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A WORLD LINE SEMANTICS FOR THE ARTIFACTUAL THEORY OF FICTION

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Abstract

According to the Artifactual Theory of Fiction, literary fictional characters exist as created entities. This explains how they can contribute to the meaning of sentences that refer to them. However, their creation has often been described in terms of a fuzzy process. This has been the source of strong criticisms that have jeopardized the relevance of identity conditions provided by the Artifactual Theory of Fiction. One of the main difficulties is to articulate the two aspects of a fiction; that is, the fact that it appears as an abstract artifact from an external viewpoint, but (possibly) as a concrete entity from an internal viewpoint. Our answer takes place in the context of Hintikka's world line semantics, enriched by fictionality operators. In a modal framework, literary fictional characters can be understood as word lines made available for quantification thanks to a double mode of individuation. This is the starting point to overcome number of difficulties, in particular concerning questions of identity in fictional contexts.

Keywords: World Line, Artifactual Theory of Fiction, Fictionality Operator

1. Introduction

Why should we admit fictions in our ontology (i.e. in the domain(s) of a modal framework)? A general argument is usually that it easily explains their contribution to the meaning of sentences like “Sherlock Holmes has been created by Conan Doyle” or “there is a fictional character that is a detective in the fictions written by Conan Doyle” that (apparently) refer to them. However, if we admit fictional entities in our ontology, what would they be? They can be mere non-existent entities, discovered through a certain kind of intentional activity but nonetheless independent of human activity.¹ They can also be human creations, dependent on a certain intentional activity. Whereas the former answer would yield a platonic conception, the latter allows understanding fiction in a more constructive way. According to the Artifactual Theory of Fiction (ATF) fictions exist as abstract artifacts, and as such they are available to be thought of, to be referred to, to be quantified over. They are created by an author and their existence is preserved through the existence of copies of the original work or thanks to the memory of the

¹ This is the position advocated by the Neo-Meinongians and Noneists such as Parsons (1980), Priest (2016), Berto (2011), among others.

members of a linguistic and cultural community. The ATF provides the ground to define identity conditions for fictions, but its articulation with a suitable semantics is still lacking. In this paper, we show that a suitable semantics allows clarifying our understanding of fictional discourse and to answer several criticisms that have been raised against the ATF.²

By the “Artifactual Theory of Fiction”, we mainly refer to the theory initiated by Thomasson (1999) who considers that fictional entities are inhabitants of the actual world just as non-fictional ones are. On the one hand, a fictional character like Holmes is an artifact, created by Conan Doyle, its author. On the other hand, Holmes is abstract and is tied to the everyday world by its dependence on readers, authors and copies of texts. Fictional characters exist as abstract artifacts. We can quantify over them and we can refer to them by means of singular terms, proper names or definite descriptions. However, fictional discourse and reference to fictional entities rely on two different perspectives. Sentences like ‘Holmes is a detective’, ‘Holmes is the friend of Watson’, etc., are not true from a real-world perspective. There is no detective called ‘Holmes’, friend of Watson, etc., and obviously no abstract artifact is an actual detective. But they are true ‘in the fiction’, according to what is said by the relevant novel; that is, they are true from an internal perspective. By contrast, sentences like ‘Holmes is a famous fictional character’, ‘Holmes has been created by Conan Doyle’, etc., are not true in the fiction, but from an external perspective. By acknowledging the existence of fictional entities, the ATF is in a position to provide a straightforward account of external perspective. But its articulation with the internal perspective is still lacking, or at least insufficiently well-defined. Doubts have arisen on how to understand fictional discourse in way that is compatible with the ATF and the conditions of individuation of literary fictional characters. What appeared as an initial advantage for the ATF, namely its constructive aspect relying on a creative act, became perceived as a congenital defect of the theory and the source of several objections.

We must be clear since the beginning, we are concerned with a semantic issue, and we will not put forward new ontological or metaphysical arguments in favour of the ATF.³ We take as our starting point the work of Thomasson (1999), but also the work of Fontaine and Rahman (2014) who characterize literary fictional characters in a modal-temporal framework. Although Fontaine and Rahman assume a double perspective, combining an external and an internal component, their systematic articulation in a unified framework is still lacking. Indeed, they provide the basis for a non-vague (-fuzzy) explanation of the creative process, fundamental in the ATF. The main idea is that the author fixes a codex or a canon, by means of which some constructive instructions are given for the fictional characters and their properties. This is what we refer to as the codification act, which must be completed to give rise to the existence of a fictional entity. Then, the process can be repeated, thanks to the existence of a literary work that can be transmitted between the members of a linguistic community. But this assumes a closer dependence of fictional characters on the internal viewpoint, and consequently an articulation of the ATF with a semantics for the fictionality operator (an operator to be read as ‘according to the

² In this paper, we will restrict ourselves to literary fictional characters. The point might be extended to other kinds of fictions. Further considerations might be required, e.g. to define their conditions of individuation.

³ Further arguments in favour of the ATF can be found in Thomasson (1999), van Inwagen (1977, 2000), Voltolini (2006), Fontaine and Rahman (2010, 2012, 2014), Fontaine (2013), among others.

fiction'). Both perspectives on fiction will be articulated in the context of a modal framework, with respect to a plurality of possible worlds. Literary fictional characters are individuals that manifest themselves as abstract artifacts in certain of these worlds (external viewpoint), but possibly as concrete entities in other worlds (internal viewpoint). This assumes moving from a standard Kripkean conception of modal individuals to Hintikka's world lines semantics. Indeed, a literary fictional character is not an object that travels across the worlds, but an individual that cannot be reduced to its manifestations, a world line that connects various objects in different worlds. In this context, we consider fictional characters as world lines made available for quantification on the basis of a double mode of individuation.

As Quine (1963: 23) said, "no entity without identity". Thomasson (1999), shows that, in the context of the ATF, defining identity conditions is not more problematic for fictional entities than for concrete entities. Thomasson (2007) completes her theory by combining Kripkean rigidity with a pretence account of fictional discourse. This is not satisfactory, since it eventually leads to deny the problematic nature of identity in fiction. First, since individuation of fictions is grounded on their apparitions in different worlds, compatible with different viewpoints, they must be considered as world lines that connect various objects in different worlds without being reducible to any of them. Our main thesis is thus that fictional entities are intentionally individuated world lines of a particular kind; that is, world lines characterized by a double mode of individuation. Second, we must not confuse identity of world lines and identity of manifestations, given that world lines can split and merge, depending on the intentions of the authors or other interpretive standard of the readership. This is the ground for a more fine-grained analysis of identity in fictional contexts. Section 2, we come back to some of the most pressing objections that have been raised against the ATF and we motivate the necessity of articulating both viewpoints on fiction. Section 3, after having rejected the way Thomasson (1999, 2007) completes her theory; we define Hintikka's world line semantics. Section 4, we define the double mode of individuation of literary fictional characters. Section 5, we discuss some consequences in relation to the problem of cross-fictional identity. Section 6, we explain how to understand indeterminate identity and answer certain objections in this respect.

2. Created Fictional Characters

Thomasson (1999) identifies several types of ontological dependencies. To define identity conditions for fictional characters, she combines the notions of historical and constant dependences with those of rigid and generic dependences. The fictional character Holmes has its origin in a particular creative intentional act of Conan Doyle, and it is thus historically dependent on Conan Doyle. Moreover, the ontological dependence is, in this example, of a rigid kind: Holmes depends historically on one fixed individual, namely Conan Doyle. That Holmes is rigidly historically dependent on Conan Doyle means that Holmes could not have existed if Conan Doyle (and nobody else) had not himself existed and created it. After Conan Doyle's death, Holmes survives as an abstract artifact because Holmes is ontologically sustained by copies of Conan Doyle's work and a competent readership. The dependence on copies is of a generic kind since there is no fixed copy on which Holmes depends. That Holmes generically constantly depends on the

existence of copies means that Holmes would cease to exist if no copy existed (or if nobody would remember it).

The conditions of creation form part of the identity conditions of fictional characters. For example, Silas Marner is the fictional character referred to in the story written by George Eliot. However, what does the creative act consist of? Silas Marner is an abstract artifact. As such, it is not a weaver, a friend of William Dane, etc., and it cannot be the result of a creative description. How, by describing a concrete human being with properties such as 'being a weaver', 'being a man', 'being a Calvinist', etc., an author would create an abstract artifact that has none of these properties? We can ask, following Howell (2002: 283), "how George Eliot, by imagining (or otherwise mentally engendering) a concrete and seemingly not-really-existent man, thereby creates the existent abstract non-man whom she baptizes 'Silas Marner'?" can we ask with Howell (2002: 283). In the same vein, Yagisawa (2001: 158) finds it "very difficult to fathom how Dickens could create an individual by writing a story which, when finished, would be a massively false story about that individual". If the creative process consists of imagining or describing a fictional character, by attributing him various properties, these properties should be reflected in the creation of fictions and, subsequently, in their conditions of individuation.

