre narratives) or vertically, serving as platforms for further affordances or containing them in their own structure. Cave's account matches Felski's

[6] Although the present discussion focuses specifically on SF, the possibility that such 'postcritically cognitive' approach to estrangement might prove useful and beneficial in the study of other forms of speculative fiction as well does not seem farfetched.

in the recognition that affordances possess a peculiar type of agency, but if Felski focuses on the power of nonhuman actors to affect the behaviour of human agents, Cave emphasises the potential of each affordance to serve multiple purposes, its open-endedness: affordances are always typically «*underspecified*», available for the most disparate ends, and «only a particular use and a particular context can select the *relevant* purpose» (*ibid*.: 51). These two views are, of course, complementary: if affordances structure our way of perceiving and thus of interacting with our environment, the availability of more numerous and more prolific affordances generates in its turn more possibilities for influence and action.

From these considerations, it should be evident why my redescription of science-fictional cognitive estrangement as the creation of imaginary world-affordances imbued with cognitive potential is not animated by a definitional intent with regard to its generic frame and holds only limited definitional value. In accordance with their nature as open-ended and underspecified affordances, in fact, the estrangement acts performed in SF lend themselves to potentially infinite readings, not all of them focusing necessarily on the cognitive or metacognitive payoff of the affordance. Conversely, there is no reason why other genres similarly reliant on the non-mimetic should not employ estrangement in the cognitive and self-reflective sense described above. Nevertheless, there seems to be an undeniable and inescapable attraction between the use of imaginary estrangement as cognitive affordance and the rhetorical game of SF, whose escapades into the realm of the fantastic are methodically substantiated by the rules of scientific, or at the very least pseudo-scientific, discourse[7] ("the attitude of the text itself" that generates the cognition effect). Consider how even a book like *Stranger in a Strange Land*, whose political readings often overshadow entirely its generic identity as SF (this is, after all, one of the genre's most celebrated classics), elects to process its social satire through an accurate detailing of the cognitive difficulties that Valentine Michael Smith, the human protagonist born and raised among Martians, faces in adapting to life on Earth, not the least of which difficulties concerns the problem of untranslatability and language.

[7] Istvan Csicsery-Ronay is probably the critic who most compellingly has reflected on how prominently SF flirts with and relies on the «presentation of supernatural phenomena in materialist language» (Csicsery - Ronay 2008: 73). See his *The Seven Beauties of Science Fiction* (2008), especially the chapters on the second and fourth beauties, "Fictive Novums" and "Imaginary Science" respectively.

Language, and especially the possibility of alien languages, seems indeed to hold an inexhaustible fascination for SF, but rarely in the history of the genre has the character of language as affordance been brought to the fore as relevantly as in the work of Ted Chiang. His novella "Story of Your Life", first published in 1998, is exemplary in this regard. In the story, a fleet of alien spaceships suddenly descend on Earth, in a scenario strongly reminiscent of Arthur C. Clarke's *Childhood's End*. Because these aliens possess seven limbs, they are quickly dubbed "heptapods", and since any form of non-verbal communication with them appears to be impossible, linguistics professor Louise Banks and other experts are recruited by the government to study and hopefully to decipher the heptapod language. Through more than a hundred communication devices (called simply "looking glasses") scattered across the planet's surface by the aliens themselves, Louise and her colleagues begin to painstakingly 'speak' with the heptapods. Eventually, Louise discovers that heptapod writing is semasiographic, meaning that, contrary to all human written languages, heptapod writing is comprised of symbols that have no relation to speech. Crucially, this implies that the heptapods regularly employ two entirely different languages, which Louise accordingly renames "Heptapod B" (their written language) and "Heptapod A" (their spoken language). This breakthrough, however, confronts the linguist with an even greater mystery. Why would the heptapods, whose intellectual advancement appears so staggering, need to maintain speech and writing as two completely separate languages when, at least in the human experience, the alternative is infinitely more economical? Why complicate communication and language learning to this extent?

