Fictional Branching Time?

Craig Bourne and Emily Caddick Bourne

Abstract Some fictions seem to involve branching time, where one time series 'splits' into two or two time series 'fuse' into one. We provide a new framework for thinking about these fictional representations: not as representations of branching time series but rather as branching representations of linear time series. We explain how branching at the level of the representation creates a false impression that the story describes a branching of the time series in the fictional world itself. This involves explaining away the illusion of various causal connections which may at first appear essential to understanding the story as a unified whole. This provides a more accurate account of the relationship between the representation and what is represented, which in turn reveals the extent to which it is legitimate to draw conclusions about actual time from fictional representations.

Keywords Fiction • Time • Branching • Representation

Events within fictions are ordered in time. In the standard case, a fiction represents time as linear. But some fictions apparently involve branching time, where one time series 'splits' into two (or more) or two (or more) time series 'fuse' into one.

It is sometimes said that fictional representations of time's topology tell us something about how time could actually be; fictions with branching time show that branching time is coherent. On the other hand, it is sometimes said that we cannot draw conclusions about real metaphysics from fiction since fictions can (seemingly)

C. Bourne (✉)
University of Hertfordshire, Hatfield, Hertfordshire, UK
e-mail: C.Bourne@herts.ac.uk

E.C. Bourne
Institute of Continuing Education, University of Cambridge, Cambridge, UK

Institute of Philosophy, University of London, UK

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have impossible contents. We wish to provide a new framework for thinking about the fictional representations at issue: not as representations of branching time series but rather as branching representations of linear time series. This provides a more accurate account of the relationship between the representation and what is represented, which reveals the extent to which it is legitimate to draw conclusions about actual time from fictional representations.

Fictional Branches

Fictions are representations. We say that they describe fictional worlds – collections of the fictional facts or events the fiction tells us about. There are two options for how to characterise branching. We could say that the fiction describes a single world in which time branches. In that case, the story is a representation of branching time. Or we could locate the branching at the level of the representation rather than the things represented. Here, we say that the two branches correspond to two descriptions of two different fictional worlds, each with a single, non-branching time series. In that case, the story is a branching representation of time.

To establish whether fictional time series might have interesting branching characteristics, we need to know what these two options involve, how they differ, and what – if anything – would mean we are dealing with the first kind of story rather than the second.

Take this case. A story begins normally, describing a morning in the life of the main character. Call this portion of the story the 'trunk'. Then things change: we get two competing descriptions of the afternoon. In the first, our hero decides to buy a newspaper from a newspaper stand, whereas in the second, he walks past; in the first, he reads some significant story in the paper and decides to make radical changes to his life, whereas in the second, nothing makes him question the way he lives; in the first, delayed by the paper, he arrives at the pub late, a few seconds after a beautiful girl has left, whereas in the second, he arrives on time and meets her in the doorway, and so on. Perhaps there is some lynchpin event between the trunk and the branches (he steps into the road just as a car is coming so that one branch is supposed to be one along which he just nipped across in time and the other one along which he had to step back and wait).

Note that this is not a story in which a *person* fissions, where both products go on sharing the same time. Rather, we are given two different ways things pan out, not one way things pan out involving two distinct products of personal fission. What we have is two different distributions of events over time. In one case, the hero arrives at the pub after the girl leaves; in the other, he arrives simultaneously with her leaving. (There are also differences in whether certain events – such as his buying a paper – take place at all.)

We can compare processes on different branches. Normally, we are to assume that events on each branch have the same rates of change. The event of the girl's leaving the pub is, say, four hours later than the trunk-event of the hero's stepping into the road, *no matter which* branch we are considering. Despite this, the event of her leaving on one branch is not simultaneous with the event of her leaving on the other branch since there is not a time series they both occupy.

Is this story a representation of branching time or a branching representation of time? This depends, we propose, on how many distinct time series there are along the trunk.