Another line of criticism targets the vagueness of the creative process. When was Pinocchio created? Is it a creation of Collodi? Or is it a fictional character resulting from a tradition and very long creative process? Is the creation of Pinocchio actually finished? Thomasson (1999: 7, 165) acknowledges that sometimes the creation process is diffuse. However, as stressed by Berto (2013: xiii), if the conditions of creation are fuzzy, and if these conditions of creation form part of the identity conditions of fictional characters, then the identity conditions will inherit this fuzziness. Let us assume, as Voltolini (2006: 59), that there is a possible world in which Collodi only writes (or merely thinks) 'Mastro Cherry happened to come across a thing', and then stopped writing (or thinking). Is it sufficient for generating Pinocchio, the same as in our world? Why not? Should we expect from the author a more substantial act of creation, for example by writing (or thinking) 'how it happened that Mastro Cherry, carpenter, found a piece of wood that wept and laughed like a child'? Would it be sufficient? Why? What are the limits of the creative process? According to Thomasson, fictional entities are generated by a creative intentional act. However, how can this act be individuated if the content of this act (and the properties of the fictional character) is not relevant for the identity of the fictional characters? As highlighted by Voltolini (2006), if a fictional character is a constructed entity, an account of its identity and its conditions of creation must involve an account of its properties. This led Voltolini to defend a moderate creationism, a syncretistic ontology, in which a set-theoretical element (a set of properties) is combined with a game-theoretical one (a game of *make-believe*). The properties are those mobilized in a game of *make-believe* in which the author is engaged while writing a certain text. A *fictum* is created when the author herself recognizes in a reflexive stance that such a set of properties is ascribed to a given individual.⁴

⁴ See also Voltolini (2012: 563): "a reflexive stance in which such a [make-believe] process is taken as mobilizing a certain set of properties, the properties ascribed to a given pseudoindividual within that process. [...] That stance manifests itself in one's engaging in a piece of extrafictional discourse of the sort 'FC is a fictional character', where 'FC' is a singular term standing for a fictional entity. Once that reflexive stance occurs, a certain *fictum* arises." For the notion of make-believe, see Walton (1990).

In this paper, we also advocate a kind of syncretism, by considering literary fictional characters according to a double mode of individuation, reflecting the external and internal viewpoints. Rather than a *make-believe* process, we situate the birth of a fictional character in an achieved act of codification.⁵ According to Fontaine and Rahman (2014: 509), codification is a ‘completed linguistic act (or process) that has been made public’. The author fixes a codex or a canon, by means of which some constructive instructions are given, in the same way instructions are given in order to construct a proof or a canonical object in Constructive Type Theory.⁶ For example, Conan Doyle wrote, finished and made public a story describing the fictional character, and by this act, a canonical fictional entity comes to be part of the world. The codification act yields a constructive process type that can be repeated (by the readers) and by means of which an object is intentionally constructed. On the one hand, the codification provides a canonical element of a given type in relation to a fixed time point, relevant for rigid historical dependence. On the other hand, it explains how different intentional agents have access to the same fictional entity (in the same way different agents can talk of the same proof, for example), relevant for generic constant dependence. This assumes a closer relation of the *fictum* to the properties ascribed to it in a text since the beginning of its existence. Before the end of the process of construction, there might be at best a succession of ephemera intentional objects with fuzzy identity conditions, but there is no literary fictional character. An intuitive understanding of what is an achieved codification act will be sufficient here. What is important is to recognize the intrinsic relation of fictional characters to a descriptive component, determined by the set of instructions codified in a literary work.

3. World Lines Semantics

According to Thomasson (1999), we can offer identity conditions for fictions at least as clear as for concrete entities. If fictional characters are existent abstract artifacts, we can refer rigidly to them as soon as an initial baptism has been (intentionally) performed by the author. The reference of a name thus introduced can be transmitted along a chain of dependencies, in a way similar to Kripke’s (1980) causal chain of transmission. Thomasson (2003) articulates external and internal viewpoints on fiction by completing her account of fictional discourse with a pretence theory, in which the intentions of the authors are essential. Assertions of the internal viewpoint are not genuine assertions, they are pretended assertions.⁷ They can be *de re*, either by referring to real entities or existing abstract artifact.⁸ In “Frankenstein is a creation of Dr Frankenstein and a creation of Mary Shelley”, it is asserted that Frankenstein is a creation of Mary Shelley, but it is only pretended that it is a creation of Dr Frankenstein. (2003: 214) Cross-fictional identity is not

⁵ Our thesis is not incompatible with the introduction of a make-believe component; although we are not generally inclined to agree with make-believe theories (see Woods and Isenberg (2010) and Woods (2018) in this respect).

⁶ More details on Constructive Type Theory can be found in Martin-Löf (1984). A more recent introduction to Constructive Type Theory, including the notions of e.g. proof-objects and canonical objects can be found in Rahman et al. (2018).

⁷ That is, even though the author does not believe what he says, he does not tell a story with the intention of lying. He only pretends to assert. See Searle (1975) for more details on pretended assertions in fictional discourse.

⁸ Whereas *de re* pretense involves genuine reference (to an abstract artifact or a real entity), *de dicto* pretense would also involve pretended reference.

problematic either. Since we begin with the abstract artifacts we baptize in the actual world, an author can refer to already existing fictional characters, created by someone else, and pretend to assert other things about it. The only (necessary) condition is that the author of L must be competently acquainted with x of K and intend to import x into L as y. (1999: 67)

However, as stressed by Voltolini (2012: 565), an author may have the intention to merge (or split) two fictional characters; e.g. the intention to import different characters X and Y in a story S as a unique character Z in another story S' (to import a character Z of S as X and Y of S' , respectively). For example, in the 1912 version of Proust's *In Search of Lost Time*, the musician Berget and the naturalist Vington occur. In the final version, there is a fusion and only Vinteuil occurs. By transitivity of identity, given that $X \neq Y$, if $Z = X$, then $Z \neq Y$. And if $Z = Y$, then $Z \neq X$. Therefore, *de re* pretended assertions concerning Z cannot be *de re* pretended assertions about both X and Y . Therefore, something goes wrong with the 'Kripkean' solution of (cross-)fictional identity problem offered by Thomasson. Questions of identity in fictional contexts must be set otherwise.

First, fictional characters are entities that appear under different perspectives (external and internal). Both perspectives can be articulated in a modal framework, with respect to a plurality of alternative worlds. They are intrinsically intentional entities and cannot be reduced to any of their apparitions. Second, fictional characters can merge or split. We must therefore distinguish between identity of fictional characters themselves and identity of their manifestations under different perspectives. That is why Hintikka's world line semantics, in which individuals are represented by world lines that connect objects of different worlds, constitutes a good candidate to understand fictions by extending the semantics for ontological dependences of Fontaine and Rahman (2014) with a semantics for the fictionality operators. Not only the notion of world line seems particularly well-suited to represent fictional characters according to a double perspective, but it also provides a powerful framework for a more fine-grained analysis of identity in fiction, whether it be intra or cross-fictional.

Hintikka (1962) interprets intentional verbs, such as "to know" and "to believe", in terms of intensional operators, the semantics of which is given in a structure consisting of alternative states of affairs, or possible worlds. Roughly, "the agent α believes that φ " means that φ is true in every world compatible with α 's beliefs. A world w is compatible with the agent α 's set of beliefs in w_0 if what is believed by the agent α in w_0 is true in w . Various other intentional relations, including fictional representations, can be modelled in the same way. Difficulties begin with cross-world quantification, since we must be able to refer or to quantify over the same individual in different possible worlds. Yet, as stressed by Tulenheimo (2017: 3 ff., 11-12), the only unproblematic notion of identity is the notion of extensional identity; i.e., identity within one and the same world.⁹ Therefore, what does it mean to say that an object X in a world w_1 is the same as an object Y in a world w_2 , with $w_1 \neq w_2$?

