

Introduction: Possible Worlds Theory Revisited

BELL, Alice <<http://orcid.org/0000-0001-9737-4081>> and RYAN, Marie-Laure

Available from Sheffield Hallam University Research Archive (SHURA) at:

<http://shura.shu.ac.uk/24951/>

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

Published version

BELL, Alice and RYAN, Marie-Laure (2019). Introduction: Possible Worlds Theory Revisited. In: Possible Worlds Theory and Contemporary Narratology. University of Nebraska Press.

Copyright and re-use policy

See <http://shura.shu.ac.uk/information.html>

1. Introduction: Possible Worlds Theory Revisited

Marie-Laure Ryan and Alice Bell

When PW theory made its first forays into literary theory in the mid-seventies, literary studies were almost completely dominated by a conception of language that the philosopher Jaakko Hintikka labelled “language as the universal medium”: “By the conception of language as the universal medium, I mean the idea that we cannot in the last analysis escape our language and as it were look at it and its logic from the outside. As a consequence, the semantics of our language is inexpressible, and cannot be theorized about in language” (1988, 53). As representatives of language as the universal medium, Hintikka had in mind logicians who recognize the existence of only one world, such as Frege, early Russell, Wittgenstein and Quine, but he also mentioned Heidegger, who conceived language not in logical terms, but in poetic terms as the sacred guardian of Being. Yet Hintikka was clearly referring to the logicians when he further wrote: “One of the most important consequences of the view of language as universal medium is the uniqueness of our language and of its interpretation. All that language is good for in this view is to enable us to talk about this world. We cannot use language to talk about other possible worlds” (54).

As Thomas Martin has shown, the implications of the idea of “language as universal medium” reach far beyond the brand of logic represented by one-world philosophers: they also underlie the structuralist belief, further developed by New Criticism, poststructuralism and deconstruction (schools to which we will globally refer as “textualist”) in the centrality of language for human cognition (Martin 2004). Not only is there only one world, but this world is made of language, and we cannot escape from what Fredric Jameson (1975) called the “prison-house of language.” Crucial to the universal medium view of language is Saussure’s claim that the meaning of words is not determined by their relations to objects in the world,

but rather by their relations to the other elements of the system, so that in language “there are only differences without positive terms” (1966, 120). The radical interpretation of “language as the universal medium” has far reaching implications for literary studies. If semantics cannot be theorized in language, this means that the meaning of literary texts cannot be paraphrased, and that interpretation is necessarily a betrayal. If the value of words is entirely determined by their neighbors in the system, this means that literary texts cannot be about things in the world (or things in an imaginary world); they must be about language itself. The only mode of reading respectful of literary meaning consist of tracing the “play of language,” a play consisting of the internal relations between the elements of the textual system. And finally, if what we regard as reality is in fact a construct of language, the question of truth and reference becomes void. No distinction can be made between truth-seeking and fictional texts, for, as Barthes claimed, “the fact can only have a linguistic existence” (1981, 16-17).

Hintikka’s (1988) alternative to the conception of language as universal medium is language as calculus. According to this view — which takes the term calculus in a broader sense than differential or integral calculus — “you can so to speak stop your language and step off. In less metaphoric terms, you can discuss the semantics of your language and even vary systematically its interpretation. The term ‘language as calculus’ is not calculated to indicate that in this view language would be a meaningless *jeu de caractères*—this is not the idea at all. Rather, the operative word highlights the thesis that language is freely re-interpretable like a calculus” (54). Hintikka’s characterization rests on two central points: (1) far from being prisoners of language we can look at it from the outside, and analyze it through a metalanguage (which can be language itself); (2) we can interpret statements made in language with respect to various fields of reference or universes of discourse. If we call these fields “worlds,” point 2 presupposes the existence of multiple worlds, with respect to

which the truth of propositions can be evaluated. A given proposition—such as “dragons exist”—may thus be false in one world and true in another.

For literary and narrative theory, the rejection of the conception of language as universal medium in favor of language as calculus is nothing less than a paradigm change, though the doctrine of language as universal medium retained its hegemony for quite some time after the first steps of PW theory into literary territory. The new paradigm means that the question of fiction, long taken for granted, suddenly becomes worthy of attention. It also means the rehabilitation of the question of truth and reference with respect to fiction, a question that was either undecidable, heretical, or too easily resolved in a one-world model. If the one world is made of language (as in poststructuralism), we cannot get out of it, and the question of truth or falsity becomes irrelevant, since it takes an external point of view to evaluate propositions. On the other hand, if the one world is a language-independent reality, and no other world exists, all propositions about imaginary entities become automatically false or indeterminate, since they do not refer to anything. In a many-worlds ontology, fictional texts can be associated with worlds, these worlds can be imagined on the basis of all the propositions presented as true by the text, and it is possible to distinguish true statements about the members of particular fictional worlds, such as “Emma Bovary was a dissatisfied country doctor’s wife,” from false ones, such as “Emma Bovary was a paragon of marital fidelity”

But the evaluation of statements about fictional worlds and characters is not the primary reason of philosophers for postulating a many-worlds ontology; it is at best an added bonus, a lucky side-effect for literary theory. The concept of possible world was first proposed by Leibniz in his *Théodicée* to defend God’s act of creation: when God created the world, he considered all possible worlds, and chose the best of them to be actualized, even though even this “best possible world” contains evil. This suggests that possibilities obey

combinatorial and causal laws that even God must observe. The revival of the notion of possible worlds in 20th century analytic philosophy has however little to do with Leibniz. For philosophers such as Saul Kripke, David Lewis, Jaakko Hintikka, Alvin Plantinga, and others, the postulation of many worlds serves the purpose of formulating the semantics of the modal operators of possibility, necessity, and impossibility, which form the so-called alethic system.

To justify the postulation of multiple worlds, Lewis invoked our intuitive, pre-philosophical belief that “things could be different from what they are.” While things are how they are in only one way, they could be different in many different ways; this intuition justifies the postulation of one actual world (heretofore referred to as AW) and of many (perhaps an infinity) of non-actual or alternate possible worlds (APWs, or short PWs) where things are different. In addition to the contrast between one actual world and many merely possible ones, modal logic uses a concept of accessibility. Saul Kripke proposed a model structure (known as M-model) for modal logic that Michael J. Loux (1979) describes in the following way:

A M-model is an ordered triple (G, K, R) , where K is a set of objects, G is one of the objects belonging to K , and R is a relation defined over the members of K . Intuitively, Kripke tells us, we are to think of K as the set of all possible worlds; G is to be thought of as the actual world; and R represents a relation which Kripke calls *relative possibility* and others *accessibility*. Intuitively, we are to understand this relation in such a way that a world, W , is possible relative or accessible to a world, W' , just in case every situation that obtains in W is possible in W' To get an M-model structure, the specification is subject to just one restriction: the relation of

accessibility has to be reflexive; it has to be the case that every world is accessible to of possible relative to itself (21, italics original).

The reflexivity of the relation of accessibility means that the actual world is also a possible world, despite its ontological difference from all others. Whether the relation is transitive or symmetrical depends on the system, for there are variations within PW theory.¹

Within such a model, necessity and possibility can be logically defined by quantifying over the notion of world: necessity becomes “For all worlds, p (universal quantifier)”, possibility “For some world, p (existential quantifier)”, and impossibility is expressed by the negation of the formula for possibility. Other operators have been shown to function in ways similar to the alethic system: those of the deontic system (permitted, obligatory, forbidden), of the epistemic system (believed, known, ignored), and of the axiological system (indifferent, good, bad).

Another important application of PW theory to semantic logic is the evaluation of counterfactual statements of the type “If Napoleon had won the battle of Waterloo he would not have been exiled to St Helena.” These statements allude to states of affairs that only take place in PWs (here: Napoleon wins the battle of Waterloo), yet as a whole they are uttered to make statements about AW. A sports fan may for instance use a counterfactual to express how close his team came to winning the game (“if the ref had not been blind...”), and by implication, how unlucky it was. Lewis’ definitions of the truth conditions of counterfactuals can be informally paraphrased as follows: Imagine the set *A* of worlds where the antecedent holds and the consequent is true. Imagine the set *B* of worlds where the antecedent is true and the consequent is false. If the world that differs the least, on balance, from AW belongs to set *A* the counterfactual is true; otherwise it is false.² The lack of fixed criteria for measuring the overall similarity of a world to AW could be regarded as a defect of the formula, but this

defect may be a blessing in disguise, because it explains why people often disagree about the truth value of a specific counterfactual statement. Just ask the fan of the other team!

A third benefit of a many-worlds ontology is its ability to provide a formal account of meaning. Can different expressions have the same meaning at all? A Saussurian conception of language as system of differences would answer this question negatively, but a PW account will say that two expressions have the same meaning when they have the same extension in all possible worlds. “The evening star” does not have the same meaning as “the morning star” because there are worlds where a different celestial object is the first to appear in the evening and the last to fade in the morning rather than both being the planet Venus, but “a bachelor” has the same meaning as “an unmarried man” because these two expressions pick the same set of objects in all PWs. PW theory also proposes an explanation of entailment: “One statement *entails* a second just in case every world at which the first is true is a world at which the second is true” (Bricker 2008, 120).

A problematic issue with the idea of possible worlds is what lies beyond the horizon of the possible. Are there “impossible worlds,” and if so, what are they? If we associate possibility with respect of the laws of logic (non-contradiction and excluded middle),³ impossible worlds could be defined as collections of values for propositions that defy these laws. But are such collections still worlds, or are they just that—incoherent collections of truth values that do not allow inferences (by virtue of the principle that if a system of propositions contains one contradiction, everything and its negation becomes true in it)? If we deny incoherent collections of propositions the status of world, and if we associate “possibility” with logical coherence, then all entities that are “worlds” are logically coherent and therefore possible worlds. Then the label PW theory would rest on a redundancy (Bricker 2008). However, if one varies the notion of possibility, for instance by interpreting it as observance of the laws of physics, then a world can be physically impossible but logically

possible, and the redundancy is avoided: there are impossible worlds that still fulfill the basic conditions of worldness. This is a significant bonus for scholars of narrative media, as we shall see later. However, these scholars still face the problem of what to call the semantic domain of texts that present collections of mutually incompatible world fragments.

“Logically impossible worlds” is an oxymoron if worldness is associated with logical coherence.

As we have already seen, the primary reason for the postulation of a many-worlds ontology is the development of logical notations that capture truth conditions for certain types of sentences. Within this well-defined project, however, there is room for a variety of interpretations of what possible worlds are made of, and of what distinguishes AW from its merely possible satellites. Two interpretations of possibility and actuality dominate the field, both of which have yielded significant results for modal logic: actualism and modal realism.

Actualism comes in many versions. In the most radical, called by Robert M. Adams “hard actualism” (1979, 203), everything that exists is actual, and there is no such thing as “merely possible worlds.” For Adams, “there could have been things that do not actually exist” (1981, 7) but “there *are* no things that do not exist in the actual world” (7, emphasis original). In this perspective, PWs could be regarded as fictions conceived within AW concerned with how AW could have been.

