

# Prior's turn from determinism to indeterminism

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## Abstract

Indeterminism assumes a central place in Arthur Norman Prior's invention and development of modern tense logic. Before this indeterminism, Prior was for a number of years a devout determinist. But Prior's turn from determinism to indeterminism, so important for his mature work, has never been explained properly. This article presents the enigma of Prior's turn from determinism to indeterminism. We know much about his early determinism and recently have learned more about how he became a determinist, but, apart from the fact that he in the course of the years between 1949 and 1953 became an indeterminist, we know very little about how or why he became an indeterminist and what exactly he then understood by free will and indeterminism. He never explained this himself at any length, but scattered remarks in various texts provide some aid in approaching this issue. We here take a look at some important texts in which Prior writes about the free will to help us a step further toward solving this riddle.

**Keywords:** Arthur Norman Prior, free will, determinism, indeterminism, foreknowledge, Jonathan Edwards, asymmetry of time.

# 1 The enigma

Arthur Norman Prior (1914 – 1969) is best remembered for his development of tense logic, which without doubt was his greatest achievement.<sup>1</sup> Behind this invention lies a partly unknown story about the intellectual development that facilitated and was integral with this work: his most remarkable transition from being a strongly convinced determinist to an equally convinced indeterminist. Interwoven with this development was his turn from being a Calvinist believer into the agnostic position he held toward the end of his life. Recent discoveries have confirmed this story about Prior's intellectual journey from determinism to indeterminism and underscored the importance this had for his development of tense logic (Jakobsen et al, 2020a/2020b, Grimshaw 2018). His intellectual development from determinism to indeterminism largely took place in the years from 1949 till 1953, after which time Prior consistently adhered to a basic assumption of human free will and a concomitant indeterminism. Nevertheless, for all its importance this turn has never been explained very well – neither in the literature on Prior, nor by himself. The latter fact is all the more striking since Prior in his determinist period was very clear and explicit about his reasons for determinism. Indeed, some of his writings in this respect are very persuasive and bear witness to a deep commitment to determinism. Nothing similar to this can be found with respect to his reasons for having become an indeterminist, or his arguments for indeterminism. There are, however, some scattered remarks spread in various places of his work, and these we shall strive to identify and connect. Moreover, the great role the tenet of indeterminism played in his development of tense logic in its own manner signifies a deep commitment now to this idea. Nevertheless, Prior's change from determinism to indeterminism is enigmatic. No 'smoking gun' in this respect has ever come forth – we do not have a

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<sup>1</sup> This is the estimation made already in (Kenny 1971, p. 348), and it is correct in two respects: firstly, this was the contribution from Prior's work that has had the greatest and longest lasting effect; secondly, in the first decades after Prior's death the invention of tense logic was by and large what he was known for. In recent decades (and in particular since 2010) there has been a growing realization of the importance of Prior's work in other fields, as well as internal cohesion of different parts and themes within his work.

paper or even a Nachlass<sup>2</sup>-note from Prior in which he gives clear reasons for abandoning determinism in favour of indeterminism. While we do not purport to solve the riddle in any definitive manner in this paper, we intend to chart and analyse writings in which we find 'pointers' to his reasons for this transition and can learn more about the nature of Prior's view on indeterminism.

### **1.1 Some cautious qualifications**

As we shall see – and as is rather to be expected – there are a few cautious qualifications to be made to the picture unfolded so far. Prior struggled with the concept of predestination and his Christian belief many times even before 1949. When we however fix on this year, it is because that was the year his project of writing a 'History of Scottish Theology' was abandoned – and that was, according to Mary Prior, a turning point (Hasle 2003, 295). In March 1949 the Priors' apartment caught a fire in which the manuscript for the history of Scottish Theology was charred. Recently, Patrick Smith has transcribed and annotated a letter from Arthur Prior to David Daiches Raphael (1916-2015), in which Prior describes the fire. It is interesting, as Smith also comments, that Arthur seems to have been more sad about losing his books on philosophy than the theology books which he managed to save. He had managed to pull a case of theology book into safety – these were saved and the rest went up – “but these [the theology books], though valuable, were only theological (that, no doubt, is a sad way to speak of the Queen of the Sciences!)” (Smith 2023, 34). While he, like Aquinas, still considered theology the Queen of the Sciences, in honesty he would have preferred to save the philosophical books rather than the theological ones. He had by 1949 turned more to philosophy than theology and, as Mary points out, “the project [of writing a History of Scottish Theology] was never resurrected” (Hasle 2003, 295). While this project hardly constitutes a proof of his continued adherence to the belief in Calvinistic Christianity and predestination, at least until it was given up in 1949, it does indicate a continued positive engagement with these matters up till this time. The approach might be termed 'historical', but Prior would hardly engage himself in this without a systematic interest, too.