Branching Representations of Time

It should be uncontentious that the story above sometimes represents more than one time series. The description of his reading the paper, changing his life, and missing the girl represents events in one time series, and the description of his walking past the newspaper stand, going on as normal and meeting the girl represents events in a distinct time series. Where there are two branches, there are two time series.

We have a case of branching time only if the different time series corresponding to the different branches belong to the same world. Suppose they do not. Then, we have two fictional worlds with one time series each. This would deal with our having two branches, but where does it leave the one trunk?

Events along the trunk must stand in temporal relations to events along the first branch *and* to events along the second branch. So the description of the trunk cannot be a description only of the world which contains the events along the first branch. For that would miss out the temporal relations of trunk-events to events along the second branch; likewise, vice versa. And the description of the trunk cannot be a description of a third world, distinct from the world containing the events along the first branch and from the world containing the events along the second branch. That would just double the problem by failing to account for *two* sets of temporal relations.

Our answer is to treat the story in something like the way David Lewis (1976) treats fissioning persons. Lewis thinks identity is preserved in cases of fission. But, since one person cannot become two, he says there must have been two persons all along. Persons are aggregates of temporal parts or 'person-stages', and one part (stage) might appear in more than one aggregate. In cases of fission, we have two aggregates which share their parts up until the time of fission, but not beyond.

But we do not want to follow this model to the letter. Lewis's account, unlike ours, is designed to explain fission within a shared time series. Two things which share temporal parts must share a common time series. Worlds are not like this. Things *within* worlds may share a time series but worlds themselves do not. This means we should resist talking of stage-sharing between worlds.

What the two worlds share along the trunk is not their *stages* but their *representation*. When the story describes events along the trunk, it describes not just one world but two worlds in which the same events (i.e. qualitatively the same) happen. The description of events along the trunk is a description *both* of part of the first world's total history *and* of part of the second world's total history. In telling the story, two portions of two worlds are described. But we do not need to say everything twice! Along the trunk, one representation does double duty because the two portions of world-history match.

On this model, two fictional worlds are represented all along. This allows for trunk-events to stand in temporal relations to two distinct sets of branch-events because really there are two distinct sets of trunk-events, too.

How does this compare to Lewis's fissioning persons? In his proposal, distinctness between persons is given by distinctness between aggregates. For there to be two persons sharing stages pre-fission just *is* for there to be two sets of stages post-fission since it is this that renders two ways of making an aggregate. Likewise, for there to be two worlds sharing one representation along the trunk just *is* for there to be two distinct representations of qualitatively distinct sets of events along the branches.

But there is an important difference between Lewis's fissioning persons and our proposal. So far as persons go, belonging to different aggregates is compatible with being numerically the same stage. But belonging to different worlds guarantees numerical (though not qualitative) distinctness of stages. The trunks of branching representations are characterised by there being a single description of the two worlds, not a single set of stages shared by the two worlds.[1]

For persons, fission is the cessation of stage-sharing combined with the continuation of aggregates. Branching representation, on the other hand, involves a move from a story's describing two worlds by saying the same thing to its describing those two worlds by saying different things.[2] The branching in the story is explained not by the nature of the fictional world it represents but by the nature of the representation itself.

We will give the same account of 'fusion' in fiction. It is not that two time series join up. It differs from 'fission' only in that the matching portions of total history which the story describes are, in their respective worlds, *later* than the unmatching portion of total history which the story describes. (Of course, this allows for stories with fission then fusion, fusion then fission, fission then fusion then fission, and so on.)

Ersatz Worlds

The claim that two worlds cannot share stages seems to rely on a particular conception of worlds, as distinct concrete things, as in the view preferred by Lewis (1986). But what if we treat other worlds in an ersatz way: as collections of representational

[1] Compare our view with Lewis's (1986: 206) distinction between what he calls 'divergence' and what he calls 'branching' of worlds. In what Lewis calls 'branching', two worlds overlap and share stages, whereas in 'divergence', two worlds 'have two duplicate…segments, not one that they share in common'. When we have talked about branching time, we have used it to mean branching of time within a single world. It is a question for the advocate of branching time how, if at all, the branching of worlds which Lewis describes is to be distinguished from the branching of time within a single world.

