# Prior's Individuals.

Hartley Slater
University of Western Australia
hartley.slater@uwa.edu.au

Prior had a close knowledge of theories of individuals, including that of Russell. However, when he formulated his tense logic Q he presumed a non-Russellian, pre-suppositional account of individuals, such that they might exist at one time but not at another, and when they did not exist no statement could be made about them. This paper examines the correctness of such a pre-suppositional account of individuals, showing there are features of natural language it cannot account for. It is shown that the required features can be formalised in Hilbert's epsilon calculus, and that using that calculus substantiates a Russellian understanding of 'logically proper names'.

The entities we must look at are the referents of what Prior called 'Russellisn names' (Prior 1971, p.152):

> If we [are] using an expression as a Russellian name, we may find this concept exemplified in unexpected ways. For example, it may be that phrases of the form 'The ϕ-er' can be used as Russellian names as well as having the quite different use that Russell assigns them. We may, for example, so use the phrase 'The man over there', in a sentence like 'The man over there is clever', that its sole purpose is to identify the individual of whom we wish to say that he is clever, and the sentence may be being used simply to say that that particular individual is clever, and not at all to say, for example, that the individual is a man, or that he is 'over there'. The sentence used would then be true if and only if the individual meant was clever, and it would still be true if it turned out that the individual was not a man but a woman or a Robot, or that he had moved into quite a different position without our noticing it. … Where the phrase is used as a Russellian description, the case of course is different. … And if phrases of the form 'the ϕ-er' can be used as Russellian names, no doubt ordinary proper names can be so used also. We might use 'Johnny Jones' in 'Johnny Jones has measles' simply to identify a certain individual and say of him that he had measles, so that this would be true if this individual had measles, even if for example, his name were not really 'Johnny Jones'.

Prior's hesitancy about the existence of such names and descriptive phrases was in tune with his time, indeed in tune with the whole of twentieth century predicate logic. The proof that they exist in fact rests on a piece of predicative language which standard predicate logic cannot handle: discourse referents. The case is sufficiently illustrated when someone says 'There is a mouse in the room'. For we may reply to this with 'Where is it?', and use an expression in language, namely the pronoun 'it', which standard predicate logic cannot symbolise. One needs a referential term, derivable from the initial existential remark as a discourse referent, to keep track of the subject of discussion. In this case 'that mouse in the room' is the descriptive replacement for the 'it', i.e. this referential phrase is the discourse referent derivable from the introductory statement 'There is a mouse in the room'. The phrase contains a demonstrative 'that', indicating the indefiniteness of its referent, but the most crucial point is that the reference of the 'it' is obtained quite independently of whether the first speaker speaks truly or falsely. The reference is to that mouse in the room, whether or not there is a mouse in the room. In the first case the object under discussion is properly described by the phrase. In the second case the referential phrase refers to a fiction, although it still may be applied, ironically, to whatever might have occasioned the initial remark. Maybe the 'mouse in the room' was merely a shadow on the carpet, which might be taken, formally, to be a counterpart in this world of the fiction involved. It is easy to see that epsilon terms formalise such referential phrases.

Hans Kamp, amongst others, has tackled the discourse referents problem in other ways. In the full paper Kamp's alternative is discussed, showing the advantage of using Hilbert's epsilon calculus instead. Its advantage simply lies in its capacity to explicitly formulate demonstrative referential phrases like 'that mouse in the room'. The eternal objects referred to by such phrases are then not necessarily empirical objects, but simply subjects of discourses whether those discourses are factual or fictional. The point can be illustrated in a central case, although other cases are also considered in the full paper. For one of the theorems in the epsilon calculus is that

(1). $(\exists x)(Kx \,\&\, (y)(Ky \supset y=x) \,\&\, Bx)$

is equivalent to

(2). $(\exists x)(Kx \,\&\, (y)(Ky \supset y=x)) \,\&\, B\varepsilon x(Kx \,\&\, (y)(Ky \supset y=x))$.

For '$(\exists x)Fx$' quite generally is equivalent to '$F\varepsilon xFx$' (see Leisenring 1969, Meyer Viol 1995, Slater 2009). So (1) is equivalent to '$Ka \,\&\, (y)(Ky \supset y=a) \,\&\, Ba$' for $a = \varepsilon x(Kx \,\&\, (y)(Ky \supset y=x) \,\&\, Bx)$, which means (1) entails the first conjunct in (2). But the first conjunct in (2) is

equivalent to ‘Kb & (y)(Ky ⊃ y=b)’ for b = εx(Kx & (y)(Ky ⊃ y=x)), so (1) entails that a = b, and so that Ba ≡ Bb, and so the whole of (2). But from ‘Kb & (y)(Ky ⊃ y=b)’, and ‘Bb’ (1) follows, making (1) and (2) equivalent. The equivalence then demonstrates the relation between Russell’s attributive, and Donnellan’s ‘purely referential’ understanding of definite descriptions. For (1) encapsulates Russell’s Theory of Descriptions, in connection with ‘The K is B’; it involves the explicit assertion of the first two clauses, to do with the existence and uniqueness of a K. Since Donnellan, however, we have realized that there are no preconditions on the introduction of ‘the K’ as an individual term. So ‘The K is B’, with ‘The K’ an individual term, may always be given a truth-value, even if, sometimes, that truth-value is merely an arbitrary one. As a result the second conjunct in (2) properly formalises ‘The K is B’, since the cross-reference means that the whole of (2) reads ‘There is a single K. It is B’, and the descriptive replacement for pronoun ‘it’ there is ‘The K’. On this basis the Russellian expression (1) is better read ‘A sole K exists and is B’ rather than ‘The K is B’.