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<sup>2</sup> A.N. Prior's Nachlass is being digitized and much is available on [Nachlass.prior.aau.dk](http://Nachlass.prior.aau.dk). For more, see also [Priorstudies.org](http://Priorstudies.org).

## 2. Early determinism

The recent discoveries of three little essays written by Arthur Prior from 1931, when he was 16, has given us substantial insight into his early turn to Calvinism (Jakobsen et al, 2020a). It becomes clear that it was his reading of Jonathan Edwards' works which influenced him to abandon the Arminian<sup>3</sup> view on free will, which reigned in his home and methodist denomination. Since Prior was the third generation of methodists who had originally come to Australia as missionaries, this was a consequential change in conviction. Prior dedicated *Essay on Religion* (2020a) to his father "and other Arminians who will not agree with it" (Prior 2020a, 167). From the essay we learn that he had struggled with atheism. Einstein's work on space and time was at the center of this struggle. In Prior's *Essay on Science* (2020b) he discussed Einstein's theory of relativity with insightful diagrams and illustrations. It is a rather interesting discovery that we here find a young Prior defending a view of space and time which he later came to reject:

"From the Absolute point of view, Time is not something that passes or flows, but is merely an aspect of a fixed entity Space-Time. The idea of the passage of Time is just one of our many delusive sense-impressions (from the point of view of physics at least) and even the distinction between past and future is treated by Einstein as a mere "convention based on light-signals." A strange picture indeed, but we must not forget the distinction that exists between the impression we receive and the real things that make them — the distinction between Relative and Absolute."  
(Prior 2020b, 241)

It is also clear that his studies into the science of space and time had made him a determinist like Einstein:

"Everything is determined, the beginning as well as the end, by forces over which we have no control. It is determined for the insect as well as the star. Human beings, vegetables and cosmic dust, we

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<sup>3</sup> So called Arminianism from Jacob Arminius (1560-1609) who argued against John Calvin theology on matters pertaining to election, where Arminius argued that God elects on the basis of foreknown faith, not unconditionally. In practice, Arminius' position was regarded as an acceptance of human free will, also and especially in matters of faith, as opposed to Calvin's position.

all dance to a mysterious tune intoned in the distance by an Invisible Piper.”

(Prior 2020a, 200)

It is little wonder then that Prior had found it difficult to uphold methodist theology with its emphasis on free will. Indeed, his adherence to Einstein and the poet Shelley had made him a sceptic, “frequently lapsing into atheism” (Prior 2020a, i). Prior had not been able to find any way to reconcile the determinism precipitated by science with a theology in which indeterminism is built into its core (and a rather simplistic notion of free will at that). All of this changed however once he discovered the determinist theology of Jonathan Edwards. Through his readings of this thinker, it had become clear to him that “orthodox Christianity is a much more reasonable religion than I had previously supposed it to be.” (Prior 2020a, 167) Indeed, in his essay it becomes clear how huge an impact Edwards’ philosophy and theology had on the young Prior’s thinking:

“In his attempt to place strict Calvinistic orthodoxy on a logically consistent footing, Edwards, so far as the light of his day could show, met with full success. But we have moved a long way from the intellectual standpoint of the eighteenth century, and have learnt since then a number of things which make many of his ingenious explanations hardly acceptable today. Yet I believe most strongly that there may still be found a firm logical and reasonable basis for the most rigid orthodoxy; and I have presumed to take upon my shoulders the mantle of JONATHAN EDWARDS in an attempt to find and to show that basis.”

(Prior 2020a, 183)

The discovery of the three little essays helps us explain why Prior became a determinist and makes it clear that Jonathan Edwards was not just “one of the first philosophers he ever heard of”, as he writes in *Limited Indeterminism* (2003b), but also had ignited in Prior a passion for finding a “firm logical and reasonable basis” for Christianity. As late as 1962 Prior still found in Edwards “a certain metaphysical logic with which we may still grapple profitably.” (Prior 2003b, 73). Prior had in 1931 envisioned himself as putting on the mantle of Jonathan Edwards. When later Prior became a logician one may see that as a consequence of that vision, at least in part. In *Time and Modality* (1957) Prior confessed to having “a

hankering after well-constructed theories”, and this he had already discovered in Edwards’ writings, though at this time he was as yet unacquainted with symbolic logic. It was J.N. Findlay who inspired Arthur Prior to become the logician and philosopher who would invent tense logic and defend the dynamic view of time, but his adherence to well-constructed philosophical theories was already established before he met Findlay, through his reading of Jonathan Edwards.

