

A Defence of Aristotle's 'Sea-Battle' Argument

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An enormous amount of philosophical energy has been devoted to reducing contingency in favour of the eternal, the necessary—in other words, the timeless. Remarkably, such efforts continue, as one can see in contemporary attempts to respond to, or even to ignore, the first argument offered to establish the reality and irreducibility of contingency: Aristotle's 'Sea-Battle' Argument. Aristotle argues that the supposed atemporality of the laws of logic—specifically the law of the excluded middle—is refuted by the fatalism which is implied by the truth-value of sentences about the future.

The purpose of this paper is to defend Aristotle's 'Sea-Battle' argument against the most important arguments which have been offered against it. After briefly presenting Aristotle's argument,¹ I will respond to five of the responses which have been offered, each of which purports to show that the simple future tense is not inconsistent with the claim that the future event described is contingent. In other words, these responses argue that future factuality is compatible with future possibility. An examination of Aristotle's argument provides the best indication of how one might begin to examine contingency: as an asymmetry between past and future.

¹ There are a number of different interpretations of the argument, but the alternative interpretations are attempts to avoid what these interpreters take to be a serious error imputed to Aristotle by the standard interpretation. As I believe that the standard interpretation is not at all in error, there is no need to consider the alternative interpretations. For questions of interpretation, see R. Sorabji, *Necessity, Cause, and Blame* (Ithaca: Cornell University Press, 1980), pp. 91-96.

I. Aristotle's Argument

The argument for logical determinism attempts to show that the belief in the truth or falsehood of future tense sentences has fatalistic consequences. If it was always true (if I may use examples other than sea-battles) that Obama would be elected in 2008, then it would appear that nothing could have been done to prevent Obama's election; hence, there was no genuine possibility² that it could have been otherwise. This conclusion is obviously false. A number of contingencies (e.g., Obama's choice of an alternative career, election fraud) might have intervened to prevent Obama's election. But if it would have been true to say in 1908, "Obama will be elected President in 2008," then, according to Aristotle's argument, Obama's election happened of necessity.

Aristotle states the problem as follows:

Hence, if in the whole of time the state of things was such that one or the other was true, it was necessary for this to happen and the state of things always to be such that everything that happens happens of necessity. For what anyone has truly said would be the case cannot not happen; and of what happens it was always true to say that it would be the case.³

The attribution of necessity follows directly from the primary meaning of necessity, as given by Aristotle in the *Metaphysics*: "what cannot be otherwise."⁴ Aristotle points out that it doesn't matter whether anyone actually makes the statement that "x will happen" as it is not

² I use the term 'genuine possibility' to mean 'what anyone or anything is capable of doing,' excluding the epistemological sense of possibility ('for all I know') and logical sense of possibility ('not self-contradictory'). Arguments will be provided to justify these exclusions over the course of the paper.

³ Aristotle, 'De Interpretatione,' in "*Categories*" and "*De Interpretatione*," trans. J.L. Ackrill, (Oxford: Clarendon Press, 1963), pp. 51-52.

⁴ Aristotle, *Metaphysics*, V.v.3-4 (1015b), Volume I, trans. Tredennick (Cambridge MA: Loeb, 1933), p. 225.

because of the saying of the statement that it is true.⁵ Nor does it only apply to statements involving human actions such as the engagement in a sea battle; it applies to any change whatsoever:

Again, if it is white now it was true to say earlier that it would be white; so that it was always true to say of anything that has happened that it would be so. But if it was always true to say that it was so, or would be so, it could not not be so, or not be going to be so. But if something cannot not happen it is impossible for it not to happen; and if it is impossible for something not to happen, it is necessary for it to happen.⁶

The problem arises from giving truth claims about the future the same ontological (i.e. descriptive) and logical status as truth claims about the past. They have the same ontological status because, on such views of time in which time involves no intrinsic asymmetry, past events and future events do not differ ontologically.⁷ Because past and future events are undifferentiated ontologically, statements about them are undifferentiated logically. Usually such statements are thus thought of as timeless in some manner, perhaps as 'tenseless'⁸ or 'eternal' sentences.⁹ Any asymmetry between the future and the past would be purely epistemological.

If it is now true that some event, x, will happen tomorrow, and has ever been true, then it is not in anyone's (or anything's) power to prevent x from happening. This would be so for even the most casual of events, those that we think are most dependent on our decision. The situation parallels that of statements about past events. If it is true now that x happened yesterday, then there is nothing anyone (or anything) can ever do to make it so that x didn't happen. Richard Taylor's point, in his famous paper 'Fatalism', is that if we give truth claims about the future the same logical and ontological status as those about the past, and differentiate

⁵ Aristotle, "De Interpretatione," op. cit., p. 51.