At the starting point of Hintikka's world lines semantics is this attitude which consists in recognizing the problematic nature of identity in modal settings. This yields an approach radically different from Kripke (1980), according to which we

⁹ Tulenheimo (2017: 5-9) shows that those who consider that cross-world identity is not problematic actually assume non-trivial principles. Therefore cross-world identity is not unproblematic.

begin with the objects we talk about and we stipulate other possible worlds in which they behave differently. Since proper names are rigid designators (i.e., they have the same reference in every possible world), we need not identify individuals across the worlds and there is no cross-world identity problem.¹⁰ According to Hintikka and Sandu (1995), Kripke's solution is begging the question: it presupposes cross-world identity instead of clarifying the problem. Before quantifying across the worlds, we must explain what it means when we say that an individual X in a world w_1 is the same as an individual Y in a world w_2 , with $w_1 \neq w_2$. Only after, it will be possible to explain what it means for a proper name to be a rigid designator. Finally, Kripke's approach ends in a confusion between the system of individuals (these entities over which we quantify) and the system of references (and, possibly, the notion of rigidity).¹¹

So, how to make sense of modal language, and cross-world quantification in particular? We must presuppose a notion of individual that is not reduced to its manifestations in different possible worlds, but that nevertheless links such apparitions across these possible worlds. It is Hintikka's notion of world line:

[I]n a context involving modal notions individuals have to be considered as members of several different possible worlds. An individual virtually becomes, for logical purposes, tantamount to the 'world line' [...] connecting its manifestations in these possible worlds. Hintikka (1970a: 870)

Given a modal framework, each possible world has its proper domain of (world-bounded) objects. In addition, a set of individuals that manifest themselves in different possible worlds, by taking the appearance of world-bound objects, is presupposed. Individuals are not part of any world in particular; they are supposed to be these entities that have manifestations in various possible worlds. When we say that an object X in a world w_1 is the same as an object Y in a world w_2 , we mean that X and Y are linked by one world line, in other words, that X and Y are the manifestations of the same individual in different possible worlds. In a modal framework, the quantifiers now range over individuals conceived as world lines, and not over simple world-bound objects. From a formal viewpoint, world lines are introduced as mathematical functions, whose argument is a possible world w and whose value is an object of the domain of that world w . To put it in Hintikka's term:

[E]ach individual in the full sense of the word is now essentially a function which picks out from several possible worlds a member of their domains as the 'embodiment' of that individual in this possible world or perhaps rather as the role which that individual plays under a given course of events. Hintikka (1970b: 412)

Although individual functions are not strictly speaking the world lines – they are their mathematical representation – we will speak of them in terms of world lines, or even individuals, since there is a correspondence one-to-one between them. In the following definition of the formal language and its semantics, we follow Tulenheimo (2017: 30 ff., 68 ff.).

¹⁰ See Kripke (1980: 49): "Those who have argued that to make sense of the notion of rigid designator, we must antecedently make sense of 'criteria of transworld identity' have precisely reversed the cart and the horse; it is because we can refer (rigidly) to Nixon, and stipulate that we are speaking of what might have happened to him (under certain circumstances), that 'transworld identifications' are unproblematic in such cases."

¹¹ See Hintikka and Hintikka (1989: 159-60) on the mutual independence of the system of references and the system of individuals.

[D1][LANGUAGE] Let Var be a set of variables and τ be a relational vocabulary (a set of predicate symbols). For all $n \geq 0$, τ_n is the set of n -ary predicate letters. Constant symbols are elements of τ_0 (nullary predicate letters). The set $Term$ is the set $Var \cup \tau_0$. Syntactically, they behave similarly, but semantically, the values of variables are world lines whereas the values of individual constants are local objects.

The quantified modal language $L[\tau]$ of vocabulary τ is built according to the following syntax:

$$\phi ::= Q(t_1, \dots, t_n) | t_1 = t_2 | \neg\phi | \phi \wedge \phi | \phi \vee \phi | \phi \rightarrow \phi | \Box\phi | \Diamond\phi | \forall x\phi | \exists x\phi$$

where $n \geq 1$, $Q \in \tau_n$, $\langle t_1, \dots, t_n \rangle \in Term$ and $x \in Var$. Notice that \Box and \Diamond can be interpreted as various intensional operators, not only necessity and possibility, but also as belief, knowledge and fictionality operators among others.

[D2][MODEL] A model is a structure $M = \langle W, R, \mathcal{J}, Int \rangle$. W is the non-empty set $dom(W)$ of worlds w , each w having its own non-empty set $dom(w)$ of local objects. R is a relation on W . $R(w)$ is the set $\{w' : R(w, w')\}$. Int is a function assigning to every n -ary predicate Q of τ and element w of W a subset $Int(Q, w)$ of $dom(w)^n$, and to every individual constant c of τ_0 and world w an element of the set $dom(w) \cup \{*\}$, where $* \notin \bigcup_{v \in W} dom(v)$ ($Int(c, w) = *$ indicates that c has no referent in w). \mathcal{J} is a collection of sets \mathcal{J}_w with $w \in W$, and each element $\mathbf{I} \in \mathcal{J}_w$ is a non-empty partial function on W , assigning an element of $dom(w')$ to every w' on which this partial function is defined.

Although \mathcal{J} is a collection of sets \mathcal{J}_w with $w \in W$, world lines do not form part of any world in particular. The sets \mathcal{J}_w corresponding to each w are the sets of world lines *available* in a world w ; i.e., the world lines that are available to quantification. This does not mean that these world lines are *realized* in w either, since a world line can be available in world w without being realized in that world, and vice versa. Objects of thought, for example, need not be existing objects, even when they are available to quantification. Existing objects might not be available; e.g. if someone does not remember an existing thing. If $\mathbf{I} \in \mathcal{J}_w$, and w' is a world in which \mathbf{I} is defined, its value $\mathbf{I}(w')$ is the realization of \mathbf{I} in w' . If this is the case, we can say that \mathbf{I} exists in w' . The domain of world lines of M is the set $\bigcup_{w \in W} \mathcal{J}_w$, denoted $WL(M)$.

[D3][ASSIGNMENT] An assignment in M is a function of type $Var \rightarrow WL(M)$. If g is an assignment defined on x , then $g(x)$ is a world line. If this world line is realized in w , the result $g(w)(x)$ of applying the function $g(x)$ to the world w is a local object belonging to $dom(w)$. If g is an assignment and \mathbf{I} is a world line, $g[x := \mathbf{I}]$ stands for assignment that differs from g at most in that it assigns \mathbf{I} to x .

The value of a term is defined for variable and individual constants. The value of a variable is a world line. The interpretation of a constant c in a world w can be empty. It is also non-rigid; i.e., its value need not be the same for every possible world.

[D4][VALUE OF A TERM] Value $t^{M,w,g}$ of term t in model M at world w under assignment $g: Var \rightarrow WL(M)$:

$$t^{M,w,g} = Int(t, w) \text{ if } t \in \tau_0 \text{ and } Int(t, w) \neq *.$$

$$g(t)(w) \text{ if } t \in Var \text{ and } g(t) \text{ is realized in } w.$$

[D5][TRUTH IN A MODEL] Truth is defined with respect to a model M , a world w and an assignment g as follows:

- $M, w, g \models Q(t_1, \dots, t_n)$ iff for all $1 \leq i \leq n$, the value $t_i^{M,w,g}$ of the term t_i in M at w under g is defined, and the tuple $\langle t_1^{M,w,g}, \dots, t_n^{M,w,g} \rangle$ belongs to $Int(Q, w)$.
- $M, w, g \models t_1 = t_2$ iff for all $i \in \{1, 2\}$, the value $t_i^{M,w,g}$ of the term t_i in M at w under g is defined and $t_1^{M,w,g}$ equals $t_2^{M,w,g}$.
- $M, w, g \models \neg\phi$ iff $M, w, g \not\models \phi$.
- $M, w, g \models \phi \wedge \psi$ iff $M, w, g \models \phi$ and $M, w, g \models \psi$.
- $M, w, g \models \phi \vee \psi$ iff $M, w, g \models \phi$ or $M, w, g \models \psi$.
- $M, w, g \models \phi \rightarrow \psi$ iff $M, w, g \not\models \phi$ or $M, w, g \models \psi$.
- $M, w, g \models \Box\phi$ iff for all world w' with $R(w, w')$, we have: $M, w', g \models \phi$.
- $M, w, g \models \Diamond\phi$ iff there is at least one world w' such that $R(w, w')$ and $M, w', g \models \phi$.
- $M, w, g \models \forall x\phi$ iff for all $I \in \mathcal{J}_w$: $M, w, g[x := I] \models \phi$.
- $M, w, g \models \exists x\phi$ iff there is $I \in \mathcal{J}_w$ such that $M, w, g[x := I] \models \phi$.

Quantifiers range over the set \mathcal{J}_w , the elements of which are said to be available in w . And they can be available without being realized in w , so that quantification is not ontologically committed. The interpretation of predicates and individual constants in a world w is defined over the local objects pertaining to $dom(w)$. Individual constants are interpreted non rigidly; that is, their reference is world-relative and need not be the same in every world. Identity is also world-relative: it is the relation that every local object entertains with itself. Identity is contingent: two names can have the same interpretation in one world but not in another, and the realizations of two world lines can coincide in one world but not in another (without any further assumptions, world lines can split and merge). As stressed by Hintikka and Sandu (1995), Existential Generalization fails if we do not assume that an individual constant is associated with the manifestations of a unique individual. That is, the inference from $\Box Ak$ to $\exists x\Box Ax$ is valid only if the extra-premise $\exists x\Box k = x$ is added.¹²

It is worth noting that positing world lines does not entail commitment to a kind of descriptivism, nor must they be identified with Fregean senses. First, world lines are not means to identify individuals; they are the individuals we quantify over. So, we should not expect of world lines that they provide a means to identify their realizations. How the world lines are drawn is a very complex matter we cannot deal with here. In general, they are drawn by an agent and they are context relative (i.e. relative to a modality and a relevant modal framework). Actually, the set of world lines available to an agent α and relative to her set of beliefs needs not be the same as the set of world lines available to another agent β .¹³ Probably, world lines are drawn by assuming criteria of identification, not necessarily descriptive. The fact that such criteria are not infallible, and that the re-identification process might fail on some occasions, explains why the world lines might split or merge, and why identity is contingent. However, this does not mean that world lines are criteria of identification, or even that they would assume recognizing essences. Second, such senses or criteria of identification could not be expressed in the language. As emphasized by Hintikka and Sandu (1995: 249), their expression in the language would involve cross-world quantification. And cross-world quantification would assume that world lines have already been drawn. That is, identity would be explained by presupposing cross-world identity, and the proposal would be doomed to circularity. The semantic role of world lines must be carefully distinguished from epistemic and cognitive considerations that would explain how they are drawn by an

¹² See also Fontaine (2017) for more details on the failure of Existential Generalization in the world lines semantics.