### 3. Prior’s struggle with predestination

Prior soon exchanged the theology of Jonathan Edwards for that of the Swiss theologian Karl Barth (1886-1968). During his years of study he published many articles in the Student Christian Movement’s Magazine *Open Windows*, and the Barthian inspiration is evident in these. In February 1935 Prior became a student of theology at Knox College, studying for a ministry in the Presbyterian Church. It only lasted until August 1936 when Prior had come to doubt his vocation to the ministry. Prior writes that while he still had a “desire to serve the Church” he had become convinced that he was “not cut out for the work & the life of the regular ministry.” (Grimshaw 2018, 19). From 1935 until 1937 he studied philosophy and logic under J.N. Findlay under whom he wrote his master thesis *The Nature of Logic*. Unfortunately, the thesis is not extant, but from a letter to Mary Prior, we know of its title, or content<sup>4</sup>, but more importantly that it reflects Findlay’s huge influence on Prior at the time (Jakobsen 2019). Findlay gave to Prior his ‘first theory of tenses’ (Findlay 1985, 26), and had already worked on tenses and the dynamic view of time in *Relational Properties* (1936). Prior’s studies under Findlay had introduced him to a logical and philosophical realism which did not go well with Karl Barth’s philosophical idealism (Prior 1937) but would rather lead him back to something more akin to Jonathan Edwards’ metaphysical logic. Prior became a determinist through his early studies of the science of space and time. He had become an adherent of Jonathan Edwards’ theology and philosophy for that reason, but once he encountered Barth, he found a view on predestination, with which he resonated better than with that of Edwards. So why did he not simply continue to study theology with the purpose of entering the ministry?

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<sup>4</sup> Jack Copeland has in personal correspondence to David Jakobsen pointed out that ‘my thesis on ‘The Nature of Logic’, which is what Prior writes, could indicate either the topic or the title. Of course, it could also indicate both.

The best answer is the aforementioned logical realism, initially encountered in Edwards philosophy and further developed through the teachings of Findlay. It caused him severe problems with Karl Barth's thoughts. For that reason, the Barthian solution to the concept of predestination, while more humane, was not any more useful to Prior who could no longer accept Barth's reliance upon philosophical idealism. Though still a Calvinist, Prior during the late 30s and early 40s clearly became uncomfortable with the concept of predestination. In some unpublished notes from ca. 1940 on the Westminster Confession<sup>5</sup> Prior remarked:

"There would be almost universal agreement that the original Calvinist doctrine of predestination requires revision... The cue to the revision that is necessary is already given in the original confession itself, when it takes over the Biblical description of the Church as "the fulness of him that filleth all in all." The Calvinist doctrine of predestination should be criticised in the light of what is here cited as its own proof-text, Ephesians 1."

(Prior 1940c, 1)

The Westminster Confession is a fundamental statement of Presbyterian (i.e. Calvinist) Christian creed formulated by the 'Westminster Assembly' in London 1643. It summarizes the originally Augustinian doctrine of predestination as follows:

III. By the decree of God, for the manifestation of his glory, some men and angels are predestinated unto everlasting life, and others foreordained to everlasting death.

In a later writing from 1942, Prior makes explicit one of his worries in rejecting the tenet that some humans have been created as damned whilst others have been created as saved:

Calvinists have increasingly succumbed to the temptation to replace the distinction between what men are in Christ and what they are in themselves, by one between different groups of men...".

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<sup>5</sup> In 1940, a theological process with a view to possible revisions to the Westminster Confession was taking place in London.

(Prior 1942d, 13)

On the other hand, as we have seen the doctrine of predestination was for Prior an aid in harmonizing his scientific bent and his Christian belief, a fact which we find echoed as late as 1946:

But it is not enough to deplore his [Knox'] willing acceptance of horrifying beliefs, which in part shows an admirable and even scientific determination to bow to the truth as he sees it and hide nothing and tone nothing down.

(Prior 1946, 21)

To be sure this quote also bears witness to considerable discomfort with a rather common but 'horrifying' understanding of Calvinism. And there is also the suggestion that that kind of understanding – though unacceptable – is the 'scientific' understanding of Calvinism. This hardly constitutes a positive reason for turning to free will and indeterminism, but it does suggest some motivation for abandoning the acceptance of predestination. Something had to be done to the supralapsarian theology of Calvinism, but his Barthian position made it impossible for him to deal with under the tenets and methods of analytic philosophy. It would have to be dealt with historically, and this, we argue, is the main reason for the huge importance of Prior's project on the history of Scottish theology. Once it burned – Prior's attempt to reconcile with the predestination of the Presbyterian Church was over. Theology, while it was still the Queen of Science, was something which he had not discovered a way, yet, to work with in analytic philosophy. In the main, till 1949 Prior adhered to determinism and believed in the doctrine of predestination – non-identical, yet, in Prior's thought, related beliefs. But there are nuances to this picture which are important for this small investigation, because they likely anticipate a part of his reasons for abandoning at least the faith in predestination (and whichever other beliefs which were seen as necessarily involved with that belief). We have not aimed here at a thorough analysis of Prior's theological thought in general and his involvement with predestination. Likewise, we have also left aside his so-called religious crisis in 1942. That could only be relevant in this place as providing examples of the near-anguish he felt at this time about predestination (and Christian belief). For such closer analysis we point to Hasle (1999), Grimshaw (2018) & Jakobsen (2020b). We only wish to mention this as a point of caution about our small chronology of Prior's