[2] Although, saying is not the only way of describing a world. Pictures, for example, describe worlds by showing.

vehicles, such as propositions? Then two worlds could share parts: proposition *p* may be a part of many overlapping collections.

This would not do any real damage to our picture; it would just make it more similar to Lewis's picture of fissioning persons since in both cases, we have stage-sharing along the trunk. But it is an overhasty modification. Ersatz worlds are substitute worlds: representations of concrete worlds, usually invoked to provide modal statements with truth-conditions which do not require us to believe in non-actual concrete things. If two ersatz worlds share stages, this does not mean they represent stage-sharing between concrete worlds. A neater explanation is gained by applying the same idea – of branching representation – once more. Where two ersatz worlds share stages, what we have is one representation doing double duty. Just as with branching stories, some parts of ersatz worlds represent two portions of two distinct worlds in one go.

Branching Representations and Impossible Fiction

Robin Le Poidevin (2007), in a discussion of stories concerning more than one time series, considers how the possibility or impossibility of genuinely disunified time – two or more time series within one world, with or without 'fission' and/or 'fusion' – relates to the nature of such stories. He suggests that if disunified time is in fact impossible, then these stories are simply stories in which the impossible happens. And we are already familiar with these. Stories can (it appears) represent the impossible as well as the possible; things that could not happen in fact can still happen in fiction.

But if what appears to be a story with branching time is in fact a branching representation, the possibility or impossibility of branching time is by the by. What we have is a description of two worlds, neither of which involve branching time. So even if branching time is impossible, we do not (other things being equal) have an impossible story on our hands.

Disunified Times, Unified Stories

Le Poidevin considers the view that 'no story could be about two unconnected time-streams' (2007: 171), encapsulated in E.M. Forster's (1927) claim that narrative unity requires at least some kind of temporal unity. Le Poidevin summarises the view as 'what makes two events, or characters, part of the *same fiction* is that they are represented…as being in a single time series' (2007: 174). Where does this leave stories which involve more than one time series?

Le Poidevin is concerned with two sorts of temporal disunification: first, that in stories which have two time series but no branching and, second, that in stories which apparently involve branching time. He wants to defend the second kind,

saying that whatever temporal disunity they have need not be a block to narrative unity. But he dismisses the first kind, leaving unchallenged the view that 'no story could be about two unconnected time streams: anything that presented itself as such a story could only be two stories, with no connection at all, arbitrarily bundled together' (2007: 171).

If this view is correct, it is a worry for our proposal. Treating stories involving branching as branching *representations* of *non-branching* time series collapses the second type of story into the first; stories with apparent branching time are actually stories with temporal disunification, but no temporal branching. For we have two non-branching and completely separate time series, belonging to two different worlds. Any branching which takes place is to be located on the level of the representation, not its contents.

But it would be wrong to think that this leaves us with an arbitrary bundle. There may be a relationship between the two: for example, the description of the first world tells us how things *would* have been in the second world had some small thing gone differently (such as the character's stopping to buy a newspaper rather than walking on). Or events in one may shed light on the nature of events in the other (such as how some character ought to be grateful for some event he takes for granted). Or there may be interesting similarities between characters in the two worlds, which do not require occupation of a common time series in order to be notable. Or the happiness of a character in one world may draw our attention to his sadness in the other. Or the story might be an exercise in applying similar narrative techniques to very different sets of events; there is no good reason why features of style rather than of content cannot make for a non-arbitrary bundle.

