

A.N. Prior on John Wyndham's case

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Abstract

In his paper "Opposite Number" (1957) A.N. Prior anticipates the later philosophical debate on the ideas of bifurcation in time, existence and identity. The paper was inspired by a science fiction story by John Wyndham, and it was published in 1957, i.e., the year before Kripke's famous letter of September 3, 1958, in which the idea of branching time was suggested. Which means that important aspects of this idea and complex problems related to it, were discussed by Prior earlier than has traditionally been assumed.

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1. Discussion of Wyndham's case

In his paper "Opposite Number", Prior (1957, 1976), discussed the problem of two parallel histories, i.e., histories that from a certain common event continue in two different ways. He had got this

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fascinating idea from the science fiction story, "Opposite Number", by John Wyndham [1974], which was first published in 1956 (cf Øhrstrøm and González 2022).

According to Wyndham's story a scientist, Professor Whetstone, has discovered that at every moment in time all the objects in the world may split into identical objects each of which continues in its own way. Whetstone's discovery is explained in the following manner:

He used to give that rough analogy about the sea freezing. The present was represented by the leading edge of the ice, gradually building up and advancing. Behind it was the solid ice that represented the past: in front, the still fluid water represented the future. You could tell that a given number of the moving molecules which represented the future would become frozen in a given space of time, but you couldn't predict which, nor in what relationship they would be to one another.

[Wyndham 2014, Kindle loc. 1919]

According to Whetstone it appears that "multiple futures must be latent in the present". In the story, this led to the question: "... was it possible to move from one's own branch of descent to one of the, so to speak, cognate branches?" In the story one of Whetstone's followers demonstrates after Whetstone's death that this can in fact be done "within certain limits" using a machine made by Whetstone [Wyndham 2014, Kindle loc. 1954]. The result is that the main character in the story, "Peter Ruddle", is duplicated and in fact meets another version of himself:

So every 'instant' an atom of time splits. The two halves then continue upon different paths and encounter different influences as they diverge—but they don't diverge as constant units; each of them is splitting every instant, too. The pattern of it is the radiating ribs of a fan; and along each of the ribs, more fans; and along the ribs of those, still more fans; and so, ad infinitum. 'So, here we have Peter Ruddle. An instant later, that atom of time in which he exists is split, and so there are two Peter Ruddles, slightly diverging.

[Wyndham 2014, Kindle loc. 1943]

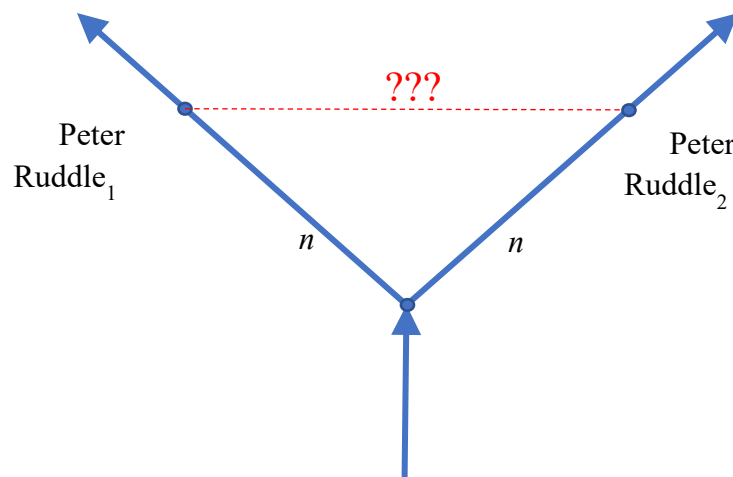
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In a sense, this is like saying that people and other objects in the world “reproduce like amoebae”. At least this is the expression Prior used when he wanted to discuss the logical and philosophical problems that Wyndham’s story about the duplication of Peter Ruddle and the meeting of two of his duplicates may lead to:

Suppose people reproduced like amoebae and suppose you and I are the two products of such a fission, each of us having a perfect memory of having been the one original person, though now the two of us are both being and doing quite different things, say me reading Plato and you not.