¹³ See Hintikka (1967: 416).

agent. From a semantic perspective, world lines are nothing more but a precondition for first order modal language and cross-world quantification. This is, according to Tulenheimo (2017: 20), the ‘transcendental interpretation’ of world lines, by contrast with the rejected ‘epistemic interpretation’.¹⁴

Despite the formal similarities, the notion of world line should not be identified with the notion of individual concept either. The notion of world line is not language-relative. The mere introduction of a new individual concept does not amount to the creation of a new individual we can talk about; i.e. a new individual available for quantification. The use of an individual concept does not assume that different objects in different worlds be connected by a unique world line either. For example, the world-relative values of the individual concept “the actual President of France” needs not constitute what we would naturally be inclined to count as an individual. Following Carnap (1947), individual concepts are usually defined as functions that select for every context an individual as the referent of a given singular term. By contrast, the value of a world line in a possible world is a local object. Local objects are not individuals; i.e. they cannot be values of quantified variables. Thus, if the value of an individual concept is an individual and a local object is not an individual, then a local object cannot be the value of an individual concept. Henceforth, world lines and individuals concepts cannot coincide.¹⁵

Similarities might also be found with Lewis’s counterpart relations. Indeed, as in Lewis (1986), the problem of cross-world identity is recognized and local objects are world-bound. However, unlike Lewis, our individuals are not local objects. The notion of local object is a semantic notion that allows defining the interpretation of non-logical constants, whereas it is for Lewis a metaphysical notion. They are not what we quantify over. Whereas Lewis explains quantification in terms of counterpart world-bound individuals, we quantify over world lines.¹⁶

4. A Double Mode of Individuation

The interpretation of a predicate in a world w is a tuple of objects pertaining to $dom(w)$. Nonetheless, the semantics allows for intentional predication, considered with respect to tuples of world lines and their manifestations in various possible worlds. For example, if the agent α intentionally ascribes “--- is the friend of Watson” to an individual, a world line I satisfies the intentional predicate “--- is the friend of Watson” in every world compatible with α ’s representations. In this section, we characterize literary fictional characters in a modal framework by means of a double mode of individuation defined by two kinds of intentional predications. Indeed, following Fontaine and Rahman (2014: 513), we say that an individual I is a literary fictional individual if and only if it is an ontologically dependent abstract artifact (external perspective) and it has the characterizing properties in the worlds (partially) described by the relevant story (internal perspective). This means that I satisfies two complex intentional predicates, reflecting the two perspectives involved in its individuation.

¹⁴ About this distinction, and the rejection of the epistemic interpretation (i.e. the interpretation of world lines as means of recognizing an individual), see Tulenheimo (2017: 20-24).

¹⁵ Different interpretations assimilating the notions of world lines and individual concepts have been proposed, e.g. by Aloni (2001, 2017).

¹⁶ For more details on what world lines are see Hintikka (1969), but see also Tulenheimo (2017) for what they are not and possible sources of confusions with other proposals.

More precisely, according to Tullenheimo (2017: 36), for any n -ary predicate Q , the semantics induces an $(n + 1)$ -ary relation R_Q as follows: $\langle \mathbf{I}_1, \dots, \mathbf{I}_n, w \rangle \in R_Q$ iff all world lines $\mathbf{I}_1, \dots, \mathbf{I}_n$ are realized in w and $\langle I_1(w), \dots, I_n(w) \rangle \in \text{Int}(Q, w)$. Formulas $Q(x_1, \dots, x_n)$ with n free variables can be seen as n -ary intensional predicates. An n -tuple $\langle \mathbf{I}_1, \dots, \mathbf{I}_n \rangle$ satisfies the intensional predicate $Q(x_1, \dots, x_n)$ in a world w iff $\langle I_1(w), \dots, I_n(w) \rangle \in \text{Int}(Q, w)$. The predicate $\phi(x_1, \dots, x_n)$ applies in M in w to those n -tuples of world lines that satisfy it in M at w . By means of the following definition of semantic value, we give a general definition of intentional predication:

[D6][SEMANTIC VALUE] Let M be a model, and let $\phi(x_1, \dots, x_n)$ be a formula of the language L_0 . The semantic value $|\phi(x_1, \dots, x_n)|^M$ of ϕ in M is the set of all $(n + 1)$ -tuples $\langle w, \mathbf{I}_1, \dots, \mathbf{I}_n \rangle \in \text{dom}(M) \times \text{WL}(M)^n$ such that: $M, w, x_1 := \mathbf{I}_1, \dots, x_n := \mathbf{I}_n \models \phi(x_1, \dots, x_n)$.

If ϕ is a sentence, then $|\phi|^M$ is a (possibly empty) subset of $\text{dom}(M)$ – namely, the set of worlds w at which ϕ is true in M .

[D7][INTENTIONAL PREDICATION] Ascribing $\phi(x_1, \dots, x_n)$ to the tuple of world lines $\langle \mathbf{I}_1, \dots, \mathbf{I}_n \rangle$ in w_0 under the intentional mode relative to a state i is to affirm that $\langle w, \mathbf{I}_1, \dots, \mathbf{I}_n \rangle \in |\phi|^M$ for all worlds $w \in R_i(w_0) \cap \bigcap_{1 \leq j \leq n} \text{marg}(\mathbf{I}_j)$.

The domain of the partial function \mathbf{I}_j is its modal margin, denoted $\text{marg}(\mathbf{I}_j)$. $R_i(w_0)$ is the set of world accessible from w_0 under the modality i . Intentional predicates can be built from complex formulas, such as $\Box(P(x) \rightarrow Q(x))$ that can be applied to world lines such that in every w in which its realization satisfies $P(x)$, it also satisfies $Q(x)$.

Now, ontological dependence relations can be conceived in terms of intentional predicates whose semantics is given in a modal-temporal framework in accordance with Fontaine and Rahman (2014), by applying them *mutatis mutandis* to world lines and their realizations in the worlds compatible with creation.¹⁷ Let $R_c(w_0)$ be the set of worlds compatible with creation in w_0 ; i.e., worlds in which conditions of creations are the same as in w_0 . If an artifact is created in w_0 , and if $w \in R_c(w_0)$, then the artifact must be related in a certain way to its creator in w as well. Let \mathbf{I} be the literary fictional individual whose manifestations are called ‘Holmes’ and \mathbf{J} the individual whose manifestation is called ‘Conan Doyle’ in the actual world. Holmes is historically rigidly dependent on Conan Doyle in w_0 if and only if for every $w \in R_c(w_0)$, if $\mathbf{I}(w) \in \text{Dom}(w)$, then $\mathbf{I}(w)$ and $\mathbf{J}(w)$ satisfy the conditions specified in Fontaine and Rahman’s semantics (in particular that $\mathbf{J}(w) \in \text{Dom}(w)$, possibly at a previous instant of time). The other dependencies are defined in the same way, although generic dependences are defined with respect to a set, and not an object.¹⁸ In this paper, we now assume that a literary fictional character satisfies a complex intentional predicate \mathfrak{R} (i.e. $\mathbf{I}(w_0) \in \text{Int}(\mathfrak{R}, w_0)$) holding for a set of relevant ontological dependence relations defined in a modal(-temporal) framework. We can refer to $R_c(w_0) \cap \text{marg}(\mathbf{I})$ as the external-perspective modal margin of \mathbf{I} , by means of which is defined the first mode of individuation of literary fictional characters.

Then, the internal viewpoint is relative to truth in fiction. The characterizing properties are those properties attributed to the fictional character in the worlds compatible with the relevant fiction, namely the fictional work arising from an achieved codification act. The worlds compatible with the fiction need not coincide with the worlds compatible with creation. Indeed, in the worlds compatible with A

¹⁷ For the sake of simplicity, we omit the temporal parameter.

¹⁸ See Fontaine and Rahman (2014: 510) for more details.