turn and show major changes in his attitude to predestination – and also to highlight, of course, the role of the concept of predestination in Prior’s development from determinism to indeterminism.

#### **4. Free will as a basic assumption**

After having turned to indeterminism, Prior clearly did not consider the position known as compatibilism to be a satisfactory solution to the question of free will. His early paper *Determinism in Philosophy and Theology* (Prior 2014a) is a clear and strong defence of determinism. Within this framework he does consider a notion of free will which aligns well with compatibilism, where compatibilism, as we shall assume throughout this article, is understood as a theory of how determinism can be true and agents still have a free will.<sup>6</sup> He sets forth the idea that free will can be understood as being free from outer force (or for that matter inner compulsion) – a situation where one’s acts and choices are not forced upon one, but rather are experienced as being in agreement with one’s inner wishes. (Prior even anticipates a psychological notion which later came to be very popular, the idea of flow/being in flow):

Over large stretches of ordinary life, it doesn’t seem to matter very much whether we regard our choices as rigidly determined or as free. Whatever lies behind them, they remain genuine “choices” and genuine “acts”, and that is all that concerns us. At some moments this complete indifference to the nature of their origination may even be felt with a positive thrill of pleasure. At times of intense and unhampered activity, we feel that we are originating our own acts without either compulsion or opposition, and at the same time that we are being borne along without needing to make any effort. To speak deterministically, we cannot say at such times whether our role in the chain of causations is that of cause or effect. The part of the causal stream which flows in us, or rather, the part of it which we are, is flowing in an unimpeded and unbroken way, and the division of the process into “causes” and “effects” is irrelevant. Experiences of this kind, to which no one is a stranger (they may come, for instance, to a sportsman in the

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<sup>6</sup> We are grateful to an anonymous reviewer of this article for pointing out that compatibilism does not have to imply that determinism is true. Nonetheless, in practice proponents of compatibilism are almost invariably determinists.

heat of a game, or to a writer during his composition), seem to make sense of at last one part the Augustinian picture – that which depicts our only acts of real freedom as acts which have their source not in ourselves at all but in “divine grace”.

(Prior 2014a, 3)

These observations come very close to compatibilism (perhaps they could even be said to be an instance thereof). And in any case, Prior’s description in favour of determinism here is vivid, clear and persuasive. But that only makes it even more striking that after his turn to indeterminism, he never returned to these ideas. After his turn to indeterminism, Prior never considered again the compatibilist tenet that there can be a meaningful notion of, what he called ‘real freedom’ within a deterministic framework. That is also made clear in a dialogue that he had in 1957 with J. L. Mackie:

Mackie: Suppose you take yourself to be making, over a long period, a series of ‘decisions’, and then I suddenly come forth with a certain Mr. Smith, who all the time has been predicting what you will do, and has been right every time. Would this give you any inclination to withdraw the claim to have been making decisions?

Prior: Yes.

Mackie: So that it might be that you never make decisions at all, in your sense of ‘decision’?

Prior: Yes.

(Prior 1958, 5)

This answer to Mackie emphasized that Prior would give up his belief in free will (and indeterminism) if he should become convinced that all his apparently free acts could in fact be predicted. But compatibilism certainly allows for – even if only in principle – the prediction of future acts which are free in the compatibilist sense. It is thus clear that compatibilism does not leave room for that notion of human free will which he came to hold in the course of his turn to ideas of indeterminism.

One is tempted to say that it became an axiom to Prior that “free will is a fact”, (see below). We might not be able to analyse it in any detail or to explain it psychologically, but we have to accept its reality.

## 5. Prior's notion of free will

In two early papers (probably written in the early 40s), *Reactions to Determinism* (Prior 2014b) and *Determinism in Philosophy and Theology* (Prior 2014a), Prior had systematically discussed – and argued for – the idea of determinism. At this time in Prior's life, Prior was a believer in the Calvinist doctrine of predestination, which originated with St. Augustine, and his discussion of determinism was interwoven with this doctrine. At the systematic level it must be noted that general determinism is not the same thing as predestination – partly because the former is secular and can be held for many various reasons, partly because the latter is religious and furthermore doesn't *entail* determinism.