In a less radical version of actualism, known as “possibilism,” or “soft actualism” (Adams 1979, 203) entities that are merely possible do exist but they are not instantiated, and therefore they are not actual. If one accepts this view, answers to the question “what are PWs made of” vary: they consist of states of affairs expressed by propositions; they are matrices of truth values for propositions that differ from the matrix that describes the actual world (a position that opens the question of the mode of existence of propositions); they are different

combinations of the entities found in the actual world (so that no PW can contain dragons,⁴ a serious problem for narrative applications).

Alternatively, (and this returns to the hard actualism position), possible worlds could be purely mental constructs. This interpretation seems the most intuitive for literary scholars: aren't the worlds projected by fictional texts products of the mind of an author? Aren't dreams, predictions, and hypotheses world-constructing activities that originate in mental events? Nicholas Rescher has proposed an analysis of the ontological status of the possible that supports the idea of its mental origin. In the case of actual existence there is a dualism, so that the state of affairs "dogs have tails" can be distinguished from the thought that dog have tails, but with non-existent possibilities such as "dog have horns," there is only the thought (1988,168-69). Yet it is significant that Rescher does not connect possibilities to possible worlds in his paper. The mind can contemplate individual possibilities, but it cannot construct a complete possible world that attribute a truth value to every proposition. If completeness is regarded as a constitutive property of possible worlds, as it is for most PW philosophers, the "worldness" of the mental conception of possibility is questionable. On the other hand, if PWs are indeed complete, this means that their totality is beyond the grasp of the human mind. But the same can be said of our experience of the actual world.

The other dominant interpretation of possibility and actuality is David Lewis' modal realism. According to modal realism, there is no ontological distinction between the actual world and merely possible ones: both kinds are made of the same substance, that is, of material things and events. As Lewis (1979) writes,

Our actual world is only one world among others. We call it actual not because it differs in kind from all the rest but because it is the world we inhabit. The inhabitants of other worlds may truly call their own world actual, if they mean by 'actual' what

we do; for the meaning we give to ‘actual’ is such that it refers at any world *i* to the world *i* itself. ‘Actual’ is indexical, like ‘I’ or ‘here’, or ‘now’: it depends for its reference on the circumstances of utterance, to wit the world where the utterance is located. (1979, 184)

Modal realism may appear ontologically extravagant in its claim that possible worlds exist objectively, but Lewis cleverly contours the objection by distinguishing qualitative from quantitative parsimony. The postulation of PWs transgresses the principle of Occam’s razor, which calls for qualitative parsimony, but once PWs are postulated, as they are in both actualism and modal realism, it does not really matter whether there are only a few or zillions of them. The indexical account of actuality is particularly appealing in an age that questions the centrality of any culture, identity, or even of the human race, since the notion of indexicality allows every possible world to function as actual world, this is to say, as center of a particular system of reality.

From a strictly philosophical point of view, the superiority of particular conceptions of actuality and possibility is not a matter of making claims about the organization of the cosmos, but rather a matter of their ability to support and expand modal logic.⁵ For instance, Lewis’ modal realism is considered by many philosophers a violation of common-sense beliefs, but its elegance in dealing with modal logic is widely recognized.⁶ In this perspective, if a conception of the nature of PWs provides a basis for interesting proofs and semantic explanations, it is worthy of consideration? If not, it can be ignored. Most philosophical developments in PW theory since the seventies (e.g. Divers 2002, Nolan 2002) have been extremely technical contributions to modal logic, and they are not particularly useful for literary and narrative theory, because logic interprets language on the level of sentences and propositions, while literary and narrative theories do so on the level of texts. Narrative theory,

in addition, is not limited to language-based storytelling. Since narratologists are not doing philosophy, and since philosophers do not agree on a pure essence of possible worlds anyway, some degree of adaptation (call it metaphorization if you want) is unavoidable. If it weren't for their intrinsic interdisciplinary adaptability, convincingly demonstrated in the Nobel symposium *Possible Worlds in Humanities, Arts and Sciences* held in 1986, PWs would be confined to the relative obscurity of formal logic, the most esoteric domain of philosophy.

This is not to say that any use of the term “world” or even “possible world” in scholarly discourse is indebted to PW theory. Critics have long spoken of “the world of author such and such” in a rather loose way, without asking what makes a world a world. The notion of “storyworld” that is currently gaining traction in narratology can be analyzed in terms of PW, but it remains operative without this connection. For a line of kinship to be maintained with philosophy, the three components of Kripke's M-model must be made relevant: an ontology made of multiple worlds; the designation of one and only one of these worlds as actual; and the postulation of accessibility relations between worlds. Transgressions of this ontological model can be discussed as long as they take it as point of reference.

Possible worlds approaches to literature and narrative: a very short history

The following survey of landmarks in possible worlds approaches to literature and narrative will be kept to a strict minimum, leaving a more substantial discussion of some of the problems involved for the sections devoted to specific domains.

The first literary scholar to take notice of the philosophical concept of PW and to adapt it to literary issues was Thomas Pavel in his 1975 article “Possible Worlds in Literary Semantics,” later expanded in his 1986 book *Fictional Worlds*. In this article, Pavel argued against the “moratorium” imposed on questions of truth and reference by textualist literary

schools. He argued that in creating a fictional world (whether this world is or isn't technically a PW), the literary text imposes its own laws on this world and defines a new horizon of possibilities. The reader must consequently adopt a new ontological perspective with respect to what exists and does not exist. "In this precise sense," writes Pavel, "one can say that literary worlds are autonomous" (1986, 175). Pavel also argued against a "segregationist" attitude toward fictional worlds that divides texts into statements that are either true or false in AW, in favor of an integrationist position that regards all the propositions asserted by the text as true in the fictional world. The domain of reference for truth assignment thus shifts from AW to the world created by the text. But Pavel also warns against erecting a rigid boundary between fictional worlds and the AW, because such a boundary would prevent fictions from providing insights about our world, and deprive literature of any existential, ethical, and political value. In a later article, Pavel revealed that what attracted him to PW theory was the opportunity to overcome the reigning formalism of the time and to rehabilitate content, so as to read literature as the expression of human concerns: "We are trying to capture the entwining of characters in a system of values and norms, to experience their desires in a homeopathic way, and to foresee what they plan to do" (2010, 312).⁷ In a PW approach, characters are no longer collections of semes, as structuralism described them, but imaginary human beings who just happen to reside in other worlds. By opening the question of concern for characters, Pavel anticipates the cognitive turn of the twenty-first century and implicitly demonstrates its compatibility with PW theory.

The next landmark is David Lewis' 1976 article "Truth in Fiction." Theoretical accounts of fictionality can do two different things: they can offer a formal definition of fiction, or they can provide guidelines for its interpretation. Lewis' paper does both. Lewis' definition, like several other philosophical accounts (e.g. Searle 1975, Walton 1990, Currie 1990), is based on the notion of pretense: "The storyteller purports to be telling the truth

about matters whereof he has knowledge. He purports to be talking about characters who are known to him, and whom he refers to, typically, by means of ordinary proper names. But his story is fiction, he is not really doing these things” (1976, 40). So what is he doing? He is doubling himself: “Here at our world we have a fiction f , told in an act a of storytelling; at some other world we have an act a' of telling the truth about known matters of fact; the stories told in a and a' match word for word, and the words have the same meaning” (40). Lewis does not specify who does the two acts of storytelling, but narratology has an easy answer: a is the act of the author, a' the act of a narrator.

For fictional worlds to stimulate the imagination, their construction must go far beyond the propositions explicitly asserted by the text and their strict logical implications. To explain how we can make either true or false statements about fictional worlds, Lewis offers an explanation adapted from his analysis of counterfactuals, though he does not assimilate fictions with counterfactuals: the former are told as true of a PW, but (as our imaginary sports fan has shown), the latter make statements about the actual world.⁸

A sentence of the form “in the fiction f , [Ψ]” is non-vacuously true iff some world where f is told as known fact and Ψ is true differs less from our actual world, on balance, than does any other world where f is told as known fact and Ψ is not true. It is vacuously true iff there are no possible worlds where f is told as known fact. (42)

Note that Lewis speaks of “some world where f is told as known fact,” not of “the world.” By allowing fictions to be compatible with several PWs, he makes room for variable ways to imagine and interpret fictional worlds.

The work of Lubomír Doležel, starting in 1976 as a series of articles that led to his 1998 book *Heterocosmica*, adopts the notion of PW with reservations, in order to maintain a

distinction between the ontological completeness of PW postulated by logicians, and the incompleteness of fictional worlds. Doležel shows that because it is impossible to imagine a world in all its properties, fictional texts present areas of radical indeterminacy, and the play between blank and filled areas, specified and unspecified information, is an integral part of literary meaning. Doležel also adapts Frege's distinction between sense and reference into a contrast between an "intensional" narrative world, made of all the meanings conveyed by the text, and an "extensional" narrative world, made of all the entities that objectively exist in the fictional world. For instance, "Hamlet" and "the Prince of Denmark" carry different intensional meanings, but they refer to the same individual in the extensional narrative world. Finally, Doležel proposes a taxonomy of plots based on the different systems of modal logic: alethic plots, such as fairy tales and the fantastic, centered on the different abilities of different types of characters; deontic plots, such as tragedies, centered on the notions of obligation, violation, and permission; epistemic plots, such as mystery stories, based on the acquisition of knowledge; and axiological plots, such as quest narratives, based on the acquisition of desirable objects and the avoidance of a bad fate. Later, in *Heterocosmica*, (1998) Doležel anticipates current interest in phenomena of transfictionality (cf. Saint-Gelais 2011) by distinguishing three types of intertextual relations between texts that develop the same or similar narrative material: expansion (telling new stories that take place in the same world), displacement (constructing an "essentially different version of the protoworld, redesigning its structure and reinventing the story" [1998, 207]), and transposition (moving the plot to a different spatial or historical setting representing a different world).

In 1977, Lucia Vaina published a short article, "Les Mondes possibles du texte," that exercised a strong influence on the work of Umberto Eco and later of Marie-Laure Ryan. This paper, which remains on a highly abstract level, describes textual worlds as complete states of affairs, and narratives as successions of such states mediated by events. Vaina also

suggests a self-embedding property of textual worlds, so that the semantic domain of texts can contain a number of subworlds created by the mental activity of the characters, such as believing and wishing.

Utilizing PW in *The Role of the Reader* (1984), Eco regards narrative texts not as representations of a single world, but as universes made of a constellation of possible worlds. A literary text, he writes, is “*a machine for producing possible worlds (of the fabula, of the characters within the fabula, and of the reader outside the fabula)*” (246, italics original). He distinguishes the world imagined by the author, which corresponds to all the states of the *fabula*, the worlds imagined, believed, wished and so on by the characters, and the possible worlds imagined, believed, or wished by a so-called Model Reader. A text, claims Eco, can tell three different stories: (a) the story that happens to the characters, (b) the story of what happens to a naïve reader, and (c) the story of what happens to itself as text—a story deciphered by the critical reader. (b) and (c) often fall together, but they are distinguished when texts trick the reader into making false assumptions.