The first tentative answer that Louise gives to these questions proves soon to be uncannily correct: «For the heptapods, writing and speech may play such different cultural or cognitive roles that using separate languages makes more sense than using different forms of the same one» (Chiang 2015: 132-3). Meanwhile, after an exchange with the heptapods about Fermat's principle (i.e., in travelling between two points, a ray of light follows the path that takes the least time), the physicists working at the looking-glass sites ascertain that even though heptapod mathematics is roughly equivalent to the human one, the two systems are basically the reverse of one another: what is elementary from the point of view of human mathematics and physics requires extremely complex calculus for the heptapods, and vice versa. In front of this second revelation, Louise wonders about how different heptapod cognition must be from the human one to warrant such a topsy-turvy conception of physical laws: «[W]hat kind

of worldview did the heptapods have, that they would consider Fermat's principle the simplest explanation of light refraction? What kind of perception made a minimum or maximum readily apparent to them?» (*ibid*.: 144).

As Louise's proficiency in Heptapod B increases, so does her understanding of the heptapods' cognitive mould. Her very perception of time undergoes radical and eerie changes, as she notices that she has acquired cognizance of events that lie as yet in her future. Accordingly, Chiang constructs the novella as a restless alternance between a time in the past, recording Louise's on-site study of the heptapods and their languages, and a time in the future, when Louise gives birth to a daughter. Louise tells both these stories – her past and her future – from the perspective of her actual present, in which she and her partner (Gary, a physicist she met at the looking-glass site to which she was assigned) decide to conceive a child. On a stylistic level, this results in an unusual use of verbal tenses: addressing herself to the daughter she has not met yet, but whom she already knows thanks to her fluency in Heptapod B, Louise begins her tale by saying, «Your father *is* about to ask me the question. This *is* the most important moment in our lives, and I *want* to pay attention» (*ibid*.: 111; emphasis added). The segments from the past are told using the normal narrative tenses, as one would expect, while Louise's memories of her future with her daughter often feature variations of the logically shocking structure "I remember when X will happen": «I remember a conversation we'll have when you're in your junior year of high school» (*ibid*.: 129), or «I remember once when we'll be driving to the mall» (*ibid*.: 138). Chiang's ingenious use of verbal tenses makes to the reader immediately clear the temporal positioning of each of the narrative's sequences; this clarity is lost in the 2016 cinematographic adaptation of the novella, *Arrival*, directed by Denis Villeneuve, in which the viewer is led for a long time to believe that Louise's flashes of her life with her daughter are flash*backs* rather than flash*forwards*. While this confusion heightens the emotional impact of the movie's final revelations, it clouds somewhat the epistemological interest that drives forward the original novella. In fact, the unusual chronological structure that Chiang artfully implements in his text is meant to mirror the alien mode of consciousness that Louise acquires through Heptapod B, a writing system devised specifically to reflect a vision of the universe as perceived through minds that experience reality not sequentially, as human minds do, but *simultaneously*, and which are thus capable of experiencing both past and future at once.

It is useful to contrast Chiang's strategy with how Kurt Vonnegut depicts the same kind of synchronous time perception in *Slaughterhouse-Five*,

which also features an alien species, the Tralfamadorians, who experience time non-linearly. Vonnegut's main character, Billy Pilgrim, acquires the same ability for unspecified reasons, but, in contrast to Louise, he undergoes what would seem to be actual leaps across time, jumping restlessly from one moment of his life to another. In addition, also as in *Slaughterhouse-Five*, the way in which Heptapod B affects Louise's memory and consciousness raises several troubling questions, especially with regard to the idea of free will. As the reader realizes quite early in the story, Louise's daughter will die at twenty-five in a rock-climbing accident. Louise has been well aware of this fact since before the conception of her child; yet, as far as the reader knows, she never so much as considers taking any kind of measure to avoid the final tragedy[8]. Why? For Louise, the explanation comes once again from the new worldview disclosed to her by Heptapod B: within the context of simultaneous consciousness, in which the perception of sequential cause-effect relations gives way to an awareness of events as if animated by an underlying purpose, the concepts of freedom and coercion simply become meaningless. The consequence of this view (or perhaps its cause: in heptapod thought, the distinction is null) is that for the heptapods – and now, to a degree, for Louise as well – all language becomes performative, necessary not to inform but to actualize, so that if it is true, on the one hand, that the heptapods always already know how any conversation or event is going to unfold, on the other hand, «in order for their knowledge to be true, the conversation [or event] would have to take place» nonetheless (*ibid*.: 164).