Study in Scarlet, Holmes takes the appearance of a concrete human being and has not been created by Conan Doyle. Internal viewpoint is made explicit by fictionality operators. Let $[F]$ and $\langle F \rangle$ be such operators. Their intending meaning is “according to the fiction...” and “it is compatible with the fiction that...”, respectively.¹⁹ An index can be added to the operator in order to explicit the relevant fiction (e.g. $[F]_{Hamlet}$ if the relevant fiction is *Hamlet*). Let $R_{\mathcal{F}(\rho)}(w_0)$ be the set of worlds compatible with the fiction ρ in w_0 , the two following clauses can be added to the semantics:

- $M, w, g \models \langle F \rangle_{\rho} \phi$ iff for at least one $w' \in W$: $w' \in R_{\mathcal{F}(\rho)}(w)$ and $M, w', g \models \phi$, and
- $M, w, g \models [F]_{\rho} \phi$ iff for every $w' \in W$ such that $w' \in R_{\mathcal{F}(\rho)}(w)$: $M, w', g \models \phi$.

A literary fictional character satisfies a complex intentional predicate of the form $[F]_{\rho} \phi(x)$ (i.e. $\mathbf{I}(w_0) \in Int([F]_{\rho} \phi(x), w_0)$) holding for a set of relevant relations applied to the realization of \mathbf{I} in the world w compatible with the fiction ρ . We can refer to $R_{\mathcal{F}(\rho)}(w_0) \cap marg(\mathbf{I})$ as the internal-perspective modal margin of \mathbf{I} , by means of which is defined the second mode of individuation of literary fictional characters. By combining these two intentional modes of predications, we can characterize a literary fictionally individuated world line in a modal framework.

[D8][LITERARY FICTIONAL INDIVIDUAL] Let \mathcal{A} be the class of fictionally individuated world lines, with \mathcal{A}_w the set of such world lines available in w . An individual $\mathbf{I} \in \mathcal{A}_{w_0}$ if and only if it satisfies the two following conditions:

- $\mathbf{I}(w_0) \in Int(\mathfrak{R}, w_0)$, where \mathfrak{R} is a set of intensional predicate holding for the relevant ontological dependencies.
- $\mathbf{I}(w) \in Int(\Phi, w)$ for every $w \in R_{\mathcal{F}(\rho)}(w_0) \cap marg(\mathbf{I})$, where Φ is a set of intensional predicates holding for the internal properties of \mathbf{I} (the properties it has in the worlds compatible with the relevant fiction).

The class \mathcal{A}_w consists of a particular class of existing intentional entities, the so-called abstract artifacts existing in w .²⁰ In accordance with the ATF, ontological dependence relations are existence-entailing. Although they are intentional predications, the clause (i) can be satisfied by a world line \mathbf{I} in a world w only if $\mathbf{I}(w) \in dom(w)$. Clause (ii) is concerned with predicates satisfied by a world line in every world $w \in R_{\mathcal{F}(\rho)}(w_0)$.

An individual $\mathbf{I} \in \mathcal{A}_{w_0}$ may connect abstract and concrete objects along one and the same world line. This might run counter understandings of abstract objects according to which abstractness is necessary. However, here, abstractness must be understood in relation to the individual’s external-perspective modal margin, in the worlds of which the manifestation of \mathbf{I} is always an abstract artifact. It can take the appearance of a concrete detective in the worlds pertaining to its internal-perspective modal margin, but these worlds need not be compatible with creation.

The internal-perspective mode of individuation is relative to the semantics of the $[F]$ -operator and the notion of truth in fiction. This might lead to complications. However, in order to articulate both viewpoints on fiction in view of a general characterization of literary fictional characters in a modal framework, we need not a detailed study of the semantics of the fictionality operator. In this paper, we

¹⁹ The fictionality operator has been introduced by Woods (1974) in order to distinguish explicitly the external and the internal viewpoints on fiction. A modal interpretation of the fictionality operator was proposed by Lewis (1978).

²⁰ Tulenheimo (2017: 68 ff.) makes use of two pairs of quantifiers in order to explicitly distinguish between quantification over physically individuated and intentionally individuated world lines. Such distinctions are not necessary regarding the issue dealt with in this paper.

consider that $[F]$ relates to the content of a fictional work; i.e. the logical consequences of what is explicitly said in a literary composition (the sentences of a literary text written by a determinate author). For example, in Zola's *Germinal*, Toussaint Maheu is explicitly presented as a human being. Let M be a relevant model, with w_0 be the actual world:

$$(1) M, w, g \models [F]_{Germinal} Human(Maheu)$$

Indeed, given the content of *Germinal*, $Human(Maheu)$ is true in every world compatible with the fiction. By contrast, although it is explicitly said that the weight of Maheu's mine cart was seven hundred kilograms, it is not said anything with respect to Maheu's own weight. Let W for the predicate “--- weighs more than 100 kg”. It is left undetermined whether Maheu weighs more or less than 100 kg, so:

$$(2) M, w, g \not\models [F]_{Germinal} W(Maheu)$$

$$(3) M, w, g \not\models [F]_{Germinal} \neg W(Maheu)$$

Nothing strange here, this is because several properties and facts are left undetermined by the authors, and qualitatively different worlds can be compatible with the same fiction. Actually, the same applies to other intentional modalities. For example, an agent's set of beliefs can be partially undetermined, in which case different possible worlds are compatible with that agent's intentional state. This does not entail that the corresponding possible worlds must be incomplete worlds. In our semantics, if being ascribed W is left undetermined, it is true of the character in some worlds compatible with the fiction, and it is false of the same characters in other worlds compatible with the same fiction, so:

$$(4) M, w, g \models \langle F \rangle_{Germinal} W(Maheu)$$

$$(5) M, w, g \models \langle F \rangle_{Germinal} \neg W(Maheu)$$

Actually, whereas $[F]$ is a content-relative operator, $\langle F \rangle$ is interpretive-relative. Indeed (4) and (5) reflect the various possible interpretations of a fictional work. If nothing is said with respect to Maheu's weight in *Germinal*, two interpretations of *Germinal* are possible with respect to the predicate W . Here, it should be stressed that even if we could modify the view for (Lewisian) modal realism, we treat worlds as conceptual machinery useful for semantics purpose. When we talk in terms of ‘worlds’, ‘possible worlds’, or ‘worlds compatible with the fiction’, we do not mean something like ‘the world of the fiction’, which might be conceived as a reality distinct from ours. Actually, one of the main interests of worlds semantics is that it allows distinguishing between content and interpretation in relation to a plurality of alternative compatible with fiction, as Hintikka (1962) does with other intentional relations such as knowledge and belief.

Truth in fiction appeals a deeper study of inference in fiction: (4) and (5) rely on complex inferences based on actual truths; namely that human beings have a determinate weight. It might be objected that what is referred to by ‘human’ in *Germinal* is only a kind of fictional human, with different properties. We could also question the laws of logic themselves. If we pay a peculiar attention to the reader's perspective, there is no need for drawing inference concerning Maheu's weight in order to understand the fiction. In the same vein, a reader never draws all the logical consequences entailed by the content. In practice, this would demand unsustainable efforts. However, such inferences can be reflected in some of its particular interactions with the text. This point can be clarified by making reference to Woods's (2013: 24; 2018: 14) distinction between consequence-having and consequence-drawing. Consequence-having occurs in the logical space and is concerned with the

entailment-relation, independently of the agents. Consequence-drawing occurs in the psychological sphere; that is, how the agent actually infers conclusions from a set of premises. Consequence-drawing is not possible without consequence-having, since an agent cannot draw conclusions there is not. But the agent cannot infer (and imagine) all the logical consequences of the content. Interpretations might be given a dynamic turn and be explicitly related to intentional agents, or readers. Here, our modal framework serves the purpose of consequence-having, within its limits. It nevertheless provides the conditions of possibility for consequence-drawing in terms of a plurality of interpretations. That is, it provides the space in which the interpretive efforts of the reader could take place, by relying on certain inference rules or other reading hypotheses.