At this stage, it is useful to depart from Le Poidevin's use of 'story' and 'fiction' as interchangeable. We say that one story may involve more than one fiction. Where two worlds are described, we have two fictions, but these two fictions may nevertheless be parts of the same story.[3]

In the case of our branching representations, there is something more to be said about how unification is secured despite the total separateness of the two time series. Just as branching occurs on the level of representation, unification does too. Along the trunk, the two time series are described by just one representation. The representation does double duty, describing both time series at once. If that is not a legitimate form of unification, what is?

The notion of narrative unification which led Le Poidevin to talk about arbitrariness in stories with non-branching disunified time is, then, too narrow. But this

[3] Our distinction between fictions and stories also calls for supplementing the notion of truth in a fiction (which has received much attention) with the distinct notion of truth in a story. In cases where the story includes just one fiction (probably, the majority of stories are like this), what is true in the story will be all and only what is true in the fiction. It is in unusual cases, where the story involves the description of more than one fictional world, that it becomes interesting to spell out truth in a story in its own terms. This is the topic of a chapter in Bourne and Caddick Bourne (forthcoming).

raises another issue: what, for Le Poidevin, supplies narrative unification in those stories which seem to involve branching time?

The significant feature Le Poidevin identifies is causality. He writes, 'different time series can be combined with a causally coherent narrative', and, focussing on what we have called 'fusion' cases, suggests that events along different branches can have narrative unity 'by virtue of having common effects' (2007: 173). Presumably, something similar could be said in 'fission' cases: causal chains can be traced back from events along either branch to events along a common trunk.

Le Poidevin has it in mind that stories which apparently involve branching time really do involve branching time; one fictional world has two time series in it, time series which overlap in some places and not in others. If, instead, we treat the relevant stories as branching representations of two non-branching time series in separate worlds, it seems we do not have the causal connections Le Poidevin wants. The time series do not really have any part in common; instead of splitting off or joining up, they each progress non-branchingly in their separate worlds.

This would mean we cannot appeal to causal links as a source of narrative unity between the branches. That need not worry us; as we have seen, there are plenty of other ways narrative unity might be secured. Nevertheless, there is a different concern. Does a view which misses out these causal connections not also miss the point of the stories in question?

Branching Time, Causality, and Branching Representation

Considerations of causality might be taken to suggest that it is sometimes untrue to a story to label it a branching representation rather than a representation of branching time. It might be said: the *point* of the story is that two distinct sets of events, on two distinct branches, are causally related to the *very same* trunk-events. Not just the 'same' events in the sense in which the 'same' events can happen in more than one world, rather the same world-bound token events – the same events located in the same world.

Here are two cases which seem to tell in favour of this objection:

Case 1

Suppose we have a 'fusion' case where our branches concern two different characters leading two separate lives. Events along the trunk, however, involve the two characters meeting and telling each other about the separate lives they have led. The suggestion is that it is only the period of shared time which allows the characters to exchange information about the unshared times.

Case 2

Or suppose we have just one character, not two, but one character who is supposed to live two distinct lives, along two distinct branches. Then we have a 'fusion'

into a trunk – only one set of things happens to the character, not two – and then 'fission' into branches again. Suppose, finally, that after 'fission', the character is able to utilise, in *each* of the time series he inhabits, information he acquired in *either* of the time series he inhabited before 'fusion'. This trades on the idea that the period of shared time is causally and temporally related to both pre-'fusion' time series and to both post-'fission' time series.

But there are ways, we think, to capture what is special about cases 1 and 2 without admitting that branching occurs in the world represented rather than in the representation itself. And there is every reason to expect that the strategies employed will apply equally well to other cases which might be taken as having causal characteristics which need a branching-time rather than a branching-representation view. Here is how we deal with the cases:

Case 1

We have two characters, A and B. We also have two worlds, W_A and W_B. Certain things happen to A along a pre-trunk branch. Those events take place in world W_A, but not in W_B. Certain things happen to B along the other pre-trunk branch. These events take place in world W_B, but not in W_A. This allows for the events along A's branch to stand in no temporal relations to the events along B's branch.