⁶ Ibid., pp. 50-51.

⁷ I use the traditional, not the Heideggerean sense of 'ontological'.

⁸ D.H. Mellor, *Real Time* (Cambridge: Cambridge University Press, 1981)

⁹ W.V. Quine, *Word and Object* (London: MIT Press, 1960)

between them only epistemologically, then truth claims about the future carry the same implications for the efficacy of human action as those about the past.¹⁰ Ackrill thus calls the necessity that Aristotle deduces 'temporal necessity' – the unalterability of whatever has happened.¹¹

Usually it is claimed that the fatalist conclusion is not validly drawn, and thus the falseness of the conclusion does not require that one reject the premise that future tense statements have truth value. The standard response is that the fatalist conclusion of the logical determinist argument is based on a modal mistake. In order to block Aristotle's inference, it is asserted that actuality and possibility are not incompatible modes of future-tense descriptions. Thus, Aristotle would be wrong to say that if something "would be so, it could not not be so, or not be going to be so." Instead, it would be perfectly consistent to say that x will happen but might not, or x might happen but won't. Future events on this view remain contingent in spite of the truth of the assertion of their occurrence prior to their occurrence.

There is, indeed, one sense of 'possibility' which doesn't conflict with actuality. This is the sense of 'possible' which means 'I do not know' or 'for all I know' or 'I don't know, but it is consistent with everything I do know'. This is the sense of possibility as uncertainty, not of possibility as contingency. That 'x is possible' in this sense does not establish that there is a genuine possibility that x could be otherwise. If someone asks me if Kathmandu is in Nepal, and I say "it's possible" because I do not know (and I don't have any beliefs suggesting otherwise), then if I am wrong there is nothing anyone can do about the location of Kathmandu. Appealing to this sense of possibility fits in with the picture of the future as somehow already there, but merely unknown. Precisely for this reason, it fails to establish the contingency of future events.

The ordinary meaning of possibility as contingency conflicts with actuality. The claim that something will happen conflicts with the claim

¹⁰ R. Taylor, 'Fatalism', in *The Philosophy of Time*, ed. R. Gale (London: MacMillan, 1968). pp. 221-231.

¹¹ J.L. Ackrill, *Aristotle's "Categories" and "De Interpretatione,"* op. cit., 133.

that it might (or might not) happen, and one can easily conceive of an argument based on the distinction.¹² Consider the following claims:

Blue Ribbon will win in the third race.
Blue Ribbon might win in the third race.

The latter claim denies the first because it suggests that Blue Ribbon might not win and the two predictions have different consequences for action. Only a gambler with a metaphysical system would say "Blue Ribbon might not win, but he will" or "Blue Ribbon might win but won't." As a gambler, one is not interested in horses which might win but won't; in taking action, one is not interested in possibilities which might happen but won't. The sort of possibility which is compatible with actuality is not connected with action. Genuine possibilities are possibilities which might happen in the ordinary sense of 'might' which conflicts with the claim that they won't.

¹² Rogers Albritton considers this argument in a very interesting reply to Taylor's paper on the sea-battle, and states it in a compelling manner. But he backs off from the argument for reasons that are obscure. On the one hand, saying that "x will happen and x may not happen" seems to be an "obvious contradiction" but on the other, "In the technical sense which the argument requires, however, these opaque combinations of words do not express 'contradictions'." 'Present Truth and Future Contingency,' *Philosophical Review* 66 (1957): 29-47, 46. What is this technical sense of contradiction? Could it depend on a two value logic, in which a denial that something will happen means that it won't, which of course is distinct from saying that it might or might not? If so, then Albritton's reply would beg the question.

Albritton's general line on Taylor's paper is an attempt to show that Taylor's position is meaningless except to the extent that it depends on a spatial conception of time. This analysis is quite interesting and in fact one that I would accept. (Continentalists will recognise a resonance with Bergson here.) But Albritton fails to take into account the fact that the sea-battle argument is a *reductio*. One who wishes to reduce an argument to absurdity is unlikely to care whether the view opposed is false or meaningless. Albritton fails to show that the spatial picture of time which he finds in Taylor's argument is not contained in the view that Taylor is opposing. I think it is.

Finally, Albritton's appeal to ordinary language fails to the extent that ordinary language fails to distinguish between the epistemological and ontological senses of 'possible'.

Or consider the following example adapted from the opening of Virginia Woolf's *To the Lighthouse*. A child asks, "Shall we go to the lighthouse tomorrow?" The mother says, "We might go to the lighthouse tomorrow." The father says, "We shall not go to the lighthouse tomorrow." The child then says, "We will go to the lighthouse tomorrow." Each of these is a distinct view incompatible with the other two. The father's claim is not merely in conflict with the child's, but also with the mother's. Again, the claim that something might happen conflicts with the claim that it won't.