Interpretations usually import truths from the actual world. For example, in fiction, Maheu inherits most of the main features of human beings; e.g. having a weight, having a spine, having a mother. According to Woods’s “no spine-no readers thesis” (2017, 82), fictional experience would even be impossible in the absence of such principles, and the story would have no readership. Other similar principles can be expressed otherwise; for example Friend’s (2017) Reality Assumption that the real world must serve as a foundation of fictional worlds, or Woods and Isenberg’s (2010) Anti-closed World Assumption that real facts that are not untrue in fiction can be imported as defeasibly true in fiction. Priest (2005: 89) too, allows an object to vary arbitrarily outside its determined properties in the limits of the constraints imposed by existing objects. In general, given a predicate P , if it is not said anything about $P(x)$ as applied to a world line \mathbf{I} in a fiction, there will be worlds $w_i \in R_{\mathcal{F}}(w_0)$ in which $\mathbf{I}(w_i) \in \text{Int}(P, w_i)$ and other worlds $w_j \in R_{\mathcal{F}}(w_0)$ in which $\mathbf{I}(w_j) \notin \text{Int}(P, w_j)$. Then, our semantics is compatible with the introduction of more specific principles of interpretation. Since such a precision is not required for our proposal, we will not go further into their definition here.²¹

Explosion is a classically valid inference. It allows to infer an arbitrary formula ψ from an inconsistent set of premises containing an occurrence of a formula φ and its negation $\neg\varphi$. Inconsistency and explosion might yield what Wildman and Folde (2017) call ‘universal fiction’; i.e. a complete fiction in which everything is true. If everything is true, then everything is true of every character in the fiction and they all have the same properties. Then, how can [D8] be applied if, as it is often the case, a fiction is inconsistent? Perhaps, if nothing corresponds to inconsistencies, then nothing is created. Nonetheless, inconsistencies in Conan Doyle’s work do not seem to preclude the creation of Holmes. Following Lewis (1978: 46), we might rather minimally revise the fiction in terms of consistent fragments of the content. However, how would it make sense to consistently revise the content of, for example, a story about a controversial architect who has scandalized the Parisians by rebuilding Notre-Dame with a blasphemous round-square spire? That is why, following Hintikka (1975), Rantala (1982a, 1982b), and later Priest (2016), we open the door to a non-normal interpretation of fictionality operators and impossible worlds; i.e. we abandon the presupposition that worlds compatible with fiction are logically possible worlds. Inferences in fiction are not governed by classical logic

²¹ The study of inferences in the scope of the fictionality operators would help to determine truths that are not explicit. By contrast, as stressed by Heyd (2006: 2011), if the narrator is not reliable, then it is the explicit content that is could become untrue. Whereas she defends a pragmatic solution based on Gricean maxims, we might provide an explanation at the level of interpretation or in terms of embedded propositional attitudes (by considering the narrator as telling the story within the fiction).

anymore, in particular regarding the validity of explosion. Formally, we treat inconsistencies of the form $\varphi \wedge \neg\varphi$ like Boolean atoms and by attributing them a truth value in these impossible worlds, independently of their apparent compositional structure. Since $\varphi \wedge \neg\varphi$ can be true whereas not every formula ψ is, explosion is invalidated.²² In order to preserve quantification, Priest (2016, 17 ff.) introduces matrix: formula $\varphi(x_1, \dots, x_n) \wedge \neg\varphi(x_1, \dots, x_n)$, where x_1, \dots, x_n are free singular terms, are not interpreted like atoms of the form ψ , but as matrix of the form $\psi(x_1, \dots, x_n)$.²³ Definition [D8] can thus be applied to inconsistent fictions, although the details of such technicalities go beyond the scope of this paper.

Finally, it must be noticed that definition [D8] does not entail incompleteness or inconsistency in w_0 of fictionally individuated world line available in w_0 . Indeed, a literary fictional character is individuated according to its internal-perspective modal margin and the properties it has in every world compatible with the relevant fiction. Therefore, in (2) and (3), $[\mathcal{F}]_{\text{Germinal}}W(x)$ and $[\mathcal{F}]_{\text{Germinal}}\neg W(x)$ can be conceived as two intentional predicates from the perspective of w . And for each of them, Maheu satisfies it or not. That is, (2) and (3) are perfectly compatible with:

- (6) $M, w, g \models \neg[\mathcal{F}]_{\text{Germinal}}W(\text{Maheu})$
- (7) $M, w, g \models \neg[\mathcal{F}]_{\text{Germinal}}\neg W(\text{Maheu})$

From the real world perspective, a literary fictional character is thus fully described in terms of intentional predications. Other predicates applied only in some (but not all) worlds compatible with fiction are not relevant for its individuation. And, as stressed before, this does not involve incompleteness within each world w compatible with the fiction.

To answer Howell (see section 2), what has been created by George Eliot is not just an abstract artifact, or a concrete weaver, called ‘Silas Marner’. It is a fictional world line, characterized by a double mode of individuation, which is not reducible to its manifestations. With respect to its external-perspective modal margin, it is an abstract artifact. As such, it can be famous or admired by readers, but it cannot be a weaver, a man or the betrayed by William Dane. With respect to its internal-perspective modal margin, it is a concrete weaver called ‘Silas Marner’. But none of its modal margins suffices alone for its individuation. Let I be the fictional character Silas Marner. Let Φ be a set of characterizing predicates, including the predicate P for “--- is a weaver”, let s be an individual constant for “Silas Marner”, and w be the actual world. $I \in \mathcal{A}_w$ if and only if:

- (8) $M, w, g[x/I] \models (\mathfrak{R}(x) \wedge [\mathcal{F}]_{\text{Silas Marner}}(\Phi(x) \wedge x = s))$

As a consequence, when someone admires a fictional character, he admires an abstract artifact that has almost none of the properties it is characterized as having in the fiction. Intentional relations, like “Olivia admires Holmes” can hold between a concretely existent human being (Olivia) and the manifestation of a literary fictional character (Holmes) in the actual world. It is true that the realization of Holmes in the actual world is an abstract artifact, but it does not affect this relation. It might be

²²Impossible worlds might also be used to represent the fact that readers never infer all the logical consequences of the content; in other words, to invalidate logical omniscience as in the original papers of Hintikka and Rantala.

²³A less costly and more neutral solution can be found in inconsistency-adaptive logics: we reason as classically as possible as long as we do not encounter inconsistencies, in which cases certain inferences can be defeated. However, its implementation in a model-theoretic setting is more complex, since it requires a dynamic notion of consequence relation, which turns out to be defeasible and non-monotonic, as in Batens and Meheus (2000). An alternative dialogical semantics in which the notion of truth plays no role can be found in Beirlaen and Fontaine (2016).

objected that the object of admiration of Olivia is not an abstract artifact, but a clever detective. However, this would at best give a reason of Olivia’s admiration, but it would not affect the meaning of “Olivia admires Holmes”. Actually, when it is said of Olivia that she admires a clever detective, the predication must be understood intentionally. That is, Olivia’s object of admiration is the manifestation of a world line, the realizations of which in every world compatible with her representation is a clever detective. Therefore, “Olivia admires Holmes” is not ambiguous; it expresses a relation between a concrete human being and an abstract artifact.²⁴ What can be ambiguous is the predication “-- is a clever detective” to her object of thought. Here, the double mode of individuation must be taken into account. From an external perspective, this sentence is simply false. But from an internal perspective, its truth can be explained in terms of intentional predication. Both can be made explicit in our modal framework. In fact, there is nothing specific to literary fictional characters here. An agent might admire Emmanuel Macron not for the properties he really has, but for properties the agent thinks he has. That is, in the worlds compatible with the agent’s representation, Macron would manifest himself with such properties.

It is worth noting that in “Olivia admires the detective Holmes”, the way we read the definite description may affect the meaning of the whole sentence.²⁵ This can be reflected by different unambiguous formulations:

- (9) $(\exists x)((\forall y)(y = \text{Holmes} \wedge D(y)) \leftrightarrow y = x) \wedge \text{Admires}(\text{Olivia}, x)$
(10) $(\exists x)((\forall y)(y = \text{Holmes} \wedge [\mathcal{F}]D(y)) \leftrightarrow y = x) \wedge \text{Admires}(\text{Olivia}, x)$

Since there is no detective called Holmes, the definite description has no referent in (9), which is false. In (10), $[\mathcal{F}]D(y)$ can be understood in relation to the intentional mode of predication (see definition [D7]), in which it is assumed that $D(y)$ is applied to the manifestations of an individual across the worlds compatible with the relevant fiction. Olivia’s intention is directed towards a world line; it involves a plurality of (local) objects connected by a world line. Olivia admires an abstract artifact, and this abstract artifact is the manifestation of an individual taking the appearance of a detective in the worlds compatible with fiction.

Let us conclude that section by insisting on the fact that [D8] is not a criterion of identification for the manifestations of a fictionally individuated world line. As we have already said (see section 3), criteria of cross-world identification cannot be expressed in the language. Since our criterion of individuation involves the apparitions of the same character in different possible worlds, it cannot tell us how to identify these apparitions across the worlds. World lines are a transcendental precondition of meaningfulness of intentional discourse. Moreover, since the world lines are the individuals we quantify over, they cannot be seen as a means to identify their manifestations (recall the transcendental interpretation of world lines in section 3). If their availability in terms of literary fictional individual in a given world can be spelled out precisely by this criterion of individuation, their identity across the worlds cannot. And we should not expect from our criterion that it does. So, to sum up, [D8] tells when a fictionally individuated world line is available for quantification in a world w . It does not say anything about the behaviour of fictionally individuated world lines beyond the worlds pertaining to $R_c(w_0)$ and $R_{\mathcal{F}}(w_0)$. For example, let I be Holmes, a fictionally individuated world line in w_0 . It

²⁴ See Priest (2016: 61 ff) for a similar analysis, but in a Noneist approach. Different proposals can be found; e.g. in Forbes (2000).