As for the trunk, we allow for a period of W_A's history in which a counterpart of B features and a period of W_B's history in which a counterpart of A features. Call the counterpart of B in W_A 'B_{WA}' and the counterpart of A in W_B 'A_{WB}'. Similarly, call B in world W_B 'B_{WB}' and A in world W_A 'A_{WA}'. While A_{WA} reports his life story in W_A, B_{WA} reports his purported life story in W_A, as part of a conversation with A_{WA}. Likewise, while B_{WB} reports his life story in W_B, A_{WB} reports his purported life story in W_B, as part of a conversation with B_{WB}. When the story tells us about an apparent exchange of information between what it calls 'A' and 'B', it actually represents two exchanges of information: that between A_{WA} and B_{WA} and that between A_{WB} and B_{WB}.

But what happens to B_{WA} when he is not conversing with A_{WA} and to A_{WB} when he is not conversing with B_{WB}? Should we say – as it appears we have to when treating the case as a branching representation – that B_{WA} suddenly appears in W_A? This initially sounds odd and thus sounds like an objection. But it cannot be an objection. For it is no odder than what we end up saying if we treat the story as one about a single world with branching time. Use 'B_{WBr}' and 'A_{WBr}' to name what the story would call 'B' and 'A' if it were a story about a single world with branching time. B_{WBr} shares A_{WBr}'s time but only part of it (and vice versa); just as, for us, B_{WA} shares A_{WA}'s world but only part of it (and likewise for A_{WB} in B_{WB}'s world). In both cases, something suddenly acquires causal and temporal relations to something else.

Alternatively, we might say that what happens to B_{WA} when not talking to A_{WA} is something the story leaves indefinite, just as a story might leave it indefinite what day of the week a character was born on, what he ate on his last day of school, how many eyelashes he has, and so on. Then we do not say that B_{WA} is absent from W_A before the conversation, just that the story does not fix what B_{WA} is doing in W_A during that period.

Thus, there is no need to interpret the story as one in which time branches. We can explain what is significant about it by characterising it as a branching representation of two distinct worlds.

But it might seem that this interpretation still misses something out, namely, the causal connections between events of the story. When the story tells us about what it calls 'B', it seems to be telling us a causally connected life story. The experiences which this so-called B is reported as having along a pre-'fusion' branch are supposed to be causally responsible for the reports he gives to 'A' along the trunk. But our account does not preserve this. It is in world W_B that B_{WB} has the pre-'fusion' experiences detailed by the story. Experiences had in W_B cannot be causally responsible for the information A_{WA} receives in W_A. Likewise, the pre-'fusion' life of A_{WA} cannot be causally responsible for the report given to B_{WB} in W_B. Causal chains cannot span worlds, which – it might be alleged – is exactly why we should think the story tells us about *one* world with two time series which fuse.

We answer the objection by saying that the two worlds *do* give us all the causal connections we need. When the story tells us about the conversation between 'A' and 'B', it describes two worlds at once. In W_A, A_{WA}'s report of his history stands in normal causal relations to his history; in W_B, B_{WB}'s report of his history stands in normal causal relations to his history. In W_A, B_{WA}'s report of his history stands in normal causal relations to the later beliefs A_{WA} has about B_{WA}; in W_B, A_{WB}'s report of his history stands in normal causal relations to the later beliefs B_{WB} has about A_{WB}. So the worlds the story describes *do* provide all the causal connections we need to relate what happens along the branches to what happens along the trunk. Everything that is important to the story is preserved by our account. To think there is something lacking is to focus on one world only, which would be a mistake. Just as it would be a mistake to focus on one time series if the story really was about a world with two!

Our account explains – indeed, explains away – the appearance that a *single* post-'fusion' period of time is causally related to pre-'fusion' branches which are distinct from each other. This appearance is created by features of the representation, namely, that sometimes two different descriptions (one of W_A and one of W_B) are run in parallel, whereas elsewhere, the representations are run together (one description describes both W_A and W_B). In the case we are considering, this creates the (false) impression that two pasts have fed into one future.