In *Determinism in Philosophy and Theology* (Prior 2014a), Prior makes it very clear that he is fully aware that predestination is not to be taken as plainly identical with determinism, noting inter alia that

... Augustinians have almost always insisted on distinguishing their own position sharply from that of other determinists. Augustine and Calvin both vehemently repudiated any connection between their views and the fatalism of the Stoics.

(Prior 2014a, 1)

However Prior also makes it clear that he sees predestination and determinism as closely related:

Augustinianism (or Calvinism, or Jansenism, whatever we choose to call it) is nothing more than ordinary determinism expressed in rather crude and primitive terms ... It is in its close association with the concepts of "original sin" and "redemption" that the religious doctrine of predestination differs from philosophical or scientific determinism.

(Prior 2014a, 1-2)

And in the next step, it becomes clear how Prior simply accepts a straightforward determinism, and approaches the issue of predestination through this prism:

Even those of us who accept a straightforward determinism have to give some account of men's feeling of freedom, and their feeling of guilt; and it is a least conceivable that the "absurdities" of

Augustinianism contain a more accurate psychological description of the state of mind concerned, than does the "absurdity" of the ordinary non-Augustinian concept of "moral accountability".

(Prior 2014a, 2)

So, on Prior's views at this time, the Calvinist doctrine of predestination goes well together with determinism and the overall rejection of free will, as noted in these opening lines of *Determinism in Philosophy and Theology*:

It is exceedingly rare for philosophers to pay any great attention to the fact that a whole line of Christian thinkers, running from Augustine (to trace it back no further) through Luther and Calvin and Pascal to Barth and Brunner in our own day, have attacked free will in the name of religion.

(Prior 2014a, 1)

We shall now leave aside the intricacies of the relation between predestination and determinism and go on to concentrate on Prior's observations. And one line of observation which seems to us especially striking is his contention that the ordinary ideas of free will, when understood as moral accountability and general indeterminism, are at least as absurd as the idea of predestination:

We are guilty of that which we are totally helpless to alter; and to God alone belongs the glory of what we do when we are truly free. – Absurd as these doctrines appear, they are in the end no more so than the ordinary non-Augustinian concept of "moral accountability"... Even those of us who accept a straightforward determinism have to give some account of men's feeling of freedom, and their feeling of guilt; and it is at least conceivable that the "absurdities" of Augustinianism contain a more accurate psychological description of the state of mind concerned, than does the "absurdity" of the ordinary non-Augustinian concept of "moral accountability".

(Prior 2014a, 2-3)

In *Determinism in Philosophy and Theology*, Prior does not dwell on the absurdities of indeterminism. Much later, in a paper which is highly relevant for Prior's view on free will, he takes up an argument from Jonathan Edwards against free will.

[Jonathan Edwards] ... addresses [the question] 'whether any event whatsoever, and volition in particular, can come to pass without a cause of its existence'...arguing that if an act of will can occur without a cause, then anything at all, no matter how fantastic, can occur without a cause.

(Prior 2003b, 73)

In any case, it must be admitted that the notion of free will, understood as uncaused human acts, is less than obvious and that the 'content' of the concept is truly difficult to explain. And in point of fact Prior even after his turn to indeterminism never really tried to analyse or explicate this concept. He did show how it could be accommodated within tense logic, a major achievement of high relevance to any further discussion of the concept. But it goes without saying that this is not the same thing as explicating the concept. As noted at the outset, he came to accept free will as a fact, but considering his earlier convictions about its 'absurdities' it is surprising that he hardly discussed the concept directly. There are, however, some remarks in *Limited Indeterminism* (2003b), *Some free thinking about time* (2014c) and *Formalities of Omniscience* (2003a) which shed light on his indeterminism. In *Limited Indeterminism*, Prior argues against Edwards' argument for rejecting free will and refers to quantum mechanics to sketch a model of indeterministic action:

And it may be that the only circumstances without causes are the ways that electrons jump from orbit to orbit. But the explanation of this fact will lie, not in the nature of those non-existent or not-yet-existent jumps, but in the nature of the existing electrons (and of other existing things).

(Prior 2003b, 77)

However, it immediately becomes clear that Prior has in mind *another kind* of 'circumstances without causes':

A similar explanation holds, if the only uncaused circumstances are the ways people choose... It is rather that there are certain already existing objects which have certain capacities, and some which lack them... Persons, say, have the power, without the necessity, of doing X in certain circumstances; for oysters, on the other hand, doing X may be necessary or impossible; and Y, say turning into a

dragon, may be something which no existing object has the power to do.