²⁵ I am thankful to an anonymous referee for this example.

must satisfy the clauses (i) and (ii). But, in worlds $w' \in R_{\mathcal{F}}(w_0)$, **I** needs not pertain to $\mathcal{A}_{w'}$ (it appears as a physical entity there). In worlds $w^* \in R_{\mathcal{F}^*}(w_0)$ (compatible with another fiction \mathcal{F}^* , or even other relations of intentionality) **I** could also appear with different properties.

5. Cross-Fictional Identity

According to our syncretistic definition [D8], if Collodi had performed a different codification act, by ascribing different properties to Pinocchio, he would have created a different Pinocchio. More generally, even if Collodi's Pinocchio is inspired by a pre-existing Italian tradition of tales about craftsmen bringing to life pieces of wood, and even if some of them are also called 'Pinocchio', they are different (their origin and their (story-relative) properties are different). However, in some cases, intra-world identity can be considered as being undetermined, as for other relations (see section 4). That is, even though identity is not prescribed by the content, it can hold according to certain interpretations. Pragmatically, by her interpretative efforts, relying on her cultural and literary background, the reader would interpret the work by drawing world lines of different characters in such a way that they merge in some (but not all) worlds compatible with the fiction (generally, but not necessarily, on the basis of similarities of properties). This explains why it makes sense to speak of a literary tradition, although cross-fictional identity cannot be guaranteed. More formally, let **I** be the fictional character created by Collodi and **J** be another fictional individual created in the context of the same tradition. Now, let $R_{\mathcal{P}}(w_0)$ be the set of worlds compatible with Collodi's *Pinocchio* accessible from w_0 . In some (but not all) worlds $w' \in R_{\mathcal{P}}(w_0)$, it will be the case that $\mathbf{I}(w') = \mathbf{J}(w')$.

Definition [D8] provides a criterion to determine identity between world lines. Strictly speaking, there is (in general) no cross-fictional identity if it is understood in terms of identity of world lines. Indeed, two world lines originating from different fictions are always different. This could be understood as a generalization of Genette's (1991) thesis that, since they cannot prescribe reference beyond themselves, fictions are impermeable to reality. But Genette's thesis is too strong. Characterizing a fiction as a parody, for example, assumes a link between characters of different fictional works, even if this link is relative to the reader's perspective and interpretation. Actually, our thesis is that fiction is only weakly impermeable to external elements; that is, migrations can occur, but only under specific interpretations, in some (but not all) worlds compatible with the relevant fiction. For example, Maurice Leblanc's *Arsene Lupin Vs. Herlock Sholmès* can be read as a parody of Conan Doyle's Sherlock Holmes. This assumes an interpretation according to which Sholmès is Holmes. This is not prescribed by the content. However, under certain interpretive assumptions, they can appear as identical. That is, in some (but not all) worlds compatible with *Arsene Lupin Vs. Herlock Sholmès*, Sholmès and Holmes share the same manifestation. Therefore, cross-fictional identity can also be understood in terms of coincidence of manifestations between two world lines originating from different fictions.

External perspective display coincidence of different fictional individuals, too. We can say "Faust is a famous character", without intending to refer to a particular fiction. For example, in the actual world, the abstract artifact referred to by 'Faust' can be identical with the manifestations of Marlowe's Faust (world line) and Goethe's

Faust (world line). But this does not entail that the two different world lines cannot be different, and vary independently of one another across the worlds. According to Voltolini's (2012: 575), within literary circles, different characters are gathered together in a "bigger" fictional character. This requires a relation weaker than identity, since the 'big' Faust must be Marlowe's Faust, Goethe's Faust, without Marlowe's Faust being Goethe's Faust (i.e., the relation at stake is not transitive). Voltolini's proposal can be represented by means of three world lines. We begin with two different world lines, say **I** for Marlowe's Faust and **J** for Goethe's Faust. In some $w \in R_{Goethers}(w_0)$ and $w \in R_{Marlowers}(w_0)$, $I(w) = J(w)$. Then, for pragmatic and interpretive considerations, literary critics draw a wider world line say **K**, the internal-perspective modal margin of which is defined with respect to the worlds compatible with Marlowe's *Faust*, $R_{Marlowers}(w_0)$, and Goethe's *Faust*, $R_{Goethers}(w_0)$. We thus have $I(w) = K(w)$ for every $w \in R_{Marlowers}(w_0)$ and $J(w) = K(w)$ for every $w \in R_{Goethers}(w_0)$. If they share the same manifestation in the actual world, then $I(w_0) = J(w_0) = K(w_0)$. And this does not preclude having $I(w) \neq J(w)$ for some w such that $w \in R_{Goethers}(w_0)$ or $w \in R_{Marlowers}(w_0)$ and $I(w') = J(w')$ for other w' such that $w' \in R_{Goethers}(w_0)$ or $w' \in R_{Marlowers}(w_0)$ (with $w \neq w'$).

Once we have recognized these different levels of identity, we can explain problematic cases of fusion and scission of characters. As in the various versions of *In Search of Lost Time*, there can be fusion of fictional characters. In the 1912 version, say **I** and **J**, such that in every world w compatible with *In Search of Lost Time* (1912), $I(w) = Berget$ and $J(w) = Vinteuil$. The final version of *In Search of Lost Time* is about a third fictional individual, say **K**, such that in every world w' compatible with the final version of *In Search of Lost Time*, $K(w') = Vinteuil$. Given her cultural background, a reader who knows the first version of 1912 can interpret the fiction in such a way that $I(v) = J(v) = K(v)$ for some worlds v compatible with the final version of *In Search of Lost Time*. Again, this is not prescribed by the content of the work. A lot of competent readers of Proust which are not aware of the existence of the previous version of 1912 would not interpret it that way.

By contrast, it can be supposed that a fission of character occurs in the various versions of *Alice*: Lewis Carroll would have intended to import the Queen of Hearts of *Alice's Adventure Underground* as two different characters in *Alice in Wonderland*, namely as a new Queen of Hearts and as the Ugly Duchess. Here, the world lines are not merging, but splitting. In *Alice's Adventure Underground*, only one fictional character occurs, say **I**. In every world w compatible with *Alice's Adventure Underground*, $I(w) = Queen\ of\ Hearts$. In *Alice in Wonderland*, there are two fictional individuals, say **J** and **K**, such that in every world v compatible with *Alice in Wonderland*, $J(v) = Queen\ of\ Hearts$ and $K(v) = Ugly\ Duchess$. Here, the reader can interpret *Alice's Adventure Underground* retrospectively by taking into account characters that have been created later in *Alice in Wonderland*. The reader draws the world lines **J** and **K** across some worlds v' compatible with *Alice's Adventure Underground* in such a way that $I(v') = J(v') = K(v')$. Since **J** and **K** had not been created yet, such an interpretation could not have been possible before Lewis Carroll had written *Alice in Wonderland*. This example highlights the (temporal) contextuality of interpretation.

6. Indeterminacy?

Everett (2005) challenges fictional realism by claiming that intra-fictional indeterminate identity yields a real-world perspective ontic indeterminacy, which is not acceptable.²⁶ Let us begin with Everett's example:²⁷

Frackworld: No one was absolutely sure whether Frick and Frack were really the same person or not. Some said that they were definitely two different people. True, they looked very much alike, but they had been seen in different places at the same time. Other claimed that such cases were merely an elaborate hoax and that Frick had been seen changing his clothes and wig to, as it were, become Frack. All that I can say for certain is that there were some very odd similarities between Frick and Frack but also some striking differences. Everett (2005: 629)

The content of this short-story does not give enough pieces of information to decide if Frick and Frack are one and the same character. Everett's objection to the ATF relies on the fact that the actual world inherits this ontic indeterminacy, which is an unacceptable consequence.²⁸ Indeed, according to Everett (2005: 627), creationists are committed to endorse the two following principles that have 'a near platitudinous status':

(P1) If the world of a story concerns a creature a , and if a is not a real thing, then a is a fictional character.

(P2) If a story concerns a and b , and if a and b are not real things, then a and b are identical in the world of the story iff the fictional character of a is identical to the fictional character of b .

Since we cannot decide whether Frick and Frack are identical in the fiction, we cannot decide whether they are identical in the actual world either. How many characters have been created?

Unlike Everett's creationist, we do not endorse these principles as they stand. First, in (P1), the expression 'the world of a story concerns a creature a ' is a source of confusion, given that what is relevant to understand a fiction is not 'the world of a story', but a set of worlds compatible with the story. Moreover, the manifestations of an individual must be distinguished from the individual itself. What does ' a ' stand for? Second, given that identity is contingent, (P2) is rejected. At best, we could agree that **I** and **J** share the same manifestations in every world compatible with the story iff **I** and **J** are identical literary fictional characters. However, the consequences are radically different. Let us introduce the following definition of identity between literary fictional characters:

[D9][IDENTITY BETWEEN LITERARY FICTIONAL INDIVIDUALS] Two literary fictional individuals **I** and **J** are identical iff:

- (i) they satisfy exactly the same ontological dependence relations in every w , and
- (ii) they have the same properties; i.e. $M, w, g[x/d_1] \models \phi$ iff $M, w, g[x/d_2] \models \phi$ for every w .