A second comparison with *Slaughterhouse-Five* serves to illustrate both the specificity of the science-fictional estrangement performed by Chiang and the applicability of my concept of estrangement as affordance to multiple texts. In Vonnegut's novel, it is time travel that functions as the key estranging strategy and cognitive affordance of the narrative, as Billy's incessant jumps through time, resulting in an accordingly jumbled and fragmented narrative, is a representational stratagem to express that for which

[8] In Villeneuve's adaptation, Louise's daughter dies from an incurable illness at the age of twelve. This puts a different but equally stimulating spin on the moral complications of Louise's predicament, as she still 'decides' (a grossly incorrect word choice from the perspective of the heptapods, but one which reflects the unshakable bias of the human viewer for the perception of agency) to give birth to her child knowing all the while that even if she could somehow entertain the possibility of trying to avoid her daughter's death, nothing she might do would help.

there is no language, that is, the experience of irremediable trauma[9]. Time travel and the non-linear perception of time experienced by Billy ultimately heighten the novel's paradoxical sense that language is useless and inapplicable («there is nothing intelligent to say about a massacre» [Vonnegut 2000: 16]). Chiang's approach is diametrically different, because in "Story of Your Life," it is language (not the alien invasion, not time travel) that acts as world-revealing *technē* – language that performs the text's main act of science-fictional estrangement. Furthermore, there are at least two distinct ways in which Chiang's novella deploys language as cognitive affordance. Firstly, language functions as an affordance for Louise, who, through the immersion in the written language of the heptapods, becomes able to access a cognitive state so foreign that it would have remained hopelessly out of her cognitive reach, were it not for her knowledge of Heptapod B[10]. Simultaneously, language also functions as a literary affordance deployed by the text itself for the benefit of the reader, who in this way, similarly to Louise herself, is provided with the conceptual instruments necessary to conceive and speculate about what it would mean to describe the universe in teleological rather than causal terms.

On a final note, there is one more reason why "Story of Your Life" works as such a quintessential illustration of my reassessment of science-fictional estrangement through affordance theory: Louise explains that even though within the semasiographic writing system developed by the heptapods each "semagram", roughly equivalent to a human written word, possesses a meaning of its own, it is its combination and relative position with respect to other semagrams that determine its role within the sentence. As a result, the semagrams in a sentence are so «interconnected that none could be removed without redesigning the entire sequence» (*ibid*.: 147). This is undoubtedly a serendipitous concurrence, but nonetheless, it is fascinating how closely this description of heptapod writing matches the semiotically-informed accounts of the specificity of SF writing that have been developed by SF theorists and authors such as Samuel Delany and Damien Broderick, accounts which bear significantly on the question of the

[9] See Wicks 2014 for an analysis of trauma and traumatic memory in *Slaughterhouse-Five*.

[10] See Cave 2016: 52-4 for notes on language as «the key empowering affordance…. mapped onto the way we perceive the world». See also Gary Lupyan and Rick Dale's article "Why Are There Different Languages? The Role of Adaptation in Linguistic Diversity" (2016).

workings of estrangement in SF.