(Prior 2003b, 77)

This statement is crucial. Quantum mechanics is an analogue, not the ground of free will. If it can be scientifically true, that there are uncaused events in the realm of electrons, then there is no *prima facie* argument against the view that this could be the case for free actions. Prior's turn to indeterminism and free will is associated with the belief that free will is an objective capacity of human beings. How Prior came to adopt this belief and how he might have further understood the notion we do not know, but he obviously accepted almost as an axiom that *Free will is a fact*.<sup>7</sup> In the early Fifties, Prior had become convinced that human beings do make genuinely free choices – which in turn renders complete prediction impossible (even in principle). Even an omniscient being will not be able to predict (foreknow) a person's free choices, because there is simply nothing which can be known (or the choice would not be free). Already (and we assume mainly) for this reason tense-logical calculi permitting a certain amount of indeterminism had to be worked out.

## 6. Foreknowledge

Prior's analysis – or rather, analyses – of the concept of foreknowledge has been studied and discussed in many places, and we shall not repeat let alone try to contribute to *that* discussion. The influence of Prior's discussion of foreknowledge in *Formalities of Omniscience* (Prior 2003a) has been noted by William Hasker, according to whom “the modern controversy over the compatibility of divine foreknowledge and human freedom, begun in the 1960s by Nelson Pike and A.N. Prior.” (Hasker 1998, 64) This is true, but it needs an important qualification. Pike's important paper *Divine Omniscience and Voluntary Action* was published in 1965, three years after the publication of *Formalities of Omniscience* in 1962, which had been presented at a conference a year or two earlier (Prior 2003a, 2). Regarding foreknowledge, there are a few points which

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<sup>7</sup> On this point, we would say that Prior agreed with Bergson, who famously stated: ‘*Freedom is a fact* (our italics), and among the facts which we observe there is none clearer’ (Bergson 1950: 221). We know that Prior was a reader of Bergson, though of course he differed from him in most respects – especially in the belief (Prior's) that time was amenable to formal logical analysis (Øhrstrøm and Hasle 1995, 257-258).

are especially pertinent to our current theme. As observed by Jack Copeland the relation between human freedom and future contingents (and hence, indeterministic tense logic) occurred early in Prior's thought, before he really started his work on tense logic:

... Aristotle speaks of some propositions about the future – namely, those about such events as are not already predetermined—as being neither true nor false when they are uttered... This appealed to Prior, once a Barthian Calvinist but now [ca. 1950/51] on the side of indeterminism and free will. There can be no doubt that Prior's interest in tense logic was bound up with his belief in the existence of real freedom.

(Copeland 1996, 16)

In (Prior 1953, 232-3), Prior cites Aristotle's argument for believing in the existence of future contingents, commenting that 'Aristotle is, I think, grappling with a genuine difficulty here.' (Prior 1953, 233). The difficulty in question is according to Prior "... can there be 'propositions', in the timeless sense in which 'proposition' is currently used, about events of this sort [contingent future events]", leading on to this remark suggesting an asymmetry between past and future:

"For what is the case already has passed out of the realm of alternative possibilities into the realm of what cannot be altered."

(Prior 1953, 233)

The asymmetry between past and future, which is cautiously suggested here came to be a hallmark of Prior's tense logical systems. Since the contingency discussed in these passages has to do with the possibility of, or proposition about, a future sea-battle, the 'difficulty' must relate to an element of human choice or decision. Prior is cautious in his remarks here – and with hindsight we can add, clearly only at the beginning of his tense logical enterprise – but we do see a suggestion of Prior's motivation for accepting and adopting the tenet of human free choice, though still a long way from a direct assertion of free will. His clearest assertion of his adherence to free will and its being closely related to the asymmetry of time we find much later in *On some free thinking about time* (2014c) and couched in quasi-theological language ('I believe...', 'creed')

So far, then, as I have anything that you could call a philosophical creed, its first article is this: I believe in the reality of the distinction between past, present, and future. I believe that what we see as a progress of events is a progress of events, a coming to pass of one thing after another, and not just a timeless tapestry with everything stuck there for good and all ... This belief of mine... is bound up with a belief in real freedom. One of the big differences between the past and the future is that once something has become past, it is, as it were, out of our reach - once a thing has happened, nothing we can do can make it not to have happened. But the future is to some extent, even though it is only to a very small extent, something we can make for ourselves.... if something is the work of a free agent, then it wasn't going to be the case until that agent decided that it was.

(Prior 2014c, 1)

Without mentioning the issue by name, all of this also tells us how the question of Divine Foreknowledge – and in fact the possibility of any kind of complete foreknowledge at all – is related to free will as well as the asymmetry of time (past and future). Prior obviously held that free choices cannot be known before they are made. Even an omniscient being will not be able to predict (foreknow) a person's free choices, because there is simply nothing which can be known (or the choice would not be free). Here, despite the great importance Prior saw in the way medieval logicians, like him, took tenses seriously, he differed from them on this point, even from an indeterminist like Duns Scotus:

I would go further than Duns Scotus and say that there are things about the future that God doesn't yet know because they're not yet to be known, and to talk about knowing them is like saying that we can know falsehoods.