Case 2

It might not be obvious what is supposed to be going on in this kind of case. Does the character believe that he has two past lives? Or are his thoughts about one set of pre-'fusion' events somehow isolated from his thoughts about the other? If he came to believe that *p* along one pre-'fusion' branch and came to believe that *q* along the other, does he thereby, after 'fusion', believe that *p* and *q*, or does he just believe that *p* and believe that *q*? Set these questions aside; the issue here is whether to choose branching time or branching representation, and these complications are neutral between the two.

We can give a two-world model of the story almost the same as the one given above for case 1. In case 1, the story seemed to say that a conversation took place between 'A' and 'B', characters from different branches. We say that what really happened is this: A_{WA} had a conversation with B_{WA}, and A_{WB} had a conversation with B_{WB}, and what was said was the same in each case. In case 2, the story seems to say that each post-'fission' 'A' remembers the lives of both pre-'fusion' 'A's. We say there are two worlds: W_L and W_R.[4] A_{WL} lives in W_L and A_{WR} lives in W_R. A_{WL} acquires memories based on his past experience. But he also acquires apparent memories of events which, in fact, did not take place – mere quasi-memories – and likewise for A_{WR}. The story tells us that 'A' goes into the post-'fission' left-hand branch having, on the trunk, acquired memories of life on the pre-'fusion' right-hand branch. We say that A_{WL} acquires quasi-memories with the same content as the memories A_{WR} has of the life he has lived. The story tells us that 'A' goes into the post-'fission' right-hand branch having, on the trunk, acquired memories of life on the pre-'fusion' left-hand branch. We say that A_{WR} acquires quasi-memories with the same content as the memories A_{WL} has of the life he has lived.

W_L provides the causal connections between one life and one set of genuine memories. W_R provides the causal connections between the other life and the other set of genuine memories. The story asks us to consider both worlds at once. As long as we are doing this, we have all the causal connections we need. This mirrors the explanation given of case 1, where world W_A provided the causal connections between A_{WA}'s past and his contributions to the conversation with B_{WA} and world W_B provided the causal connections between B_{WB}'s past and his contributions to the conversation with A_{WB}.

Is the sudden appearance of the quasi-memories strange? No stranger than what we end up saying if we treat the story as one about a single world with branching time. On our view, two persons suddenly think they are temporally and causally related to past events which never happened. On the rival view, one person suddenly acquires the property of being temporally and causally related to two pasts rather than just one.

Both our worlds happen to be ones in which the mere quasi-memories (as well as the genuine memories) furnish successful action at later stages. We might ask why they should be. For instance, A_{WR} put some keys in a drawer in W_R; A_{WL} quasi-remembers putting some keys in a drawer in W_L, and when he goes to the drawer in W_L, he finds keys. Is it not suspicious that both worlds just *happen* to be this way? The answer is that those are the worlds which are going to make for an interesting story with a decent plot development and so on. So it is not odd at all that the worlds described by a story are like that.[5]

[4] In this case, we only need two worlds in order to model the story. Other cases might require more; it depends on the particulars of the story.

[5] We develop this idea in Bourne and Caddick Bourne (forthcoming), paying particular attention to problems concerning future-tensed fictional truths.

As in case 1, the appearance of post-'fission' branches becoming causally and temporally related to pre-'fusion' branches is created by features of the representation. Sometimes two different descriptions (one of W_L and one of W_R) are run in parallel, whereas elsewhere, the representations are run together (one description describes both W_L and W_R). In the case we are considering, this creates the (false) impression that a single person's two pasts have both fed into that person's two futures. Creating this impression might be an interesting feature of the story in its own right, which is itself a good reason for choosing to bundle together descriptions of those two worlds.