The content of *Frackworld* leaves undetermined whether Frick and Frack are identical. Let **I** and **J** be two individuals such that in every world w compatible with *Frackworld*, $\mathbf{I}(w) = \text{Int}(\text{Frick}, w)$ and $\mathbf{J}(w) = \text{Int}(\text{Frack}, w)$. Are they identical? In some

²⁶ Everett targets fictional realism in general, and not only the ATF. In some respects, our answers might also be extended to other forms of fictional realism, such as Noneism for example.

²⁷ A similar example can be found in Caplan and Muller (2015).

²⁸ Actually, Everett endorses Evans's (1978: 208) argument against ontic indeterminacy.

worlds w compatible with *Frackworld*, $\mathbf{J}(w) \neq \text{Int}(\text{Frick}, w)$, whereas $\mathbf{I}(w) = \text{Int}(\text{Frick}, w)$ for every such w . Therefore, in accordance with [D9] (clause (ii)), \mathbf{I} and \mathbf{J} are not the same characters. Since identity is undetermined, this does not preclude the possibility of interpreting the story by considering that Frick is Frack, that is with respect to worlds v compatible with *Frackworld* in which $\mathbf{J}(v) = \mathbf{I}(v)$. Whether there are one or two fictional characters available in the actual world is perfectly determinate: the possibility of such an interpretation requires the existence of two literary fictional characters.

For the sake of comparison, Schnieder and von Solodkoff (2009: 143) amend (P2) in such a way that when two names are introduced in a fiction, they refer to different characters excepted if the fiction explicitly presents them as being co-referential. However, since difference is not indeterminacy, this does not account for the indeterminacy and the different possible interpretations.²⁹ According to Cameron (2013: 186, 191), Everett's so-called ontic indeterminacy of identity is no more but an epistemic indeterminacy. Under certain interpretation, $\text{Frick} = \text{Frack}$; under other interpretation, $\text{Frick} \neq \text{Frack}$. Since identity is transitive, the character of the former interpretation cannot be identical with any of the characters of the latter interpretation, otherwise both would be identical. Consequently, this accounts for indeterminate identity between two names by appealing to three different characters, one for the former interpretation and two for the latter. The existence of three characters is also a consequence of Murday's (2015) supervenient semantics, in which an indeterminate sentence is superveniently true if it is true in every interpretation. However, what happens if there is an infinity of interpretations? Does the author create infinity of characters? Woodward (2015) also offers a semantic solution, but it is based on the indetermination of our concept of fictional character, whose identity conditions can be defined in different ways.

We have previously highlighted the failure of Existential Generalization in world lines semantics (section 3). We cannot infer $(\exists x)[\mathcal{F}]\phi(x)$ from $[\mathcal{F}]\phi(k)$ without an additional presupposition concerning the behavior of k , namely that $(\exists x)[\mathcal{F}](x = k)$. That is, we must assume that the reference of ' k ' in the worlds compatible with the fiction coincides with the manifestations of a unique individual. It seems reasonable that when the identity of k in worlds compatible with the fiction is not well-defined, such a presupposition is not justified. This would happen if, for example, indeterminacy in *Frackworld* explicitly formed part of the content, as suggested by Everett (2013) who himself strengthened his objection. Indeed, it would be indeterminate whether Frick is Frack in every world compatible with the fiction. And this would make our account in terms of interpretation irrelevant, given that worlds in which their identity is determined would not be compatible with the fiction. Nevertheless, this does not entail ontic indeterminacy in the actual world. Indeed, the presupposition of uniqueness of reference of 'Frick' and 'Frack' cannot be legitimate if their identity in the worlds compatible with *Frackworld* is not determined. In the absence of such a presupposition, we are not forced to infer $(\exists x)[\mathcal{F}]\phi(x)$ from $[\mathcal{F}]\phi(\text{Frack})$ or $[\mathcal{F}]\phi(\text{Frick})$, where ϕ holds for a set of properties applied to Frick or Frack in the fiction. Therefore, the interpretations of names such 'Frick' and 'Frack' need not be associated with the manifestations of well-defined literary fictional characters. In such a case, there are probably no well-defined

²⁹ In order to disambiguate these principles, and to avoid Schnieder and von Solodkoff criticisms, Everett (2013: 205) provides another formulation of (P2). It seems that this other formulation does not affect our solution.

corresponding abstract artifacts in the actual world either. At best, the fiction is concerned with (world-bounded) vague objects with indeterminate identity conditions. We can refer to them, non-rigidly, in a more or less vague manner, but they are not properly re-identified across the worlds compatible with fiction or the interpretations of different readers. Thus, we advocate a weakened version of ATF. There are (world-bounded) fictional objects that are not the manifestations of well-identified literary fictional characters (individuals).³⁰

Finally, another puzzling case offered by Everett (2005: 631) is based on Tolstaya's novel *The Slynx*. According to the fiction, the inhabitants believe that the Slynx screams in the woods. But its existence is left undetermined. Therefore, there are worlds compatible with the fiction in which the Slynx exists and other in which it does not. Let **I** be the Slynx, and *S* be “--- screams in the woods”: $\mathbf{I}(w) \in \text{Int}(S, w)$ for every $w \in R_{\mathcal{F}}(w_0) \cap \text{marg}(\mathbf{I})$. According to the fiction, it is also believed by the inhabitant that the Slynx screams in the woods, whether it exists or not. This entails an embedded intentionality that seems essential to the individuation of the Slynx. In that case, the individuation of the Slynx in w_0 involves an intentional predication within the worlds $w \in R_{\mathcal{F}}(w_0)$. In these worlds, it is intentionally predicated of **I** that it screams in the woods. This means that $\mathbf{I} \in \text{Int}(S, w^*)$ for every $w^* \in R_B(w) \cap \text{marg}(\mathbf{I})$, where $R_B(w)$ consists of the worlds compatible with the inhabitants beliefs in w .³¹ Then, the Slynx would be a fictionally individuated entity available in w_0 only if $\mathbf{I} \in \text{Int}(S, w)$ for all $w \in (R_{\mathcal{F}}(w_0) \cup R_B(w^*)) \cap \text{marg}(\mathbf{I})$, where $w^* \in R_{\mathcal{F}}(w_0)$.³² Therefore, there is no ontic indeterminacy in this example either. There exists one fictional character, which can be realized in the worlds compatible with *The Slynx* or in the worlds compatible with their inhabitant's beliefs.

7. Conclusion

Fictional entities can be conceived as human creations, in the spirit of the ATF, and characterized in a modal framework according to a double mode of individuation. Literary fictional characters are the result of constructions, following instructions prescribed by a codified text that has been published by the author. This implies that, in addition to external conditions of creation and existence, the content of a fiction is essential to the identity of literary fictional characters. Whereas several ATF approaches focus on the external viewpoint, we have emphasized the double mode of individuation of fictional characters by combining ATF with a semantics for the fictionality operator.

From a semantic perspective, our modal talk about fiction, whether it be from an internal or an external viewpoint, assumes that world lines have been drawn. Such world lines are available thanks to a double mode of individuation. Once we have recognized this double mode of individuation, articulated in a world line semantics

³⁰ In the same vein, Voltolini (2006 : 209) explains that we could name several Uruk-hai in of *The Lords of the Rings* without being able to identify them precisely. We need not assume that each Uruk-hai is a well-defined literary fictional individual and, *a fortiori*, that for each there is a corresponding abstract artifact in the actual world. See also Tulenheimo (2017: ch. 4) for other details concerning indeterminacy in world lines semantics.

³¹ We might also consider a set of such worlds for each inhabitant. But we prefer to avoid more complex formulations, albeit more accurate.

³² A more general definition of the internal perspective modal margin of a world line **I** could take the following form: $(R_1(w_0) \cup \dots \cup R_n(w_{0,1})) \cap \text{marg}(\mathbf{I})$, where the subscripts hold for relations giving access to different set of worlds, and for every $R_i w_{0,i}$ with $1 \leq i \leq n$, $w_{0,i} \in R_{i-1}(w_{0,i-1})$.

enriched by a general semantics for the fictionality operators, we are in a position to answer some of the most pressing criticisms that have been raised against the ATF. First, cross-fictional identity must be thought otherwise, by carefully distinguishing identity of objects and identity of world lines. The idea of cross-fictional identity only makes sense from an interpretive perspective. Second, the so-called ontic indeterminacy that has been raised against the ATF can be solved by distinguishing the world line from its manifestations. Indeterminacy in the content does not involve ontic indeterminacy in the actual world.

Here, we have restricted ourselves to the definition of a general framework suitable for the ATF and its tenets. The main difficulty was to define the double mode of individuation of literary fictional characters and their identity in a modal framework. Our general framework is now sufficiently flexible to be completed with additional sophistication. For example, interpretation should be more closely related to the agent's perspective, depending on the reading assumptions we adopt; e.g. by adding inference rules in the scope of the fictionality operators.

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[...]

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