(Prior 2014c, 2)

Prior dealt with this issue more systematically in *Formalities of Omniscience*, stating:

I agree with the negative admission of Thomas... that God *doesn't* know future contingencies literally... But (and this is what Thomas himself says) this is only because there is not then any truth of the form 'It will be the case that p' (or 'It will be the case that not p')



with respect to this future contingency *p*, for Him to know; and *nihil potest sciri nisi verum*. [nothing can be known except (what is) true]  
(Prior 2003a, 129)

We might summarize Prior's view as the claim that:

An action *A*, of a person *P*, is free if and only if *A* lies in the future and neither 'P will do *A*' or 'P will not do *A*' is true.

Once again, we emphasize that these observations do not give us any explication of human free choice – how such a thing could be in an otherwise deterministic world. The answer here could not be taken from the uncaused jumps of electrons, or the like, because this kind of contingency is random – whereas human free choice is somehow connected with volition and decision. At any rate we are not dealing with something which could like pure coincidence.

## **7. Brief summary – Prior's indeterminism**

We think this investigation has provided some insight into Prior's journey from determinism to indeterminism, some of his motivation for this turn and also some of the content of his indeterminism. Prior from ca. 1953 till his death in 1969 developed his indeterminism around a number of interrelated themes:

1. Human beings have a free will, permitting free decisions.
2. Free will is a fundamental human capacity - this must be accepted as a basic fact.
3. There is (yet) no truth about any future event which depends upon one or more persons' free will.
4. Future events which depend upon one or more persons' free will, cannot be foreknown.
5. Complete foreknowledge is impossible.
6. There is an asymmetry between past and future.

These tenets are closely related, some of them may even be equivalent, but we should note some slight nuances. A belief in free will/real human freedom is not *per se* a tense logical belief even though it calls for an indeterministic tense logic; and the tenet about the asymmetry between

past and future does not necessitate a belief in free will (one might reject human free will and yet consider the physical universe as partly indeterministic, for instance on account of the uncaused jumping of electrons). Though related, human free will as well as the asymmetry between past and future seem to have been separate values to Prior, each worthy of defending in its own right.

## 8. Conclusion

We have learned a lot about the young Prior's journey into a deterministic paradigm through the recent discoveries of Prior's three little essays from 1931. These discoveries help us understand the importance which Jonathan Edwards writings had in shaping Prior into the philosopher with a hankering for well-constructed theories. We now know a lot more about why Prior became a determinist which explains why he carefully and convincingly motivated a view on human freedom which was in essence compatibilist (even though he did not use that term). We cannot *yet* say the same for his turn to indeterminism. Allow us to repeat a point from the introduction ('The enigma'). It is well known among authors who write on Prior, or on themes which make significant reference to Prior, that he was an indeterminist. But to this date we have seen no close explanation of

1. Exactly why Prior turned from determinism to indeterminism
2. How he closer determined indeterminism (no pun intended)
3. What exactly he thought of free will - what it was and how such a thing could be

Some of those who have written on Prior may be somewhat discontented with this assertion. To answer those, again we enter into a bit of repetition: yes, others have already a long time ago realized 1) that Prior was an indeterminist, and 2) that this fact played a highly important role in his development of tense logic. But that is a far cry from really answering 1-3 above. It is one thing to *observe* – i.e. to respect the obvious fact that - he had become an indeterminist, and that this fact played a very important role in his work; it is quite another thing to explain *why* this was so and what more exactly this indeterminism might contain. Though we hope to have illuminated these questions better than before, the evidence we have does not provide a robust answer and thus we cannot

claim to have solved the riddle. The available indications are that Prior himself may have regarded free will and indeterminism as being beyond full explication. Signs are that he regarded them rather as primitives necessary for the explanation of other phenomena (especially the asymmetry between past and future). But in common acknowledgement of the fact that free will and indeterminism played a crucial and pivotal role in his thought, we should stress these concepts – and their oblique points – much more than has hitherto been the case.