The Double Take

One quite common feature of stories which apparently involve branching time is the 'double take'. The story looks like it tells us about the following situation: a character, 'A', appears along branches *X* and *Y* and has been involved in some way with another character, 'B', along branch *X* but not along branch *Y*. However, 'A' sees 'B' in some casual situation along branch *Y* (e.g. they pass each other in the street), at which 'A' performs a puzzled double take before dismissing his feeling that they have met before. In our terms, there are two worlds: W_X and W_Y. A_{WX} and B_{WX} live in W_X, and A_{WY} and B_{WY} live in W_Y. A_{WX} and B_{WX} have a history of interaction. A_{WY} and B_{WY} do not, yet for some reason, A_{WY} performs the double take when he encounters B_{WY}. Someone might think the effectiveness of the double take as part of the story is captured better by a branching-time view than by our branching-representation view.

We think this is incorrect. For a start, the double take is an odd event by anyone's standards. Suppose we hold the branching-time view. Are we really supposed to accept that, when the double take occurs, A has in some sense seen B *before*? That requires us to take A's meeting B on branch *X* as happening before (or in the past of) A's seeing B on branch *Y*, which is disallowed as much by the view that the events belong to different time series as by the view that they belong to different worlds. Or is it that A on branch *Y* is supposed to have some faint memory of events along branch *X*, as the result of some fusion somewhere? Then we simply apply our account of case 2 (above). Or is it that A on branch *Y* has magical access to events along a branch which ought to be inaccessible? Then, if the branching-time account claims magical access to other time series, we will claim magical access to other worlds and the lives of other-worldly individuals. If magic is what is wanted, we as much as anyone else can pull it out of our hat.

The best way to read the double take is as a stylistic joke. It emphasises the combination of fictions involved in the story. We have said that events along branch *Y* happen in a different world from events along branch *X*. The well-used double take trades on this. It is effective not because it does make sense but because it does not. The point of the double take just *is* that the content of the story does not explain it. It cannot be that A_{WY}'s double take is a result of A_{WX}'s life in another world.

To recognise this is to get the joke. This explains why the double take is conspicuous and (mildly) amusing. It also explains why the double take is irritating when employed by a storyteller who wrongly takes it to form a working part of the content of the fiction, rather than a dysfunctional joke.[6]

Note that this treatment of the double take could be translated into branching time, rather than branching representation, terms. It should be viewed not as a reason to prefer one account over the other but rather as revealing something interesting about both.

Thematic Evidence for Branching Time?

We have argued that taking stories which apparently involve branching time as being, in fact, branching representations is adequate to capture causal connections within the story. But is it inadequate in some other way? Take case 3:

Case 3

Suppose we had a story which, in addition to having a trunk-and-branch structure, takes branching time as a theme. Perhaps it has physicist characters who work on the topology of time, for example. Is that not enough to indicate that the story is supposed to be one in which time branches? After all, it indicates that whoever made the story (the writer, director, etc.) was preoccupied with the topic and intended it to pervade the story.

Here the pressure to treat the story in terms of a single world with branching time comes not from alleged relations between events along the trunk and events along the branches but from taking branching time as an evident theme. But things are not so clear. The physicist characters' preoccupation would be salient to the story if it described a world with branching time but just as salient if the story, *despite appearing to describe branching time*, did not. That their work looks to reflect a feature of their world but ultimately *does not* is just as interesting – maybe more – as if it simply did.

Perhaps it will be said that the story is clearly *meant* to describe a fictional world in which time branches. Even if taking it as a branching representation of non-branching time is relevant to its themes, that was not what its author had in mind for it. The events and characters the storyteller decided to include suggest that he is trying to make it true in his story that time branches.

But evidence that a storyteller is *trying* to describe a certain fictional world with certain fictional truths is not necessarily evidence that he has *succeeded* in doing so.

[6] We could have a story which only included the fiction which describes events along branch *Y*. In that case, A_{WY} would be performing a double take when confronted with a character who has not previously appeared, nor had a counterpart previously appear, in the story. This would be conspicuous without having the usual point of a double take. (It might have a different point, such as to parody a film where the double take would play its usual role, and that might be funny in its own right.)