For Delany, the primary meaning-making mechanism of the literary text is fundamentally relational: the words in a narrative do not sit in a fixed chronological sequence but rather «in numerous inter- and overweaving relations. The process as we move our eyes from word to word is corrective and revisionary rather than progressive. Each new word revises the complex picture we had a moment before» (Delany 2009: 4). Clearly, our absorption of the text, being curtailed by chronological necessity, can never be as simultaneous as it is for the heptapods, for whom even the very act of writing is non-linear and entails the inscription of multiple semagrams at the same time. Nevertheless, the result of the self-corrective mechanism that takes place during reading is a mental world-image whose details accrue and change endlessly as new information is added. According to Delany, recognizing the distinctiveness of this process is especially important for the study of SF, because the genre's constitutional tension between its speculative freedom on the one hand, and what he calls its specific subjunctivity (i.e., the level of possibility proper to events that have not happened, but which *could* happen in certain conditions) on the other determines an even heavier dependence between signifiers: only when considered in relation to the fictional world in which they are enmeshed, do fictional objects and events fully (or at least, sufficiently) make sense[11]. The source of this incessant recalibration, however, is always to be found at the level of the word: «Once the new word has been absorbed into a sentence… neither the word, nor the sentence considered apart from the word, retains its old meaning» (*ibid*.: 140).

Although Delany conceived this model to remedy the excessive simplification of which he accused Suvin's theory of science-fictional estrangement, Broderick argues convincingly that «Suvin's sense of a textual micro-universe founded in a continuously creative act of distantiation» is rather *implicit* in Delany's paradigm (Broderick 2005: 36). «What science fiction does», Delany argues, «is to take recognizable syntagms and substitute in them, here and there, signifiers from a till then wholly unexpected paradigm» (Delany 2009: 139). These opaque combinations inevitably generate estrangement, and with it an irreducible instability between the metaphoric and the metonymic, the imagined and the empirical. Cognitive

[11] For a detailed account of this mechanism, see especially the essays "About 5, 759 Words" and "To Read *The Dispossessed*" in Delany 2009. See also Broderick 2005: 33-6.

studies are understandably fascinated by the responses elicited by unusual – 'literary' – language uses: studies by David S. Miall and Don Kuiken, for example, cite empirical evidence to tie this problem to the constructive aspect involved in text-processing via the power of foregrounding stylistic techniques to elicit affective engagement and interpretative reflection (Miall - Kuiken 1994; Miall 1995). In a similar vein, Nancy Easterlin makes a compelling case for the cognitive-evolutionary relevance of the human predilection for novelty and its expression through literary practices, on the grounds that the experience of uncertainty and unresolvability provided by literary texts encourages the reader to «construct narrative possibilities» (Easterlin 2015: 625), to explore and create, to test out hypotheses and transform our perception of the self and the world. In short, where the text employs strategies of defamiliarization, it becomes possible to envision ambiguity as an affordance: it is the tool that the text uses to keep us interested, to keep us wondering, to keep us engaged in the effort to imaginatively reconstruct its foreign world and worldview.

This goes to the heart of why, as I have tried to illustrate in this article, it is now necessary to develop a postcritical language for discussing literary phenomena, and why the cognitive perspective can prove useful in this task: our comprehension of what the experience of estrangement, which is only one among innumerable such phenomena, adds to the experience and practice of reading will forever remain partial if we forgo considerations about how estrangement directs our perception towards new visions, besides pointing slyly to what is already, to once again quote Suvin, "latent in reality". In this sense, science-fictional estrangement redefined as a literary affordance is able to offer a privileged perspective into 'how the text thinks', which in turn discloses new ways in which the text affords, invents, makes possible; the ways, in short, in which texts *do*.

Works Cited

Broderick, Damien, *Reading by Starlight: Postmodern Science Fiction*, London, Routledge, 2005.

Cave, Terence, *Thinking with Literature: Towards a Cognitive Criticism*, Oxford, Oxford University Press, 2016.

Chiang, Ted, "Story of Your Life", *Stories of Your Life and Others*, London, Picador, 2015: 106-72.

Clark, Timothy, *Martin Heidegger*, London, Routledge, 2002.

Csicsery-Ronay, Istvan, Jr., *The Seven Beauties of Science Fiction*, Middletown, Conn., Wesleyan University Press, 2008.

Delany, Samuel R., *The Jewel-Hinged Jaw: Notes on the Language of Science Fiction*, Middletown, Conn., Wesleyan University Press, 2009.