The next landmark is Doreen Maître’s *Literature and Possible Worlds* (1983). Developing the concept of accessibility from modal logic, she distinguishes four semantic types of fictional worlds, based on their distance from the actual world and thus begins the development of what was to become “Genre Theory” in PW theory (see section on “Genre Theory below). In particular, she distinguishes between: (a) “Works that include accounts of actual historical events,” (79) such as romans à clefs, romanced biographies, or “true fiction,” such as Truman Capote’s *In Cold Blood*; (b) “Works that deal with states of affairs which could be actual,” (79) such as realist and naturalistic novels; (c) “Works in which there is an oscillation between could-be-actual and never-could-be-actual worlds,” (79) such as Henry James’ *The Turn of the Screw*, which maintains ambiguity between a natural and a supernatural explanation of events; and (d) “Works that deal with states of affairs which

could never be actual,” such as fairy tales, fables, and the brand of the fantastic represented by *Lord of the Rings* or, a more recent example, *Harry Potter*.

Marie-Laure Ryan’s 1991 book *Possible Worlds, Artificial Intelligence and Narrative Theory* develops several of the issues discussed so far: she turns David Lewis’ counterfactual analysis of truth in fiction into a guideline for interpretation that she calls the “principle of minimal departure” (see section “Theory of fiction”); she refines Maître’s typology by proposing different types of accessibility relations (see section “Genre Theory”); and she develops Eco’s narrative semantics into a comprehensive model of fictional universes (see section “Narrative Semantics”). She also investigates the usefulness of PW theory for artificial intelligence by discussing several computer programs for automated story generation that organize information into domains corresponding to the beliefs, goals and plans of characters, in addition to generating actual narrative events

Ruth Ronen’s 1994 book *Possible Worlds in Literary Theory* offers a useful and sophisticated survey of the philosophical notion of PW, but her main purpose is to criticize the use of the term by literary scholars. She writes: “First, literary theory gives insufficient account of the philosophical sources of thinking about possible worlds, and second, in the process of transferring possible worlds to the literary domain, the concept loses its original meaning and becomes a diffuse metaphor. ... The result is a naïve adaptation or an inadvertent metaphorization of a concept whose original (philosophical and literary) nonfigurative significance is far from self-evident” (7). Ronen’s criticism is certainly justified for some literary-critical adoptions of the PW concept, but if using the PW model for purposes other than modal logic is necessarily metaphorical, and if metaphorical use means misuse, the PW approach to narrative will be killed in the egg, together with all other interdisciplinary adaptations. In the second part of the book, Ronen defends a largely textualist conception of fictional worlds that distinguishes them from PWs on two counts: (1)

they are radically incomplete, because they are limited to the information provided by the text (plus its logical implications); and (2) they can be impossible.

In the late nineties and after the turn of the century, purely theoretical work inspired by PW theory becomes rarer, compared to practical applications, such as Nancy Traill's *Possible Worlds of the Fantastic: The Rise of the Paranormal in Fiction* (1996), Elena Semino's *Language and World Creation in Poems and Other Texts* (1997), Alice Bell's *The Possible Worlds of Hypertext Fiction* (2010), or Lubomír Doležel's *Possible Worlds of Fiction and History* (2010). More recently, PW theory also found some, albeit limited, traction in film (e.g. Buckland 2004, Uhl 2013), drama (e.g. Swift 2016), and sound studies (e.g. Voegelin 2014). Among the more theoretical contributions of this period, the following deserve special mention.

First, Thomas Martin's *Poiesis and Possible Worlds: A Study in Modality and Literary Theory* (2004) discusses the deep-reaching implications for literary theory of Jaakko Hintikka's distinction between language as universal medium and language as calculus. Metaphor provides Martin with the litmus test for the possibility of creative language play. He shows that under a conception of language as universal medium, where the meaning of words depends entirely on their relations to other words, figurative language cannot be distinguished from literal use. Many advocates of textualism insist indeed on the fundamental metaphoricity of language, but they could just as well call this metaphoricity literalness. If we are spoken by language, rather than speaking it, there is no room for distance and for play. But under Hintikka's conception of language as calculus, which allows users to distinguish the various meanings of words, and to vary their reference as well as their interpretation, we can deliberately extend the applicability of a word or phrase, for instance by calling a man a lion, thereby creating what Hintikka calls "world lines" between previously unrelated individuals or sets of individuals. These lines can extend across possible worlds when we use

fictional individuals as the vehicle of meaning, for instance by calling John a Scrooge. If the essence of literature resides in creative play with language, Martin argues, then the conception of language that provides the best account of metaphor is also the best suited for literature in general.

Though the first scholars to apply PW theory to literature were of European origin, it is only in 2010 that the notion of PW made its official debut in France, with the collection *La théorie littéraire des mondes possibles*, edited by Françoise Lavocat. One of the strong points of this collection is the investigation of the strategies of world-creation in older literatures, from the antiquity to the Renaissance and the Baroque period. But some of the contributions advocate a distancing from the philosophical tradition in favor of a freer application of the notion of world (Lavocat 2010, 9).

The eastern European connection of PW theory is covered in Bohumil Fořt's *An Introduction to Fictional Worlds Theory* (2016). In this book, Fořt provides a most useful account of the philosophical notion of possible world, enriching the discussion of the Anglo-American tradition with contributions and critiques from Czech philosophers whose work deserves to be better known in the West. He shows that far from creating consensus, even among logicians, the nature of possible worlds is a widely debated issue. In the second part of the book, he moves to fictional worlds, which he regards as ontologically different from both the actual world and the possible worlds of logic on the basis of their incompleteness, and of the fact that they contain only a limited number of existents—those mentioned by the text. Despite insisting on the difference between possible worlds and fictional worlds, Fořt titles the second part of his book “Fictional worlds as possible worlds.” In this section, he reviews and critically discusses the main issues of a possible world approach to fiction, such as impossible worlds, accessibility relations, completeness, characters with historical counterparts, narrative modalities, and minimal departure. He gives special attention to the

concepts proposed by Doležel, such as authentication, the contrast between extensional and intensional fictional worlds, and “literary transduction,” i.e. the intertextual relations between worlds mentioned in our discussion of Doležel’ work. The last section situates the PW approach with respect to the Prague school of linguistics and aesthetics. Fořt shows that this school was mostly preoccupied with the nature of literariness, but as we try to demonstrate in this book, the PW model is applicable to non-literary and non-fictional narratives, as well as to texts of popular culture. Insofar as the model explains how users experience storyworlds, its importance is more semantic and cognitive than strictly aesthetic.

Several relatively recent developments, taking place, respectively, in theory, culture and technology, suggest indeed that the field of application of PW theory stretches far beyond literary theory. The theoretical development is the expansion of narratology into a project that spans every medium capable of storytelling, such as film, drama, comics, painting and videogames. These media are as amenable to PW theory as was literature. The cultural development is an increased interest in fantastic worlds (Wolf 2012, Saler 2012), leading to their transmedia expansion, and to the rise of a participatory fan culture (Jenkins 2006) such as writing fan fiction or dressing up as fictional characters in cosplay events. The technological development, finally, is the creation of interactive computer games and online worlds that enable users to inhabit these worlds through an avatar and in some cases (such as *Second Life*) to contribute to their creation. Through David Lewis’ modal realism and indexical conception of actuality, PW theory is particularly well suited to account for the experience of transporting oneself into imaginary worlds, whether textual, visual or digital, and to explain how life in these worlds can become, for some of their members, more real than RL [real life].

In the next sections, we review the major narrative contributions of PW theory in terms of its areas of application.

1. Theory of fiction

While many PW–inspired literary theorists have written about fiction (e.g. Pavel, Doležel, Eco, Ryan, Ronen), the only formal, explicit definition that relies on the notion of PW is the one that was proposed by David Lewis in “Truth in Fiction”: a fiction is a story told as true of a world (or worlds) other than AW.⁹ Here we examine some of the implications of this definition.

If a fictional story is “told as true,” this means that fictional discourse takes an assertive form, and does not bear overt marks of irreality. In other words, fiction denies its own status as fiction. It could be objected that fictionality is openly flagged by formulae such as “once upon a time”, “there was and there was not,” or the paratextual genre indicator “a novel” that appear at the beginning, or outside the text proper. Moreover, there are what Dorrit Cohn (1999) called “signposts of fictionality”, i.e. narrative devices that suggest the fictionality of texts. Fictional stories are hardly ever told in the same way as factual ones, and fictionality can usually be detected in a blind test. But these so-called “signposts,” or indices, do not openly state unreality, and they do not invalidate the claim that fiction is “told as true.” As for the overt formulae mentioned above, they function as general prefixes for the whole text, but once the fictional status of the narrative has been established, it is pushed to the background of the user’s consciousness, and attention is shifted to the states of affairs asserted by the text.

If we couple Lewis’ conception of fiction as discourse that denies its own status as fiction with his indexical conception of actuality, we can describe the experience of fiction as a playful relocation of the user to the PW where the story is told as true. Through this relocation—or recentering, as Ryan (1991) calls it—users regard the fictional world as actual in make-believe, which means, as existing independently of the text, even though they know

that, from the point of view of the actual world, the fictional world is created by the text. The idea of recentering into fictional worlds explains why readers, spectators or players can regard fictional characters as (fictionally) real people, and why they can experience emotions toward these characters, rather than regarding them as purely textual constructs.

By adapting his analysis of truth conditions for counterfactual statements to the case of truth in fiction, Lewis complements his definition of fiction as “story told as true of a world other than AW” with a guideline for imagining and interpreting fictional worlds. This guideline can be summarized as “in imagining fictional worlds, do not make gratuitous changes from the actual world.” Ryan generalized this guideline into what she calls “the principle of minimal departure.” According to this principle, we construe fictional worlds as conforming as far as possible to our representation of AW. In other words, we do not make gratuitous changes: if a text speaks of a winged horse, we imagine an entity presenting all the properties of actual horses, but being able to fly. Yet we do not imagine this horse as breathing fire unless specified by the text. When the text clashes with our experience of reality, the text has the last word.

Lewis’ counterfactual approach to fiction not only explains the possibility of making true or false statements about fictional worlds, it also explains the possibility of deriving from fiction interpretations whose range of truth extends to the actual world, such as morals. In other words, counterfactual reasoning demonstrates how we can actually *learn* from fiction. Daniel Dohrn (1999) explains this didactic potential by asking readers to consider Cleanth Brooks’ interpretation of William Faulkner’s *The Sound and the Fury*: “Jason Compson betrays his family members, because individuals no longer sustained by familial and cultural unity are alienated and lost in private worlds” (Brooks quoted by Dohrn, 40). This interpretation can be turned into a truth for the actual world by the following counterfactual sentence: “If an individual in the real world behaved like Jason Compson, then

he would do so because he is no longer sustained by familial and cultural unity (etc.).” Or, more generally: “loss of support by familial and cultural unity leads to behaviors similar to Jason’s.” Q.E.D.