## Referencer

1. Copeland, J. 1996. *Logic and Reality: Essays in the Legacy of Arthur Prior*. Oxford: Clarendon Press.
2. Bergson, H. 1950. *Time and Free Will*, Authorised Translation by F.L. Pogson (First Impression 1910), George Allen & Unwin Ltd., London.
3. Findlay, J. N. 1936. 'Relational properties', *The Australasian Journal of Psychology and Philosophy*, **14**, 176–90.
4. Grimshaw, M. 2018. Arthur Prior – 'A Young Progressive': Letters to Ursula Bethell & Hugh Teague 1936–1941. Christchurch: Canterbury University Press.
5. Hasle, P. 1999. 'The Problem of Predestination – a Prelude to A. N. Prior's Tense Logic. In M. Wegener (Ed.), *Time, Creation and World-Order* (pp. 139-159). Aarhus University Press.
6. Hasle, P., Jakobsen, D. & Øhrstrøm, P., Eds. 2020. *The Metaphysics of Time: Themes from Prior*, Volume 4 in the book series, *Logic and Philosophy of Time*, (Series editors: Per Hasle, Patrick Blackburn & Peter Øhrstrøm), Aalborg University Press.  
[The Metaphysics of Time OA.pdf \(aau.dk\)](#)
7. Hasle, P. & Prior, M. 2003. 'Life and work of Arthur N. Prior – An interview with Mary Prior', in P. Hasle, P. Øhrstrøm, T. Braüner, J. Copeland, A.N. Prior, *Papers on Time and Tense*, 2nd and Ext. Edition, Oxford: Oxford University Press, 313–36.
8. Hasker, W. (1998). *God, Time and Knowledge*. Ithaca: Cornell University Press.
9. Jakobsen, D. & Øhrstrøm, P., Prior, M., Rini, A. Eds. 2020a. *Three Little Essays: Arthur Prior in 1931*, Volume 3 in the book series, *Logic and Philosophy of Time*, (Series editors: Per Hasle, Patrick

Blackburn & Peter Øhrstrøm), Aalborg University Press.

[PRIOR3 OA.pdf \(aau.dk\)](#)

10. Jakobsen, D. 2020b. "Dispelling the Freudian Specter: A.N. Prior's Discussion of Religion in 1943," in [6]
11. Jakobsen, D. 2020c. "A.N. Prior and 'The Nature of Logic,'" *History and Philosophy of Logic*, 41(1), 71–81.
12. Kenny, A. 1971. "Arthur Norman Prior (1914-1969)," *Proceedings of the British Academy*, 56, 321–349.
13. Prior, A. N. 1937. "Revaluationism." *Student*, 6, 11.
14. Prior, A. N. 1940c. Notes on the Westminster confession (and the proposed revision). Unpublished (Typed, 2 pages, + handwritten, 3 pages, Box 7).
15. Prior, A. N. 1942d. Robert Barclay: Quaker or calvinist?. Unpublished (typed, 15 pp., Box 7).
16. Prior, A. N. 1946. The reformers reformed: Knox on predestination. *The Presbyter*, 4, 19–23.
17. Prior, A. N. 1953. Three-valued logic and future contingents. *The Philosophical Quarterly*, 3, 317–326.
18. Prior, A. N. 1957. *Time and Modality*. Oxford University Press
19. Prior, A. N. 1958. The good life and religious faith (East-West meeting at Canberra Dec. 1957). *Australasian Journal of Philosophy*, 36, 1–13.
20. Prior, A. N. 2003a. Limited Indeterminism. In P. Hasle, P. Øhrstrøm, T. Braüner, J. Copeland, A.N. Prior, *Papers on Time and Tense*, 2nd and Ext. Edition (pp. 73 - 79)., Oxford: Oxford University Press.
21. Prior, A. N. 2003b Formalities of Omniscience. In P. Hasle, P. Øhrstrøm, T. Braüner, J. Copeland, A.N. Prior, *Papers on Time and Tense*, 2nd and Ext. Edition (pp. 39 - 58)., Oxford: Oxford University Press.
22. Prior, A. N. 2014a. "Determinism in philosophy and in theology," in Øhrstrøm, P., Hasle, P., & Jakobsen, D. (Eds.), *The Nachlass of A.N. Prior*. <https://nachlass.prior.aau.dk/paper/determinism-in-philosophy-and-in-theology>
23. Prior, A. N. 2014b. "Reactions to determinism," in Hasle, P., Øhrstrøm, P., & Jakobsen, D. (Eds.), *The Nachlass of A.N. Prior*. <https://nachlass.prior.aau.dk/paper/reactions-to-determinism>

24. Prior, A. N. 2014c. "Some Free Thinking about Time." The Nachlass of A.N. Prior. <http://nachlass.prior.aau.dk/some-free-thinking-about-time>
25. Prior, A. N. 2020a. "Essay on religion," in [9]
26. Prior, A. N. 2020b "Essay on science," in [9]
27. Smith, P. 2023. *Arthur Prior in the 1940s: Letters and un-published works of Prior 1946-1949*. Master thesis, Massey University, Manawatu, New Zealand.
28. Øhrstrøm P., & Hasle P., 1995. *Temporal Logic: From Ancient Ideas to Artificial Intelligence*, Kluwer Academic Publishers, Springer Verlag.