[Prior 1957, p. 196].

Prior’s understanding of Wyndham’s case may be represented graphically in the following way:



Prior’s paper on “the big Y” (Prior, “Opposite Number”, 1957) was inspired by a science fiction story by John Wyndham (1956) about Peter Ruddle who is imagined having had an important experience about the nature of reality.

In 1957 Prior did not yet conceive this as a bifurcation of time itself as it was suggested to Prior in Saul Kripke’s well-known letter of September 3, 1958 [Ploug & Øhrstrøm 2012]. But there are obviously similarities between Prior’s discussion in 1957 and his later work with branching time. In fact, this early work probably made it easier for him to accept the

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the new idea of branching time when he received the letter from Kripke in 1958. It also appears that Prior's work on the scenario suggested in Wyndham's story became an important inspiration for him in his fundamental discussions on the possibility of bifurcation in time and on the ideas of existence and identity of objects. He comments on Wyndham's case in the following way:

I think - though this is not completely clear - that it would be accurate in the situation which I have envisaged, for me to say to you 'Once you were me', and for you to say this to me. For suppose we represent our joint life-history in the obvious way by a big Y. The left arm is not the right arm, and neither arm is the pedestal; but the word 'me' does not denote the present part of my life-history, represented by the left arm, nor any other part of my life-history (personal pronouns do not ordinarily denote life-histories), but rather denotes the *person whose* life-history is represented by the pedestal plus the left arm, and the word 'you' similarly denotes the *person whose* life-history is represented by the pedestal plus the right arm.

[Prior, 1976, pp. 64-65]

It appears that if Wyndham's story is accepted then it follows that Peter Ruddle₁ and Peter Ruddle₂ are now different although they both have a correct memory of having been identical at an earlier time.

2. The argument based on Wyndham's case

In his paper Prior considered Wyndham's case in the light of his tense-logic and Leibniz's law (the identity of indiscernibles), i.e., that object₁ and object₂ are identical if and only if they have the same properties. He argued that on this basis the kind of branching involved in Wyndham's case (the big Y) will lead us to a contradiction:

... it was the case before the fission that I would now be reading Plato, then it was the case before the fission that you would now be reading Plato; but how can it have been the case that you would now be reading Plato if in fact, you are not now reading Plato? This example suggests a method of proving quite generally that not only 'You are me' but even 'You were me' entails that whatever is true of me is true of you.

[Prior, 1976, p. 65-66]

And this is the proof:

1. $(p \supset q) \supset [(q \supset r) \supset (p \supset r)]$	propositional calculus
2. $(x=y) \equiv (\varphi y \supset \varphi x)$	Leibniz' law
3. $Pn(p \supset q) \supset (Pnp \supset Pnq)$	Basic tense-logic
4. $Pn[x=y \supset (\varphi y \supset \varphi x)]$	2, basic tense-logic
5. $Pn(x=y) \supset Pn(\varphi y \supset \varphi x)$	4, basic tense-logic
6. $Pn(x=y) \supset (Pn\varphi y \supset Pn\varphi x)$	5, basic tense-logic
7. $Pn(x=y) \supset (PnFn\varphi y \supset PnFn\varphi x)$	6, the notion of properties
8. $Pn(x=y) \supset (\varphi y \supset \varphi x)$	6, the RPF principle
9. $Pn(x=y) \supset (x = y)$	6, 2

9 clearly contradicts the assumption in Wyndham's story that the objects on the left and the right arm of the big Y are presently different although they were earlier identical.

3. Possible responses to the argument based on Wyndham's case

There are several ways to respond to the argument based on the argument mentioned in section 2. Four important responses will be listed in this section:

- a) Prior argues that there is an obvious way out of the problem, simply by denying the RPF principle:

$$p \supset PnFn p$$

Prior argued that this is not a valid principle. According to his ideas of time and logic, it does not follow from the present truth of p that it was going to be the case that p .