Yet Lewis’ definition of fiction as stories “told as true” of another world is not without its own problems. First, as Lewis (1983) observed in “Postscript to ‘Truth in Fiction’”, not all fictions are told as known fact. He mentions an Australian folk song, “The Ballad of the Flash Stockman, “in which Ugly Dave, the speaker in the fictional world, tells a tall tale and brags about lying. Should one then postulate an embedded fictional world where the story is told as true, Ugly Dave pretending to be its narrator? Second, the formula could be accused of a narrative bias: there are texts, such as Beckett’s trilogy *Molloy*, *Malone Dies* and *The Unnamable*, or Dostoevsky’s *Notes from the Underground*, where the narrator (or rather, utterer) in the fictional world does not tell a story as known fact but rather rambles on and on. Such texts are clearly fictional, since the discourse is uttered by an individuated speaking instance distinct from the author, but they are not narrative (or only marginally so), since what matters in these texts is not what happens in a world, but the expression of a subjectivity.¹⁰ This problem could be solved by the following revision of Lewis’ formula: “Here at our world w_1 we have a fiction f , told in an act a of world-making; at some other world w_2 we have an act a' of making statements within and about w_2 and/or other worlds; the discourses uttered in a and a' match word for word, and the words have the same meaning.” This suggestion would also take care of unreliable narrators. And third, there are texts that cannot be told as true of any possible world, because they contain logical contradictions. Could one say that they are told about impossible worlds? For Lewis, the assumption “that there are impossible possible worlds as well as the possible possible worlds” is not to be taken seriously (1978, 46). If a fiction cannot be true of any PW, then everything becomes vacuously true in it, and this fiction cannot yield valid interpretations,

much less interpretations that encompass AW, except (as Dohrn [2009, 42] also observes) for metatextual statements about artistic possibility.

2. Narrative semantics

While a PW-inspired theory of fiction is based on the relations between AW and textual worlds, a PW-inspired narrative semantics looks at the internal organization of narrative worlds. It is therefore indifferent to the distinction between fiction and non-fiction. The term “narrative world” (or storyworld) however hides the true ontological structure of a text, because just as PW theory postulates a plurality of worlds, so does its application to narrative texts. Storyworlds are therefore entire modal universes, consisting of multiple worlds. Moreover, the opposition between one actual world and several merely possible worlds that one finds in our native system of reality reappears within narrative universes, so that users who “recenter” themselves in imagination to a narrative universe (a pre-condition for immersion) will land in a new actual world. This actual world contains narrative facts, comprising both static properties mentioned in descriptions, and world-changing events mentioned in the more properly narrative parts. Just as real-world events, narrative events cannot be properly understood without taking into consideration a background of virtual events that could have taken place instead, leading to different states of affairs. For instance, when people plan an action, they must consider (a) what will happen if the action is taken and succeeds; (b) what will happen if the action is taken and fails; and (3) what will happen if no action is taken and events follow their predicable course.¹¹

The first narratologists to recognize the narrative importance of virtual events were not PW-inspired literary scholars but French structuralists. In *Grammaire du Décaméron* (1969), Tzvetan Todorov established a catalog of modal operators for narrative events that haven't yet happened: the *obligatory* mode for the social duties of characters; the *conditional*

mode for personal obligations due to a contract (if you do p I will do q); the *optative* mode for desires and goals, and the *predictive* mode for anticipated events (46-46). In *Logique du récit* (1972), Claude Bremond distinguished descriptive statements of facts from modalized statements which “anticipate the hypothesis of a future event, of a virtual action” (*Logique*, 86). He diagrammed plot as possibility trees representing all the courses of action faced by characters at crucial moments in their life.

A narrative plot is not a single state of affairs; it is a succession of actually occurring events leading to changed states of affairs. But as suggested above, states of affairs consist of more than objectively occurring facts: they also include the modalized propositions that define the state of mind of characters. In *Possible Worlds* (1991), Ryan describes storyworlds as modal universes consisting of an actual world, realm of narrative facts, which she calls textual actual world (TAW), surrounded by the private worlds of characters (textual possible worlds or TPWs). Among these private worlds, the belief-world stands apart for its representational nature: it reflects not only the characters’ beliefs about TAW, but also the characters’ beliefs about other character’s private worlds, which may contain beliefs about the original character’s beliefs. PW theory thus accounts efficiently for theory of mind and its recursive embedding, whose limits can only be set by the limits of the human mind. Other private worlds, such as the wish-world and obligation world are static models of an ideal state of TAW. Insofar as they are unrealized in TAW, they motivate characters to take action, and they are one of the two motors that propel the plot forward, the other being purely accidental happenings. Goals actively pursued by characters, as well as the plans leading to their fulfillment, are held in a third kind of private world. And finally, characters may form purely imaginary worlds, or rather, universes, such as dreams, fantasies, or fictions, that lead recursively into new systems of reality centered around their own AW. Through these imaginary constructs, narrative universes acquire distinct ontological levels.

In Ryan's model, plot, or narrative action, consists of the movement of worlds within narrative universes. When changes occur in TAW, they may affect its relations to the model worlds of characters, bringing these worlds closer to or further from fulfillment. Since the W-worlds or O-worlds of different characters may contain conflicting requirements, the solution of one character's problems may cause conflict for another character, motivating this other character to take action. Because of antagonistic relations between characters, conflict is hardly ever completely eliminated from narrative universes, but narratives typically end when the conflicts in the main character's domain are resolved, or when this character is no longer in a position to work toward their resolution.

3. Genre Theory

While narrative semantics seeks to analyze the relationships between worlds in a textual universe, PW theory has also been invoked to account for the different *kinds* of worlds found in literature. This has led to the development of typologies of fictional worlds and of what we might also call genre theory. The PW approach to genre relies on the notion of accessibility relation as a means to classify fictional worlds according to how far they represent possibility, or impossibility, in the actual world.

As we have noted above, Maître's (1983) *Literature and Possible Worlds* represents one of the founding pieces of scholarship in the area of genre theory. Traill (1991, cf. 1996) further develops PW for its application to the supernatural and the fantastic (and thus Maître's latter two categories) by proposing a new typology of the fantastic. She challenges what she calls Todorov's "influential" (196) but "narrow conception" (197) of the fantastic in which he defines the fantastic as a genre located between the "uncanny" and the "marvelous" and where there is some ambiguity as to whether the events described are "natural" or "supernatural". That is, the fantastic occurs where the reader is uncertain about whether the

events are natural or supernatural (see Todorov 1975). Traill uses PW theory to distinguish between texts that utilize four different modes: (1) the “authenticated mode” (e.g. Jonathan Swift’s *Gulliver’s Travels*) in which both natural and supernatural realms are presented in a text as “uncontested, unambiguous fictional ‘facts’” (199); (2) the “ambiguous mode” (e.g. Henry James’ *The Turn of the Screw*) in which there is some ambiguity about the ontological status of the supernatural because “the narrator ... does not fully authenticate it” (200); (3) the “disauthenticated mode” (e.g. Lewis Carroll’s *Alice’s Adventures in Wonderland*) in which the constructed supernatural domain is “ultimately disauthenticated [as a dream] and a natural causation assigned to the events” (201); (4) the “paranormal mode”, which she subdivides into “epistemic”, “psychological”, and “philosophical”, in which the supernatural is an inevitable part of the natural so that they are “no longer mutually exclusive” (202). While she does not give this example herself, we might categorize the spontaneous combustion of Mr. Krook in Charles Dickens’ *Bleak House* as well as many works of magical realism as utilizing this mode.

Traill’s first three categories refine Todorov’s structuralist approach to the fantastic, while her fourth expands the study of the fantastic to include texts which describe phenomena of questionable existence. Traill stresses that her modes should not be used to define works of fiction because a work of literature could adopt multiple modes. However, her typology represents an important step in genre theory, first, because she uses the epistemic qualities of a text as a means of determining the ontological status of its fictional world, and, second, because she shows how the ontological status of elements in a fictional world can be both culturally and historically relative.

Also recognizing the culturally dependent nature of possibility, Ryan (1991) offers a comprehensive and more refined typology of fictional worlds which accommodates all kinds of fictional worlds as opposed to only those of the fantastic. Utilizing the concept of

accessibility relations from modal logic, but also recognizing that the “logical interpretation of accessibility relation is not sufficient for a theory of fictional genres” (32), Ryan proposes ten types of accessibility against which a fictional world can be assessed. These are: (A) identity of properties; (B) identity of inventory; (C) compatibility of inventory; (D) chronological compatibility; (E) physical compatibility; (F) taxonomic compatibility; (G) logical compatibility; (H) analytical compatibility; and (I) linguistic capability. Each attribute can be used to ascertain the compatibility between a fictional world and the actual world. For example, works of nonfiction will be (or at least attempt to be) compatible across all categories because nonfiction attempts to represent the actual world accurately. Conversely, the worlds of science fiction may share some compatibility with the inventory of the actual world, but they will also be somewhat or completely taxonomically incompatible because they will contain natural species and manufactured objects that do not exist in the actual world. Ryan’s typology can thus be used to define particular genres because it assesses characteristics of worlds relative to typical attributes of genres (e.g. talking frogs, which contravene the actual world’s biological inventory, can appear in fairytales, but not in nonfiction).

Significantly, Ryan’s typology of accessibility relations includes the category of “logical compatibility” which assesses fictional worlds relative to the laws of noncontradiction and excluded middle. While modal logic denies the status of world to sets of propositions that contravene these fundamental laws, literary applications of PW theory have to accommodate logical impossibilities because, as we show in the subsequent two sections, they occasionally appear in the semantic domain of fictional texts.

4. Narrative themes and structures

At least three types of themes (or narrative structures) can be associated with PW theory: counterfactual history, forking path narratives, and many-worlds cosmologies.¹² This is not to say that the authors of these narratives are necessarily influenced by PW theory, nor that PW theory has a monopoly on these themes; the claim, rather, is that the themes in question can be regarded as natural outgrowths of the kinds of problems that form the concerns of PW theory.

As Doležel has argued (2010), counterfactual history comes in two forms: non-fictional and fictional. By demonstrating that counterfactuals can have a truth value in the actual world, Lewis laid down the logical foundation for the study of “what could have been” to become a serious project from which we can learn something about history. Counterfactual history typically focuses on strategic moments when the future of the world seems to be at stake, as opposed to routine events that could go one way or the other without important consequences. Its favorite subjects are therefore events whose outcome fit an either/or pattern, such as battles, elections, or assassinations of heads of state, all of which can be determined by small causes with disproportionately large effects.¹³ Rather than viewing history as a steady progression leading to predictable developments, as does, for instance, a Marxist perspective, counterfactual history endorses a turbulent vision of time where dramatic decision points alternate with calm segments. Once a branch has been taken at a decision point, the historian assumes that it can be followed in a determinate and therefore predictable way. Thus, when debating what would have happened if Napoleon had won the battle of Waterloo, counterfactual history cannot invoke events of low probability taking place after the decision point, such as Napoleon being kidnapped by the British a few days later, because it would give too much imaginative freedom to the historian. History, after all, should not be fiction, despite the blurring of the borderline caused by the consideration of imaginary situations.

Openly fictional forms of counterfactual history are much more tolerant of unlikely events causing radical changes, because in fiction an interesting plot takes precedence over didactic value. Within fiction, counterfactual history ranges from the examination of reasonably probable alternative courses of events, such as Philip Roth's *The Plot Against America*, which places invented characters in a world where Charles Lindbergh beats Franklin Roosevelt for the U.S. presidency in WWII, strikes an alliance with Hitler's Germany and takes oppressive measures against Jews, to wildly imaginative use of historical figures, such as Philip II of Spain marrying Elizabeth I of England, Cervantes writing Kafka's "Metamorphosis," and Christopher Columbus travelling east on camel back to meet the Great Khan, as in Carlos Fuentes *Terra Nostra*. But how do we know that these characters are counterparts of historical individuals in a different world, rather than unrelated homonyms? PW theory explains such possibilities through Kripke's causal theory of names. In this theory, proper names do not stand for clusters of properties, but designate a certain individual in each possible world through an original act of baptism, and their reference is independent of the changes of properties that the individual (or his counterparts) undergo in each possible world.