The consequences for Prior’s own account of individuals are now easy to set out, since individuals, properly so-called, are now seen to have an eternal existence, as Russell himself realized. Russell realised that ‘x exists’ where ‘x’ is a logically proper name, must be necessarily true (Prior 1971, p.149). But let us first note that the same consequences arise for another well-known theory of individuals: David Lewis’. For the point that has to be made against Prior is thoroughgoing against many twentieth century theories about individuals: that they confused individuals with individuating properties. The error can possibly be traced to Russell, for he used iota terms rather than epsilon terms, and specifically allowed

(∃x)(x = ιyKy)

to be an abbreviation for

(∃x)(Kx & (y)(Ky ⊃ y=x)).

So it easily looks like the identity of an individual is inseparable from the presence of certain properties. In the absence of some of these properties it then becomes plausible that a ‘counterpart’ might be recognisable if sufficient of the others are present. Thus we seem to be able to accommodate ‘Quine might have not been a logician’, ‘Quine might not have been such a traveller’, etc. But what about more extreme thoughts like ‘Quine will become a centipede’ as might be found in Buddhist accounts of re-incarnation? Indeed it is said there was a man who thought his wife was a hat!

The point, of course, applies not just to trans-world individuals but also to individuals as they are extended in time, and it is here that Prior was caught up in the same confusion.

For Prior's temporal logic Q was pre-suppositional with respect to individuals, embracing the idea that since these sometimes exist, and sometimes do not, a statement about them when they did not exist was unavailable. Considering two times as an illustration that gave him a six-valued table covering possible combinations of 'true', 'false', and 'unstatable' (Prior 1957, p.41). But what Prior was thinking about were not individuals properly so called, but individuals in a certain form, for instance a person when alive, as opposed to when dead. That would be taking, like Lewis, a collection of properties (such as heart beating, breathing, and brain activity) to define an individual whereas the individual is instead the entity which has these properties at a given time, and which can still be talked about even when they are lacking.

Prior, of course, being the thorough scholar that he was, was aware that he was treading on perilous ground in formulating his system Q. Indeed he suspected in some detail what the contrary, proper treatment might be (see Prior 1957, pp.29-30):

> … if [If it will be the case that something ϕ 's then there is something which will ϕ] is laid down as a logical law, i.e. as yielding with all concrete substitutions for its variables a statement which is true whenever it is made, it can only be justified by the assumption that whatever exists at any time exists at all times, i.e. the assumption that all real individuals are sempiternal.
>
> It may be that this assumption is capable of metaphysical justification. With regard to our counterexample – that perhaps there will be someone flying to the moon although it will not be anyone now existing – it may be argued that persons are not individuals in the sense in which the x's and y's of quanitification theory stand for names of individuals, and that all genuine individuals do exist at all times. On this view, the point about the flight to the moon is that although the collection of genuine individuals which will perform the flight has not yet come to constitute a person, these genuine individuals – electrons or whatever they might be – do exist now, and always have done and always will. And this would save the Barcan formula, for the difference appealed to now turns out to be … one between forms more like … 'It will be the case that something is a person and flies' and 'Something is a person of which it will be the case that he flies'.

He goes on 'But I doubt whether this story about sempiternal electrons is good physics, and am sure it is not good logic. That is to say, even if it be true that whatever exists at any time exists at all times, there is surely no inconsistency in denying it, and a logic of time

distinctions ought to be able to proceed without assuming it'. As we have seen with respect to David Lewis, however, there is an inconsistency in denying it, since it means denying that 'x exists' where 'x' is a logically proper name, is necessarily true. But to understand why this necessity is so, we must return from Prior's contingent, omnitemporal physics, and Lewis' metaphysics of counterparts, and go back to the simple recognition (and epsilon analysis) of discourse referents. Eternal individuals are merely subjects of discourse.

References

Kamp, H. 1995. "Discourse Representation Theory", in: J. Verschueren, J-O. Östman & J. Blommaert (eds.), Handbook of Pragmatics, Benjamins, pp. 253-257.

Leisenring, A.C. 1969, Mathematical Logic and Hilbert's Epsilon Symbol, Macdonald, London.

Lewis, D. 1973, Counterfactuals, Blackwell, Oxford.

Meyer Viol, W.P.M. 1995, Instantial Logic, ILLC, Amsterdam: ILLC.

Prior, A.N. 1957. Time and Modality. O.U.P., Oxford..

Prior, A.N. 1971, Objects of Thought. Edited by P. T. Geach and A. J. P. Kenny. O.U.P., Oxford.

Slater, B.H. 2009. 'Hilbert's Epsilon Calculus and its Successors' in D. Gabbay and J. Woods (eds) Handbook of the History of Logic, Vol 5, Elsevier Science, Burlington MA, 385-448.