The idea of rejecting the RPF principle has recently been explored and discussed by Patrick Todd in his book, *The Open Future* [2021] and in Aldo Frigerio's interesting review of Todd's book [2023].

- b) According to another possible response to the argument one may question the step from 6 to 7. In this step it is assumed that if φ is a property then $Fn\varphi$ is also a property. For instance, if "is reading

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Plato" is a property of a person, then "going to read Plato in n days" is also a property that the person may or may not have. Some will probably question that this is so based on considerations regarding the contingent future, since they will hold that such a property is meaningless. However, others will - based on their view on future contingency - hold that $F_n\phi$ is in fact a meaningful property.

- c) Leibniz's law and thereby the step from 8 to 9 should be rejected in general.
- d) Wyndham's case should be rejected since it ignores the fact that if the left arm of the big Y is real then the right arm is unreal, and vice versa.

It might be seen as problematic to let the rejection of the above argument depend on the rejection of a principle that many philosophers and logicians consider as intuitively attractive (cf. Øhrstrøm and Hasle 1995 & 2020). For this reason, letting the response to the argument rely on a) or b) alone should be avoided. However, as we shall see in the following section Prior offered important and interesting considerations that speak in favour of c) and d) being very relevant and attractive responses to the argument based on Wyndham's case.

4. Possible Worlds and Identifiable Individuals

In his paper "Identifiable individuals" [2003, p. 81 ff.] published in 1960, Prior discussed the notion of individuals and the possibility of the same individuals occurring in counterfactual cases or situations. It turns out to be essential to the understanding of the discussion of individuals in the context of possible worlds. In fact, it may be argued that the scope of the counterfactuals is in fact possible worlds. However, this is by no means an easy notion. Prior wrote:

When we talk about 'possible worlds' we frequently do so as if each such world were a complete and separate idea in the mind of God (or some such place); and when thinking of them in this way I find it difficult to believe that *any* merely possible world can contain individuals identifiable as our Julius Caesar and our Mark Antony. My objection here is not at all the Leibnizian one that Caesar is or is defined by the sum of his properties, so that any individual with different properties (including relational properties; and so any

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individual set in a different world) could not have been Caesar. On the contrary, I am away over on the other side of this fence; and it is just because Caesar *isn't* a property or collection of properties, that it is impossible as it were to detach his identity from the *Caesar that is* and attach it to a merely imaginary person in a merely imaginary world.

[Prior, 2003, p. 84]

In his further attempts to explain how possible worlds should be conceived Prior writes:

We might say that a possible world is (i) one of the alternative possible future outcomes of the present actual state of affairs; or by natural extension (ii) anything that *was* a possible world in the preceding sense, i.e., an outcome of some past of state of affairs which *was* possible at the time, though it may by now have been excluded by what has actually taken place instead. Or finally (iii) we may use the phrase for anything that constitutes a 'possible worlds' in sense (i) or (ii), together with its past, so that a possible world in this last sense is a *total course of events* which either is now possible or was possible once.

[Prior, 2003, p. 84]

However, even if we have established the idea of possible worlds in a clear manner, there are still a lot of problems to consider in relation to the notion of identifiable individuals. Among other things, the identification of a person and his life-history may be doubted. This difference has been very much emphasized by N.L. Wilson [1955]. However, could a person have had a different life-history and still be the same person? Prior stated: "For either of us this would be like (though not perhaps as like Wyndham thinks) admitting to being a mere might-have-been". [Prior, 1976, p. 64]

5. Conclusion

Prior's study of Wyndham's case is clearly very interesting as it turns out to lead to several essential questions within tense-logic and its relation to temporal and transworld identity. It is obvious that Prior's work on the topic is unfinished and tentative. However, many others have continued this study, cf. [Goodman 1983] and [Lewis 1986] as well as the more general overview of the field by Mackie and Jago [2022]. It is very likely that modern scholars working with temporal and transworld identity

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within a tense-logical framework can benefit from going back to Wyndham's case and Prior's study of it.

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