While counterfactual history narrates one branch of possibility and refers only implicitly to the branch taken by actual events, forking path narratives develop several possible storylines out of a common situation, generating several possible worlds that split from each other. This type of narrative (represented by films such as *Sliding Doors*, *Run Lola Run*, and *Butterfly Effect*) illustrates a basic mental operation that we have all performed, that of asking what would have become of us if a certain small, random event had not occurred, or if we had made another decision in a certain situation. The famous butterfly that flaps its wings in China affects not only the weather in Patagonia, but also our own lives. David Bordwell (2002) has suggested that forking path movies are not necessarily interpreted as

manifestations of a cosmology made of parallel, equally existing worlds (*à la* David Lewis); rather, spectators tend to regard the last branch as representing what actually happened, and the others as mental constructs of the characters, or as possible scripts considered by the author: “Instead of calling these ‘forking-path’ plots, we might better describe them as *multiple-draft* narratives, with the last version presenting itself as the fullest, most satisfying revision” (102).

Genuine manifestations of a Lewisian cosmology occur in science-fiction narratives inspired by the so-called many-worlds interpretation of quantum mechanics. According to this interpretation, proposed in the fifties by Hugh Everett III, when an observer opens the box where Schrödinger’s cat was subjected to a nuclear reaction that puts the poor feline in a superposition of states, this observer does not cause the cat to be either dead or alive; rather, the nuclear reaction leads to a splitting of worlds that instantiate all the possibilities predicted by Schrödinger’s equation. In one of these worlds the cat is dead, in another he is alive, and the observer discovers the cat to be either dead or alive depending on what world he belongs to. This interpretation is admittedly far from being widely accepted in physics, but Max Tegmark, one of its main proponents, has invoked David Lewis’ modal realism in its support. The many-worlds cosmology has provided a rich source of inspiration for science fiction writers such as John Wyndham, Ursula LeGuin, Frederik Pohl, Greg Bear and Larry Niven because of the strange situations and endless quiproquos that can arise when characters travel from world to world and meet their counterparts (Ryan 2006a).

5. Postmodernist and Ontologically Transgressive Worlds

As the preceding section has shown, counterfactual historical fictions and forking path narratives play with ontological structures without necessarily creating logical impossibilities. Likewise, texts which present a multi-world universe create scenarios that that radically

challenge predominant theories of actual world physics, but they do not contravene logic. Many texts associated with postmodernist and otherwise ontologically transgressive worlds do, however, play with logical (im)possibility. Since PW theory is fundamentally concerned with the relationship between worlds, it is especially effective for accounting for the way that some texts play, often self-reflexively, with ontological structures. It thus offers some very effective apparatus for tackling texts that play with the logical or physical composition of worlds. As Ashline (1995) remarks, “not only is the transgression of taxonomic and physical norms possible in fiction, but in the development of so-called ‘postmodernist fiction,’ the once sacred laws of logic have been opened to violation as well” (215).

Most prolific within the genre of postmodernist fiction, fictional worlds can imaginatively subvert the laws of the actual world and/or self-reflexively undermine the world building capacity of a text. As McHale notes, postmodernist fiction’s “formal strategies implicitly raise issues of the mode of being of fictional worlds, and their inhabitants, and/or reflect on the plurality and diversity of worlds, whether ‘real’, possible, fictional, or what-have-you” (1992 147, cf. 1987). McHale and others (e.g. Ashline 1995, Hutcheon 1998) have shown that common postmodernist strategies include: internal narrative contradictions (e.g. Robert Coover’s “The Babysitter”) and/or a refusal to definitively close a narrative (e.g. John Fowles’ *The French Lieutenant’s Woman*); the metaleptic collapsing of boundaries between diegetic levels either inside a storyworld (e.g. Woody Allen’s “The Kugelmass Episode”) or across the actual-to-storyworld boundary (e.g. the transformation of the reader addressed in Italo Calvino’s *If on a Winter’s Night a Traveler* into a character); the reversal of the direction of time (e.g. Martin Amis’ *Time Arrow*); fictional characters being conscious of being fictional (e.g. Luigi Pirandello’s *Six Characters in Search of an Author*); and the migration of characters between worlds (e.g. Gilbert Sorrentino’s *Mulligan Stew*).

Irrespective of the device deployed, postmodernist fictions contravene logic by playing with or violating the boundaries between worlds.

The inherent ontological play at work in postmodernist fiction has meant that PW theory, or at least particular concepts from it, is often deployed to analyze, theorize, or categorize postmodern texts (e.g. McHale 1987, Ryan 1991, Punday 1997, Ashline 1995). Importantly, the application of PW theory to texts that play with ontology does not mean that this form of scholarship is completely different to other applications of PW theory; the logical contradictions that are found in many postmodernist texts are an important component of genre theory and many application of PW theory to postmodernist texts represent a form of narrative semantics. However, as Ryan (1992) points out, postmodernist fiction “thematiz[es] the concerns of PWT and ... turn[s] its concepts into formal structures” (548). It is perhaps not surprising therefore that postmodernist texts have been analyzed using a PW framework.

Representing an additional site of ontological peculiarity, PW theory has also been used to analyze ontological impossibilities in texts outside of postmodernist fiction. PW theory forms the basis of Jan Alber’s approach to unnatural narratives which, while heavily focused on postmodernist fiction, includes all texts which contain “physically, logically, and humanly impossible scenarios and events” (2016, 14; cf. 2011). Showing the range of creative possibilities for impossibility in fiction from Old English to contemporary literature, Alber outlines various “reading strategies that help us make sense of different kinds of impossibility” (32), seeing them as a welcoming challenge that “stretch the limits of human cognition” (32).

Importantly, while PW theory is also often used in the investigation of particular kinds of ontologically transgressive texts, it has also been used to investigate particular narrative devices which, while associated with postmodernist fiction, are certainly not restricted to them. Alice Bell and Jan Alber (2012), for example, use counterpart theory and

transworld identity – key components of PW theory – to analyze metalepsis (cf. Bell 2016). They conclude that in addition to providing the necessary conceptual framework for understanding the ontological mechanics of the device, the application of PW theory also allows “the analysis to ... more accurately account for the defamiliarizing effects that [metalepses] have on readers” (186, cf. Bell 2014). The application of PW theory to logically and physically impossible scenarios within or outside of postmodernism represents an important area of development. It extends the theory well beyond its logical roots, provides an almost irresistible testbed for the examination of narrative structures. Moreover, it has developed PW theory as a cognitive approach that can account for texts across genres and literary periods.

6. Digital Media

If counterfactual historical fiction, forking path narratives, and multi-world universes can be seen to thematize the concerns of PW theory and postmodernist fictions challenge them, then the worlds created by digital texts are perhaps the actualization of PWs, not least because of the capacity for computer games to create three dimensional worlds that can be explored by a player’s avatar. Indeed, digital media have made worlds accessible to their readers/players/users, if not corporeally, at least as active participants and no longer as “non-voting members” of the fictional world, as Pavel (1986, 85) describes reader participation in literary fiction.

PW theory forms the basis of Ryan’s approach to immersion in digital media (Ryan 2001, 2015). More specifically, Ryan shows how recentering, a concept developed as part of her 1991 PW approach (and explained above), is the basic condition for immersive reading. Immersion in any media, she suggests, is created via three forms of involvement with narrative: spatial immersion, the response to setting; temporal immersion, the response to

story; and emotional immersion, the response to character. In digital media, interactivity also plays a part – either it enhances immersion or it blocks it. Applying this framework to the worlds created in hypertext, electronic poetry, interactive drama, digital art installations, computer games, and multi-user online worlds such as *Second Life*, Ryan questions whether interactivity is beneficial to the narrative experience, and she proposes structural models that allow choice without threatening narrative coherence.

In addition to providing an account of immersion, Ryan has shown how fundamental concepts from PW theory, such as counterpart relations and parallel worlds, can be applied to model the structure and content of digital worlds (Ryan 2006b, 141-2). She also suggests that PW theory can be used as a way “to deal with the fragmentation and occasional inconsistency of hypertext” (Ryan 2015, 199).

Several theorists have applied and developed Ryan’s PW work in the context of digital media. Within game studies, Juul (2014) and van Looy (2005) apply the principle of minimal departure and the concept of recentering respectively to account for the player’s relationship to and within the game world. Recognizing that many Storyspace hypertext fictions¹⁴ in particular utilize the self-reflexive strategies often used in postmodernist print fiction, Alice Bell’s *The Possible Worlds of Hypertext Fiction* develops Ryan’s PW framework for its application to this kind of digital literary text. She shows that since readers are required to participate in the construction of hypertexts, often choosing from a number of different possibilities, they become aware of their active role in the fiction-making process. Moreover, because readers of Storyspace hypertexts experience different events, different versions of events, or a different ordering of events, depending upon the path they choose to take, the narrative structure of the texts further foreground the artificiality of the text. In addition to the branching structure that the Storyspace software facilitates, she shows that many Storyspace hypertexts also contain additional self-reflexive features, such as second-

person address and metafictional uses of intertextuality, which draw further attention to their artificiality. Showing how PW theory can be harnessed to effectively analyze the complex ontological mechanics at work in these texts, Bell provides an account of the way that hypertexts play with world boundaries and structures.

As the preceding discussion shows, most applications of PW theory to digital texts represent a form of narrative semantics. While much scholarship in this area takes Ryan's PW model as the point of departure, Daniel Punday (2014) utilizes Doležel's distinction between "intensional" and "extensional" narrative world to account for the graphical user interface (GUI) in digital fiction. Using examples from interactive fiction and literary hypertext, he shows the dexterity and enormous potential that PW theory provides in the context of digital worlds scholarship.

The articles in this volume make headway into some of the potential futures of PW theory. In Section I. Possible Worlds - Theoretical Perspectives, each essay interrogates an underdeveloped or unresolved theoretical issue within the field.

Lubomír Doležel, whose pioneering work in establishing the PW approach to literature is documented in this introduction, passed away in January 2017. We are honored to present one of his very last articles as the opening chapter of this book. "Porfyry's Tree for the Concept of Fictional World," is an intellectual game reminiscent of a labyrinth, or of a Choose Your Own Adventures narrative: the goal is to reach fictional worlds by navigating a decision tree made of binary oppositions. If you choose the correct branches, you will reach fictional worlds. If not—you may get lost in the quagmires of language as universal medium and of antirealism; your stubborn adherence to a one-world ontology may lead you right past

fictional worlds; you may have to deny the importance of fiction for our understanding of the actual world; you could be forced to reject any distinction between fact and fiction; and you may crash into the rock of ontologically complete PWs. While Doležel's choices maneuver around these obstacles, one can wonder if other choices could lead to viable conceptions of fictional worlds. The game thus challenges the reader to examine and define her own position at every decision point. By following Doležel's proposed itinerary, she will learn a lot about the philosophical debates that underlie PW theory and its literary applications.