Easterlin, Nancy, "Thick Context: Novelty in Cognition and Literature", *The Oxford Handbook of Cognitive Literary Studies*, Ed. Lisa Zunshine, Oxford, Oxford University Press, 2015: 613-32.

Felski, Rita, *The Limits of Critique*, Chicago-London, The University of Chicago Press, 2015.

Freedman, Carl, *Critical Theory and Science Fiction*, Middletown, Conn., Wesleyan University Press, 2000.

Gallagher, Shaun, "Hermeneutics and the cognitive sciences", *Journal of Consciousness Studies*, 11.10-11 (2004): 162-74.

Heidegger, Martin, *Basic Writings*, Ed. David Farrell Krell, London, Harper, 2008.

Herman, David (ed.), *Narrative Theory and the Cognitive Sciences*, Stanford, Calif., CSLI Publications, 2003.

Jameson, Fredric, *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions*, London-New York, Verso, 2005.

Lupyan, Gary - Rick Dale, "Why Are There Different Languages? The Role of Adaptation in Linguistic Diversity", *Trends in Cognitive Sciences*, 20.9 (2016): 649-660, http://dx.doi.org/10.1016/j.tics.2016.07.005, online (last accessed 19/07/2021).

Miall, David S., "Anticipation and feeling in literary response: A neuropsychological perspective", *Poetics*, 23 (1995): 275-98.

Miall, David S. - Kuiken, Don, "Foregrounding, defamiliarization, and affect: Response to literary stories", *Poetics*, 22 (1994): 389-407.

Shklovsky, Victor, *Theory of Prose* (1925), Eds. Benjamin Sher – Gerald L. Bruns, Elmwood Park, Ill., Dalkey Archive Press, 1991.

Suvin, Darko, *Metamorphoses of Science Fiction. On the Poetics and History of a Literary Genre*, New Haven-London, Yale University Press, 1979.

Id., "Considering the Sense of 'Fantasy' or 'Fantastic Fiction': An Effusion", *Extrapolation*, 41.3 (2000): 209-47.
Id., "On Cognition as Art and Politics: Reflections for a Toolkit", *Defined By a Hollow: Essays on Utopia, Science Fiction and Political Epistemology*, Ed. Darko Suvin, Oxford, Peter Lang, 2010: 269-320.
Suvin, Darko - Angenot, Marc, "Not Only But Also: On Cognition and Ideology in SF and SF Criticism", *Positions and Presuppositions in Science Fiction*, Ed. Darko Suvin, London, Palgrave Macmillan, 1988: 44-60.
Vonnegut, Kurt, *Slaughterhouse-Five*, London, Vintage, 2000.
Wicks, Amanda, "'All This Happened, More or Less': The Science Fiction of Trauma in *Slaughterhouse-Five*", *Critique: Studies in Contemporary Fiction*, 55.3 (2014): 329-40.
Wilson, Robert A. – Keil, Frank C. (eds.), *The MIT Encyclopedia of the Cognitive Sciences*, Cambridge, Mass., The MIT Press, 1999.

Filmography

Arrival, Dir. Denis Villeneuve, United States, 2016.

The Author

Simona Bartolotta

Simona Bartolotta is a DPhil Candidate in English at Mansfield College, University of Oxford. She holds a B.A. in Foreign Languages and Literature from the University of Bologna and a M.A. in English Studies from Ca' Foscari University of Venice. Her research interests include speculative and mystery fiction, cognitive literary studies, and narratology.

Email: simona.bartolotta@mansfield.ox.ac.uk

The Article

Date sent: 30/10/2021
Date accepted: 31/03/2022
Date published: 30/05/2022

How to cite this article

Bartolotta, Simona, "Beyound Suvin. Rethinking Cognitive Estrangement", *Straniamenti*, Eds. S. Adamo - N. Scaffai - M. Pusterla - D. Watkins, *Between*, XII.23 (2022): 49-68, www.betweenjournal.it