If there are no features of the time series represented which a branching-representation reading cannot capture, then the case for favouring a branching-time reading instead is weak. Themes of the story manifested elsewhere may well make it obvious that the storyteller was attempting to describe a branching time series. But that counts for nothing if his description attributes no feature to the temporal structure which identifies it as branching. For in that case, it is *impossible* to describe the time series *as branching* while describing it *just* as that storyteller has. Intending to do something gets you nowhere when the thing you intend to do is not possible with the resources you have. It is clear that even decisive evidence that this storyteller means to describe branching time should not be taken to establish that he does do so.

A Preference for Branching Representations?

The argument so far could be taken as a case for *agnosticism* over whether stories which apparently represent branching time series are to be taken at face value or are instead to be treated as branching representations. That is a result in its own right. At the outset, we considered two rival views. One said that stories in which time apparently branches give us reason to think that branching time is coherent and that time may in actuality branch. The other said that even the impossible can happen in fiction, so we should resist extrapolating to conclusions about real metaphysics. Now, we can agree that we should not take fictional stories as a reason to believe that time may actually branch, but not because the story might have impossible contents. Rather, it is because we should reject an assumption common to both of the positions: we are not licensed to take these stories as representations of branching time in the first place.

This is not to say we should be agnostic forever, over every story which tries to represent branching time. Our understanding of branching time will progress – if it is possible, how it works, and if it is impossible, what feature it has that makes it so. With this in place, it is likely that there will be some metaphysical feature of branching time series which would not be at home in a branching representation instead. We will decide which kind of story we are dealing with based on whether it picks out this feature. We have seen that causal connections (at least, those considered above) are not that feature, but that is not to say there is nothing else to do the job.[7]

But even before we have identified any such feature of branching time, we still might not opt for agnosticism. For there are reasons to favour a branching-representation view of the stories in question. The view is appealingly neat. It gives a clear explanation of how such stories work, whereas whether, and if so how, time

[7] A storyteller who does not know the discriminating feature will be unlikely to alight upon it by accident. However hard he tries to write about branching time (rather than produce a branching representation), he will lack the resources. This chimes with a rule of thumb most of us accept: ‘write about what you know’. Or rather, the inverse: ‘don’t write about what you don’t know’. Or better: ‘heed that an attempt to write about what you don’t know is unlikely to be successful’ (although what this gains in accuracy, it loses in pithiness).

series (fictional or otherwise) branch is still contentious. And there is a further pragmatic consideration which favours the branching-representation view. If we say the stories represent branching time series, it is as yet unclear whether we are dealing with possible or impossible stories. This would mean there is much we cannot currently say about the nature of these particular stories.[8]

Perhaps most importantly, thinking in terms of branching representations has useful applications outside the context of fiction. One motivation for taking statements about the future to be indeterminate in truth-value is thinking that time branches in the direction of the future. But it may be fruitful to think of this in terms of branching representation instead. If future times are ersatz times (as in Bourne (2006)), they are themselves representations. Each ersatz future follows the ersatz past and present which represent the way things actually were and are. Treating this as a case of branching representation, we would say that the ersatz past and present represents many worlds – one for each ersatz future – which match in a particular portion of total history (everything that has happened so far).

Notice first that this picture allows for future contingents to be indeterminate; indeed, it gives us a way to articulate what this indeterminateness consists in. What is indeterminate is which world, out of all those represented, we live in.[9] Notice secondly that, supposing we think ersatz times are the only times there are, times just *are* representations. So this special case of branching representation really is a case of branching time. Thus, making the best sense of branching time may well involve thinking in terms of branching representations.

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[8] Especially if the best account of impossible stories makes them significantly different from possible stories, as we think it does. This, again, is a topic for Bourne and Caddick Bourne (forthcoming).

[9] Note that this is a metaphysical issue, not an epistemic one. The indeterminateness does not amount to our not *knowing* which world we live in.