Long used in an informal way by literary critics, the term of world, and more particularly of storyworld has recently gained traction as the designation of that which narrative texts display to the mind of the reader and spectator, but for all its newly-found prominence, it remains relatively undertheorized. In chapter 3, "From Possible Worlds to Storyworlds: On the Worldness of Narrative Representation," Marie-Laure Ryan interrogates storyworlds from the perspective of PW theory. Starting from a definition of storyworlds as totalities that encompass space, time and individual existents who undergo transformations as the result of events, she examines them in terms of the following variables: (1) Distance from the actual world, a criterion that raises the question of how far one has to travel from the world made familiar to us by life experience for the notion of world to become inapplicable; (2) Size, a variable that leads from the small worlds of micro-narratives to the large worlds of transmedia franchises; and (3) Ontological completeness, a variable that leads from worlds assumed to share the ontological status of the actual world, despite the incompleteness of their representations, to worlds (or quasi-worlds) that present ontological gaps that cannot be filled by what Ryan has called the principle of minimal departure. The contrast between complete and incomplete worlds is illustrated by readings of Racine's *Phèdre*, as example of a classical play, and of Samuel Beckett's *Waiting for Godot*, as example of the theater of the absurd. Taking a stand against theories that do away with storyworld, Ryan suggests that the

concept is theoretically necessary for the following reasons: (1) it provides the surrounding environment required for immersion; (2) it justifies the practice of transfictionality; (3) it encourages a mode of reading based on imagining, visualizing and mentally simulating the action, rather than being limited to the propositional content of sentences; (4) because “worldness” can be realized to different degrees, it allows variations in the mode of representation and ontological status of fictional entities, rather than reducing all fictions to a uniform model.

One of the most important contributions that possible worlds theory has made to literary studies has been demonstrating the role that alternatives play in narrative dynamics. In “Interface Ontologies: On the Possible, Virtual, and Hypothetical in Fiction”, Marina Grishakova contributes to this field of investigation by providing a systematic approach to the alternative voices that can be found in a text. Grishakova reminds us that alternate possible worlds can be created by narrative devices inside the text (such as the narrator giving the reader access to the private wishes or expectations of a character) and also reader’s inferences or expectations generated by their existing knowledge of what is likely to happen as a generic convention. However, she argues that narrational style of many modernist and postmodernist texts make it more difficult for readers to distinguish ontologically between actual and virtual components of the narrative. In previous work, Grishakova has developed the concept of “virtual voice” to account for forms of narration in which the current narrator’s voice is infiltrated or inflected by another narrative agent’s (narrator or character). In this chapter, Grishakova develops this category further to show how the juxtaposition of virtual and actual voices in narration is integral to the reader’s understanding of and relationship to the fictional world. While alternative worlds generate a range of hypothetical plots, virtual voices create discursive effects by bringing in alternative perspectives. In Nabokov’s *Lolita*, virtual and actual voices are merged so as to create ambiguity about the moral stance of the narrator; in

Margaret Atwood's (2000) *The Blind Assassin* the ontological status of virtual and actual voices is reversed to create a twist at the end of the novel. Ultimately, virtual voices almost always create ontological ambiguity, requiring that the reader make judgments about what is likely or probable as opposed to what is possible or impossible.

The three essays in Section II. Possible Worlds and Cognition, investigate the ways that readers cognitively process different kinds of fictional world. While "post-classical" narratology has always been concerned with the way that narrative experiences are created in reader's minds, in recent years, narratology has taken a more explicit "cognitive-turn" by engaging with research from areas such as cognitive psychology, neuroscience, and cognitive linguistics. In "Ungrounding Fictional Worlds: An Enactivist Perspective on the 'Worldlikeness' of Fiction", Marco Caracciolo demonstrates how insights from the enactivist theory of cognition, can be synthesized with PW theory in order to better account for what he defines as the "worldlikeness" of a fictional text: the reader's experience of a fictional world which, in one way or another, reflects their experience of reality. Caracciolo argues that the narratological application of PW theory has been limited by its logical roots. It has thus paid less attention than it could to the experiential and embodied nature of storyworld construction. Analyzing the world-building strategies at work in Jonathan Lethem's *Girl in Landscape*, Caracciolo shows how current PW conceptions of fictional worlds need to be modified in order to accommodate the way that narratives gradually unfold, and thus explain the temporal dynamics of fictional worlds. He also shows that the "worldlikeness" of fiction is driven by the experiential relevance of a fictional text.

As the introduction to this volume has shown, PW theory is often used as a tool for exploring the complex narrative universes created by postmodernist fiction, either to model the unusual ontological configurations created by the texts or to explain the way that readers assimilate them. In the second essay in this section, "Postmodern Play with Worlds: The Case

of *At Swim-Two-Birds*”, Michelle Wang shows how PW theory can account for both. Wang argues that readers of all kinds of text seek to resolve any cognitive disorientation that they experience. Postmodernist texts, however, place particularly strong demands on readers because they create worlds that often significantly depart from our knowledge or experience of the actual world. Drawing on Ryan’s typology of accessibility relations, Wang suggests that readers expect that a fictional world will resemble the actual world unless told otherwise (as per the “principle of minimal departure”), but that they also expect that particular kinds of texts, including postmodernist fiction, will reframe or refashion their knowledge of the actual world; in these cases, the “principle of maximal departure” is deployed. Importantly, the application of the principle of maximal departure does not stop readers from drawing on their knowledge of the actual world. Rather, three factors influence the reader’s expectations: at which point in the text, how frequently, and in what ways do the departures from the actual world take place. Minimal departure is likely to be assumed when deviations occur later in a text, when they are less frequent, when they are not explicitly signaled in the text, and when the departures are less radical in nature (e.g. “identity of properties” rather than “logical compatibility”). Maximal departure, on the other hand, is more likely to be assumed when departures happen earlier in the text, when departures are more frequent, when they are explicitly signaled, and when they are more radical in nature. Applying the revised PW model to Flann O’Brien’s *At Swim-Two-Birds*, Wang shows how several different interpretations of the text’s ontological structure can be reached. She concludes that postmodernist texts invite readers to “play” with their “game-like structures” and shows how PW theory offers an elegant means of accounting for that experience.

Like Wang, Jan Alber also uses PW-theory to analyze narratives that contradict our knowledge and experience of the actual world, but he utilizes embodied cognition as a means of explaining how we process them. In “Logical Contradictions, Possible-Worlds Theory, and

the Embodied Mind”, Alber argues that while logical contradictions certainly challenge our real world experience, readers are able – and in fact strive – to make sense of them. Thus while some theorists maintain that contradictions result in unthinkable or “empty” worlds, Alber shows that they can and do manifest in a range of narrative fictions and an approach is therefore needed to more accurately account for readers’ responses to them. Drawing on enactivist theory in particular, Alber suggests that readers go through a two-stage process when they encounter logical contradictions in narrative. First, they experience an initial, instinctive bodily response to the logical peculiarities which serves as “protointerpretation”. They then try to make sense of this felt response by drawing on both their knowledge of the text and their experience of the actual world; this second stage of interpretation is cerebral as well as emotional. Demonstrating the dexterity of his approach, Alber analyzes three texts that utilize logical contradictions in relation to three different aspects of narrative: a logically contradictory narrator in Alice Sebold's novel *The Lovely Bones*; contradictory endings in B.S. Johnson's short-story "Broad Thoughts from a Home"; and contradictory temporalities in Robert A. Heinlein's short story "All You Zombies". Profiling the two-staged response process that he experiences in relation to these cognitively demanding texts, he shows that logical contradictions in narrative do not disable our interpretative capabilities. Rather, these extremely unusual and unfamiliar worlds, provoke a strong emotional response in readers that will inevitably lead to a search for meaning within them.

Clearly, in a fictional world, things can be different from what they are in the real world in many ways. The essays in Section III. Possible Worlds and Literary Genres profile the ways in which PW theory can be used to understand fantastical, speculative, and physically impossible fictional scenarios and thus worlds that in some ways resemble but ultimately radically depart from common (Western) conceptions of the actual world. Space and time, the two basic abstract categories, according to Kant, form the preconditions of

human experience. But can they really differ from what they are in AW while still being recognizable as space and time? Fictions that allow time-travel, reverse the direction of time, present it as elastic, make days repeatable or allow the past to be changed answer this question positively, at least for time. Christopher Bartsch “Escape into Alternative Worlds and Time(s) in Jack London’s *The Star Rover*” presents an original variation on this theme. To describe the experience of a hero named Darrell Standing who lives multiple lives in different bodies, Bartsch adopts David Lewis’ distinction between external time and personal time: external time could be identified with the “empirical” time of TAW (called by Bartsch TAT, *textual actual time*), while personal time is bound to an individual (*character’s time*). The two times normally coincide, but they become disjointed when Standing, a prisoner on death row strapped in a jacket that prevents movement, “escapes” into the life of one of his avatars. When this occurs, the personal time experienced by the hero far exceeds the length of the external time spent by his body in the restraining jacket. But TAT does not disappear entirely, because the various lives are situated in objective history, and the earlier manifestations of Standing are unaware of his later incarnations, while the later incarnations are aware of the earlier ones. In Bartsch’s reading, the text maintains the kind of hesitation regarded by Tzvetan Todorov as the trademark of the fantastic: on one hand, the other lives of Standing could be hallucinations due to the inhuman conditions to which he is subjected in prison (this seems to be a standard interpretation of the novel), on the other hand Standing’s travels to alternate worlds (or is it to other lives in the same world?) could occur objectively. The rich analysis to which Bartsch subjects this little-known but fascinating text demonstrates the versatility of the PW approach and its ability to deal with the temporal dimension of storyworlds.

In “As Many Worlds as Original Artists: Possible-Worlds Theory and the Literature of Fantasy,” Thomas Martin asks why the fantastic, a genre enthusiastically adopted by

contemporary audiences, has remained for a long time neglected, or worse, despised by literary critics. He attributes this attitude to a so-called realistic and pseudo-scientific bias in narrative aesthetics and literary studies, a bias that favors Saussure over Peirce, Joyce over Borges, Derrida over Eco. But as the references to Saussure and Derrida suggest, textualism and its cult of the signifier could also be held responsible: most of the critics who rejected the work of Tolkien did so on the ground that it was poorly written. A true work of literary art, it was implied, should draw attention to language and not to the process of world-creation.

W.H. Auden's response to Tolkien's *Lord of the Rings*, "Mr. Tolkien's world may not be the same as our own" sounds nowadays self-evident, but as long as the value of invention was only recognized on the level of *écriture* its significance eluded critics. Martin argues that PW theory holds the key to the theoretical and aesthetic recognition of fantasy, and that PW theorists have so far been too modest in promoting this potential. Whereas a one-world ontology would regard fantastic worlds as manifestation of the impossible, a many-worlds system that situates its worlds at various degrees of distance from the actual world regards the fantastic as an exploration of the richness of the possible. As Martin suggests (quoting Auden), the art of world-creation does not reside in making a world plausible or verisimilar—two concepts of realism that take the actual world as implicit reference—, but in making it believable, by building "a world of intelligible law" where "the reader's sense of the credible is never violated." It is in the pursuit of this "intelligible law," which makes fantastic worlds autonomous with respect to reality, that Tolkien spent fifty years creating the encyclopedia of Middle Earth. Aristotle defined the task of the poet as representing what could happen according to probability and necessity (*Poetics* 5,5): in fantasy, authors show what could be and could happen according to probabilities and necessities of their own making. This is what makes their worlds believable.

Mattison Schuknecht's "The Best/Worst of All Possible Worlds? Utopia, Dystopia and Possible Worlds Theory" debunks a few myths about utopia and dystopia, and then relies on the PW model to construct a positive theory of these genres. Rejecting the view that they are necessarily concerned with social organization (there are solitary utopias too) or that they are always set in the future, Schuknecht uses two forms of the PW approach to define utopias and dystopias: the world-external, outlined by Ryan, which defines fictional genres in terms of accessibility relations from the actual world, and the world-internal, proposed by Doležel, which analyzes plots in terms of the modalities that are put into play. Schuknecht proposes to add a new significant accessibility relation to Ryan's system, a/meliorate, which covers both utopias and dystopias. In order to distinguish the two, he resorts to the deontic modality, arguing that conflicts involving the permitted, prohibited and obligatory, are minimized in utopias and maximized in dystopia. The last question addressed in the chapter concerns the recent eclipse of utopian fiction in favor of dystopian. Rejecting social and historical theories that attribute the disappearance of utopia to the sorry state of the world, Schuknecht invokes a purely narratological explanation: narrative appeal (or tellability) relies on conflict, and there is plenty of it in dystopia, but in a utopia everybody's desires are satisfied, and there is consequently no room for conflict. Texts such as Plato's *Republic* or Thomas Moore's *Utopia*, which describe realized utopias, are didactic texts rather than entertaining narratives. It is only when utopias are in the process of being built, or are threatened from the outside, that they provide suitable narrative material.

Section IV. Possible Worlds and Digital Media explores the way that PW theory can be used to explore the digital and also the way that the digital can inform PW theory. One of the earliest and most significant forms of digital writing – hypertext – was developed before the web. This meant that the publication methods for hypertext fiction resembled those of print: a publisher produced, sold, and distributed works of fiction; readers received a literary

artefact packaged as a work of fiction. Once web use exploded in the mid-nineteen eighties, publication methods changed: hypertext fiction became available to read in the same online space as works of non-fiction. Alice Bell investigates the ontological ambiguity at work in some web-based fiction in her chapter “Digital Fictionality: Possible Worlds Theory, Ontology, and Hyperlinks”. In particular, she shows that external hyperlinks, which lead to websites beyond the fictional work, provide a medium-specific and thus unique means of playing with the boundary between fiction and reality. Analyzing three web-based fictions which exhibit three forms of ontological play – what Bell defines as ontological flickering, ontological refreshment, and ontological merging – she modifies Ryan’s account of fictional recentering to account for the reader’s interaction with and understanding of the ontology of these digital texts. She shows that external hyperlinks can be used to increase immersion and/or intensify self-reflexivity, but the creation of such narrative experiences is not the sole purpose of these texts. Instead, she argues that while the texts utilize self-reflexive techniques associated with postmodernist print fiction, the ontological mechanics at work in these particular digital fictions are used for a more contemporary thematic purpose. She concludes that the three digital fictions she analyzes should be seen as part of a broader post-postmodern cultural trend in which sincerity forms a more central part.

The capacity for digital media to create three-dimensional audio-visual spaces makes the deployment of “world” terminology especially appealing. In “Possible Worlds, Virtual Worlds” Françoise Lavocat investigates the ontological status of worlds created by digital media and explores the extent to which PW theory can be applied in this context.

Distinguishing between the worlds built by multiplayer spaces (e.g. metaverses such as *Second Life* and MMORPGs such as *World of Warcraft*) and single player videogames (e.g. *Grand Theft Auto*), she argues that digital media create worlds which utilize medium-specific modalities. In terms of alethic modality, Lavocat suggests that virtual worlds have a

“magical” quality: for example, avatars can die and come back to life in videogames; entire cities can be effortlessly built in *Second Life*. In terms of epistemic modality, not only must the player/user must know the rules governing a particular world, but they must also deploy and refine their knowledge of digital technology in order to operate within it. Multiplayer and single player worlds differ with respect to deontic modality, Lavocat suggests. In *Second Life* users must adhere to rules and policies within the virtual world but those restrictions also extend out to the jurisdiction of the actual world (e.g. users should not extort money within the virtual world because this has consequences in the real world). In single player videogames, however, there is no ontological leak to the actual world and players’ actions within the gameworld relate to that domain only. Similarly, Lavocat shows that the axiological system of *Second Life* is different to that of a single player videogame. For example, while users’ moral choices in the former potentially impact directly on other users in the actual world, user actions on a character in a single player videogame are more likely to indirectly effect our sense of actual world morality, if they have any effect at all.

Within digital media scholarship, theorists must adapt to the fast-changing landscape of technological developments in the field. This includes developing, debating, and updating different manifestations and associated conceptualizations of texts. In the early twenty-first century, Lev Manovich proposed the metaphor of narrative-as-database to account for the way that digital artifacts are fragmented (i.e. stored as bits of code) and coherent (i.e. executed as connected bit of code). In “Rereading Manovich’s Algorithm: Genre and Use in Possible World Theory”, Daniel Punday revisits Manovich’s theory by exploring its relationship to possible world theory and, in particular, its account of fictional world ontology. He thus uses concepts developed in the context of new media to show how they relate to the PW theorization of fictional texts more generally. First, Punday argues that the concept of the “interface” can be used to categorize a particular manifestation of a fictional

world and, further, that separating out the interface from the world it presents is particularly important for narrative worlds that are represented more than once (i.e. in different books or across different media). Punday then shows how several PW models can be seen to resemble the “database” structure that is so important to Manovich’s approach. The structure of a single TAW surrounded by alternative TPWs proposed by Ryan represents a collection of states that can, in principle, be combined in different ways. When readers read a particular text, they consider how characters’ wishes and fears (TPWs) relate to and interact with the TAW. While not a direct or uncomplicated relation, Punday also suggests Doležel’s account of extensional and intentional narrative worlds can be seen as embodying a database structure; an extensional world exists a collection of objects – like a database – and in the associated intensional world entities are configured to produce a particular states of affairs – though the reader experiences the intensional world first via a text and extracts out to imagine the associated extensional world. Utilizing the database metaphor, Punday then shows how Manovich’s concept of the “algorithm” can be used to understand the way readers approach and ultimately process texts. For Manovich, algorithms are a way of representing the way that readers or players understand the logic of texts as they read/play them. Punday suggests that the algorithm can also be used to understand how readers make sense of genre: readers access particular information and perform particular steps depending on the genre of the text that they are reading.

Finally, in the “Postface”, Thomas Pavel critically responds to the volume. Taken as a whole, the articles in this book systematically outline the theoretical underpinnings of the possible worlds approach, provide updated methods of analyzing fictional narrative, and profile those methods via the analysis of a range of different texts including utopian/dystopian literature, science-fiction, fantasy, digital narratives, and postmodernist fiction. Through the variety of its contributions, *Possible Worlds Theory and Contemporary*

Narratology demonstrates the vitality and versatility of one of the most vibrant strands of contemporary narrative theory and shows why PW theory has played a decisive role in postclassical narratology.

¹ Note a certain circularity in the association of accessibility with possibility: a world is possible with respect to another if it is accessible from it, but it is accessible if it is possible.

² Lewis' analysis does not work for all counterfactuals. For instance, the often heard type "If O.J. is innocent I am a monkey's uncle" is used to express the impossibility of the antecedent rather than the feasibility of the consequent: it is only in a world as absurd as one where I am a monkey's uncle that O.J. Simpson can be innocent of his ex-wife's murder.

³ In logic, the law of non-contradiction states that the proposition: p AND $\sim p$ is false. This means that a particular state and its negation cannot occur in the same world; it is impossible for something to happen and not happen. The Law of Excluded Middle states that the proposition: p OR $\sim p$ is true. This means that either something happens or it does not happen; an in-between state of it both happening and not happening is impossible.

⁴ Dragons could however be regarded as novel combinations of properties of real-world entities, such as wings, lizard-like bodies, breathing, and fire.

⁵ David Lewis may be an exception: the confessional tone of his presentation of modal realism, anchored by multiple "I believe," suggests a strong personal commitment to this model.

⁶ This elegance resides in the fact that Lewis can account for modal statements without recognizing "primitive modalities," i.e. without using the logical notation \square for necessity and \diamond for possibility.

⁷ Our translation. The original reads: "Nous nous efforçons de saisir l'imbrication des personnages dans un ensemble de biens et de normes, d'éprouver de manière homéopathique leurs désirs et de prévoir ce qu'ils se proposent d'entreprendre."

⁸ We quote this version of the analysis, rather than Lewis' final version, which accounts for divergences between the cultural beliefs of the author's and reader's world by replacing "our actual world" with "one of the collective belief worlds of the community of origin of f ," because it is much more readable. Lewis regards the beliefs of the author's world as dominant; thus, if people believed in witches in the late 16th century, statements about witches compatible with Shakespeare's text can be regarded as true of *Macbeth*.

⁹ Ryan 1991 offers a definition of fiction but it is strongly inspired by Lewis as well as by Searle. She adds to their accounts the notion of recentering.

¹⁰ A cognitive movement in narratology (e.g. Herman 2009, Fludernik 1996) regards the representation of lived experience as more essential to narrative than the representation of a sequence of causally related events. For these scholars Beckett's trilogy is more narrative than a fairy tale that does not probe into the characters' subjectivity. Note however that the revision of Lewis' formula, which is meant to define fiction and not narrative, is fully compatible with the "experiential" conception of narrativity.

¹¹ Cf. von Wright's (1967) logic of action, which however consists of only (a) and (c).

¹² On these narrative types, see Dannenberg (2008).

¹³ Cf. the proverb "For the want of a shoe the horse was lost, For the want of a horse the rider was lost, For the want of a rider the battle was lost, For the want of a battle the kingdom was lost, And all for the want of a horseshoe-nail."

¹⁴ Storyspace hypertext fictions are produced in Storyspace editing software which allows writers to connect chunks of text (known as "lexia") via hyperlinks. They have been

distributed by Eastgate Systems Ltd on CD-ROM since the late 1980s and thus many Storyspace works represent some of the earliest forms of hypertext fiction, with some published before the web became publicly accessible.

References

- Adam, Robert M. 1979. "Theories of Actuality." *The Possible and the Actual. Readings in the Metaphysics of Modality* edited by Michael J Loux, 190-209. Ithaca: Cornell University Press
- . 1981. "Actualism and Thisness.' Synthese." *Demonstrative and Indexical Reference, Part I* 49 (1): 3-41
- Alber, Jan. 2011. "The Diachronic Development of Unnaturalness: A New View on Genre." *Unnatural Narratives, Unnatural Narratology*, edited by Jan Alber and Rüdiger Heinze, 41–67. Berlin, Germany: de Gruyter.
- . 2016. *Unnatural Narrative: Impossible Worlds in Fiction and Drama*. Lincoln: University of Nebraska Press.
- Allén, Sture, ed. 1998. *Possible Worlds in Humanities, Arts and Sciences*. Proceedings of Nobel Symposium 65. Berlin: de Gruyter.
- Aristotle. *Poetics*. Ed. Marcolm Heath. London: Penguin, 1998.
- Ashline, William. L. 1995. "The Problem of Impossible Fictions." *Style* 29 (2): 215-34.
- Barthes, Roland. 1981. "The Discourse of History." Trans. Stephen Bann. *Comparative Criticism: A Yearbook*, 7-20. Cambridge: Cambridge University Press,
- Bell, Alice. 2010. *The Possible Worlds of Hypertext Fiction*. New York: Palgrave McMillan.
- . 2014. "Media-Specific Metalepsis in *10:01*." *Analyzing Digital Fiction*, edited by Alice Bell, Astrid Ensslin, and Hans Kristian Rustad. Routledge Studies in Rhetoric and Stylistics, 21-38. New York, Routledge.

- . 2016. “‘I felt like I’d stepped out of a different reality’: Possible Worlds Theory, Metalepsis and Digital Fiction.” *World Building: Discourse in the Mind*, edited by Joanna Gavins and Ernestine Lahey, 15-32. London: Bloomsbury.
- Bell, Alice., and Jan Alber. 2012. “Ontological Metalepsis and Unnatural Narratology.” *Journal of Narrative Theory* 42 (2): 166-192.
- Bordwell, David. 2002. “Film Futures.” *SubStance* 31 (1): 88-104.
- Bremond, Claude. 1972. *Logique du récit*. Paris: Seuil.
- Bricker, Phillip. 2008. “Concrete Possible Worlds.” *Contemporary Debates in Metaphysics*, edited by Theodore Sider, John Hawthorne and Dean W. Zimmerman, 111-34. Malden, MA: Blackwell.
- Buckland, Warren. 2004. "Between Science Fact and Science Fiction: Spielberg's Digital Dinosaurs, Possible Worlds, and the New Aesthetic Realism." *Liquid Metal: The Science Fiction Film Reader*, edited by Sean Redmond, 24-34. New York: Columbia University Press.
- Cohn, Dorrit. 1999. *The Distinction of Fiction*. Baltimore: Johns Hopkins University Press.
- Currie, Gregory. 1990. *The Nature of Fiction*. Cambridge: Cambridge University Press.
- Dannenberg, Hilary. 2008. *Coincidence and Counterfactuality: Plotting Time and Space in Narrative Fiction*. Lincoln: University of Nebraska Press.
- Divers, John. 2002. *Possible Worlds*. London: Routledge.
- Dohrn, Daniel. 2009. “Counterfactual Narrative Explanation.” *The Journal of Aesthetics and Art Criticism*. Special Issue: *The Poetics, Aesthetics, and Philosophy of Narrative* 67 (1): 37-47
- Doležel, Lubomír. 1976. “Extensional and Intensional Narrative Worlds.” *Poetics* 8: 193–212.
- . 1976. “Narrative Modalities.” *Journal of Literary Semantics* 5 (1976), 5–14.

- . 1988. "Mimesis and Possible Worlds." *Poetics Today* 9: 475–96.
- . 1998. *Heterocosmica: Fiction and Possible Worlds*. Baltimore: Johns Hopkins University Press.
- . 2010. *Possible Worlds of Fiction and History*. Baltimore: Johns Hopkins University Press.
- Eco, Umberto. 1984. *The Role of the Reader: Explorations in the Semiotics of Texts*. Bloomington: Indiana University Press.
- Fludernik, Monika. 1996. *Towards a 'Natural' Narratology*. London: Routledge.
- Fořt, Bohumil. 2016. *An Introduction to Fictional Worlds Theory*. Frankfurt am Main: Peter Lang.
- Herman, David. 2009. *Basic Elements of Narrative*. Chichester: Wiley-Blackwell.
- Hintikka, Jaakko. 1988. "Exploring Possible Worlds." *Possible Worlds in Humanities, Arts and Sciences. Proceedings of Nobel Symposium 65* edited by Allén, Sture, 52-73. Berlin: de Gruyter.
- Hutcheon, Linda. 1988. *A Poetics of Postmodernism: History Theory Fiction*. London: Routledge.
- Jameson, Fredric. 1975. *The Prison-House of Language*. Princeton: Princeton University Press.
- Jenkins, Henry. 2006. *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press.
- Juul, Jesper. 2014. "On Absent Carrot Sticks: The Level of Abstraction in Video Games." *Storyworlds across Media: Toward a Media-Conscious Narratology*, edited by Marie-Laure Ryan and Jan-Noël Thon, 173-92. Lincoln, Nebraska: University of Nebraska Press.
- Kripke, Saul. 1963. "Semantical Considerations on Modal Logic." *Acta Philosophica Fennica* 16: 83–94.

- . 1972. "Naming and Necessity." *Semantics of Natural Language*, edited by Donald Davidson and Gilbert Harman, 253–355. Dordrecht: Reidel.
- Lavocat, Françoise. Ed. 2010. *La Théorie littéraire des mondes possibles*. Paris: CNSR Editions.
- . 2010. "Avant-propos." *La Théorie littéraire des mondes possibles* edited by Lavocat, Françoise, 5-11. Paris: CNSR Editions.
- Loux, Michael J. Ed. 1979. *The Possible and the Actual. Readings in the Metaphysics of Modality*. Ithaca: Cornell University Press, 1979.
- . 1979. "Introduction." *The Possible and the Actual. Readings in the Metaphysics of Modality* edited by Michael J Loux, 15-64. Ithaca: Cornell University Press.
- Lewis, David K. 1973. *Counterfactuals*. Cambridge, UK: Cambridge University Press.
- . 1978. "Truth in Fiction." *American Philosophical Quarterly* 15: 37–46.
- . 1979. "Possible Worlds." *The Possible and the Actual. Readings in the Metaphysics of Modality* edited by Michael J Loux, 182-89. Ithaca: Cornell University Press.
- . 1986. *On the Plurality of Worlds*. Oxford: Blackwell.
- . 1983. "Postscript to 'Truth in Fiction'." *Philosophical Papers*, vol I, 276-79. Oxford: Oxford University Press.
- Maître, Doreen. 1983. *Literature and Possible Worlds*. Middlesex: Middlesex Polytechnic Press.
- Martin, Thomas L. 2004. *Poiesis and Possible Worlds: A Study in Modality and Literary Theory*. Toronto: University of Toronto Press.
- McHale, Brian. 1987. *Postmodernist Fiction*. London/New York: Routledge.
- . 1992. *Constructing Postmodernism*. London/New York: Routledge.
- Nolan, Daniel P. 2002. *Topics in the Philosophy of Possible Worlds*. New York: Routledge.

- Pavel, Thomas. 1975. "Possible Worlds in Literary Semantics." *Journal of Aesthetics and Art Criticism* 34: 165–76.
- . 1986. *Fictional Worlds*. Cambridge: Harvard University Press.
- . "Univers de fiction: Un parcours personnel." *La Théorie littéraire des mondes possibles* edited by Lavocat, Françoise, 307-13. Paris: CNSR Editions.
- Plantinga, Alvin. "Actualism and Possible Worlds." *The Possible and the Actual. Readings in the Metaphysics of Modality* edited by Michael J Loux, 253-73. Ithaca: Cornell University Press
- Punday, Daniel. 1997. "Meaning in Postmodern Worlds: The case of *The French Lieutenant's Woman*." *Semiotica* 115(3/4): 313-43.
- . 2014. "Seeing into the Worlds of Digital Fiction." *Analyzing Digital Fiction*, edited by Alice Bell, Astrid Ensslin, and Hans Kristian Rustad. Routledge Studies in Rhetoric and Stylistics, 57-72. New York, Routledge.
- Rescher, Nicholas. 1988. "The Ontology of the Possible." *The Possible and the Actual. Readings in the Metaphysics of Modality* edited by Michael J Loux, 166-81. Ithaca: Cornell University Press.
- Ronen, Ruth. 1994. *Possible Worlds in Literary Theory*. Cambridge: Cambridge University Press.
- Ryan, Marie-Laure. 1985. "The Modal Structure of Narrative Universes." *Poetics Today* 6 (4): 717–56.
- . 1991. *Possible Worlds, Artificial Intelligence and Narrative Theory*. Bloomington: University of Indiana Press
- . 1992. "Possible Worlds in Recent Literary Theory." *Style* 26 (4): 528-52.
- . 2001. *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*. Baltimore: Johns Hopkins University Press.

- . 2006a. "From Parallel Universes to Possible Worlds: Ontological Pluralism in Physics, Narratology and Narrative." *Poetics Today* 24 (7): 633–74.
- . 2006b. *Avatars of Story*. Minneapolis: University of Minnesota Press.
- . 2015. *Narrative as Virtual Reality 2: Revisiting Immersion and Interactivity in Literature and Electronic Media*. Baltimore: Johns Hopkins University Press.
- Saint-Gelais, Richard. 2011. *Fictions transfuges: La transfictionnalité et ses enjeux*. Paris: Seuil.
- Saler, Michael. 2012. *As If: Modern Enchantment and the Prehistory of Virtual Reality*. Oxford: Oxford University Press.
- Saussure, Ferdinand de. 1966. *Course in General Linguistics*, trans. Wade Baskin. New York: McGraw Hill.
- Searle, John. 1975. "The Logical Status of Fictional Discourse". *New Literary History* 6: 319-32.
- Semino, Elena. 1997. *Language and World Creation in Poems and Other Texts*. London: Longman.
- Swift, Elizabeth. 2016. "What do Audiences Do? Negotiating the Possible Worlds of Participatory Theatre." *Journal of Contemporary Drama in English* 4 (1): 134-149.
- Tegmark, Max. 2003. "Parallel Universes." *Scientific American*, May 2003, 40-51.
- Todorov, Tzvetan. 1969. *Grammaire du Décaméron*. The Hague: Mouton.
- . 1975 [1970]. *The Fantastic: A Structural Approach to a Literary Genre*, trans. Richard Howard, Ithaca: Cornell University Press.
- Traill, Nancy. 1996. *Possible Worlds of the Fantastic: The Rise of the Paranormal in Fiction*. Toronto: Toronto University Press.
- . 1991. "Fictional Worlds of the Fantastic." *Style* 25 (2): 196-210.

- Uhl, Nele. 2013. "On the Concept of Diegese, Possible Worlds, and the Aesthetics of Illness." *(Dis)Orienting Media and Narrative Mazes*, edited by Julia Eckel, Bernd Leiendecker, Daniela Olek, and Christine Piepiorka. Bielefeld, 205-220. Germany: Transcript Verlag.
- Vaina, Lucia. 1977. "Les Mondes possible du texte." *Versus* 17: 3–13.
- Van Looy, Jan. 2005. "Virtual Recentering: Computer Games and Possible Worlds Theory." *Image and Narrative* 12
<http://www.imageandnarrative.be/inarchive/tulseluper/vanlooy.htm>
- Voegelin, Salome. 2014. *Sonic Possible Worlds: Hearing the Continuum of Sound*. London: Bloomsbury.
- von Wright, Georg Hendrik. 1967. "The Logic of Action: A Sketch." *The Logic of Decision and Action*, edited by Nicholas Rescher, 121-36. Pittsburgh: University of Pittsburgh Press.
- Walton, Kendall. 1990. *Mimesis as Make-Believe: On the Foundations of the Representational Art*. Cambridge: Harvard University Press.
- Wolf, Mark J.P. 2012. *Building Imaginary Worlds: The Theory and History of Subcreation*. London: Routledge.