In the next section, I will be responding to five arguments which have been offered to respond to logical determinism. Each purports to show that the simple future tense is not inconsistent with the claim that the future event described is contingent: future factuality is compatible with future possibility. Three offer definitions of contingency. The fourth draws a distinction. The fifth proposes a counter-analogy.¹³ The failure of these five responses establishes that the truth-value of future sentences (the actuality of future events) does indeed imply fatalism, a false consequence. Thus Aristotle's sea-battle argument shows the asymmetry between past and future.

¹³ There are two arguments which I will not deal with here. (1) One is that the sea-battle argument is based on, as Susan Haack puts it, "a straightforward modal mistake". (*Deviant Logic* (Cambridge: Cambridge University Press, 1974, p. 78) This view depends on reconstructing the argument—and finding the error in one's own reconstruction. (I mention this view because I find it to be the prevalent view among analytic philosophers *who do not specialise in the philosophy of time*. We do so much want the advances in formal logic to be of some value.) I take such reconstructions to be faulty, but leave the demonstration for another paper since establishing that a reconstruction is faulty is a different sort of enterprise than replying to an argument. Here I will only note that it is always possible to reconstruct a *reductio* as a fallacy. No such reconstruction will be persuasive which fails to deal with the modal issues above.

II. Replies to the Responses

(1) Contingency means “not logically necessary”

Leibniz claimed that future events are contingent because the statements describing them are not logically necessary, that is, their denial is not self-contradictory.¹⁴ This sense of possibility fails to make an event's occurrence a genuine possibility because it holds as well for all past events; but their non-occurrence is not now a genuine possibility. It is unclear why we should reduce our sense of contingency as genuine possibility to mere logical possibility, aside from the urge to read all of our metaphysics out of logic.

The contemporary version of this view holds a statement to be contingent if it is consistent with some specified set of sentences (which describe actuality) – possible world semantics. A complete consideration of this approach is beyond the scope of this paper, but its problems are easily seen. If these worlds are real, as Lewis believes, then to say that an action is a genuine possibility for me is to mean that someone very much like me (my ‘counterpart’) on another world actually does this action. This seems wildly implausible.¹⁵ Furthermore, the entire notion of contingency disappears, since all ‘possibilities’ turn out to be actualities in actual but alternative worlds.

If ‘possible worlds’ are simply sets of specified descriptive sentences, then contingency turns out to be equivalent to the epistemological sense of ‘possibility’ discussed earlier, and is inadequate for the same reason.

(2) Contingency means “counterfactuals (or conditionals) which involve the non-occurrence of the event are true.”

¹⁴ G.W. Leibniz, ‘Discourse on Metaphysics,’ in *Discourse on Metaphysics/Correspondence with Arnauld/Monadology*, trans. P. Janet (La Salle: Open Court, 1902), p. 20-23.

¹⁵ I am referring to the semantic implausibility; this is in addition to, although probably related to, the empirical implausibility of a realistic belief in ‘possible’ worlds.

On this view, an event is contingent because counterfactuals which involve its non-occurrence are true. But supporting counterfactuals no more makes an event's non-occurrence a genuine possibility than does consistency. True counterfactuals involving the non-occurrence of an event (if you don't y then x won't happen) only make the occurrence of x a genuine possibility if doing y is a genuine possibility. Reliance on counterfactuals involving the nonoccurrence of y, when y occurs prior to x, only leads to an indefinite regress; it does not establish that any particular event is a genuine possibility.

The ingenuity of Richard Taylor's argument in ‘Fatalism’ is that he shows that claims about the non-occurrence of past events can support true counterfactuals even when y occurs later than x. For example, “if I don't read about the Bears' loss in this morning's paper, then they didn't lose yesterday.” But their victory yesterday is not today a genuine possibility.¹⁶ Taylor gives an example of a true conditional where the consequent is not a genuine possibility, so supporting such conditionals is not sufficient to make the consequent a genuine possibility.

(3) Contingency means “not compelled or causally determined.”

This view isn't so much an alternative view of contingency as a claim that proponents of the validity of the fatalist inference is based on a confusion. This argument, mentioned by Leibniz and pushed by David Pears¹⁷, does grant that there is some sense of necessity to the occurrence

¹⁶ Taylor, ‘Fatalism’, op. cit. Formal models don't help to save this view. Robert McArthur has argued that when modelling modal tense logic (aka ‘possible world semantics’), one cannot differentiate between the factual future tense (Fp) and the modal future tenses (Fp or vFp). McArthur shows that if Fp is true now, then it collapses into Fp. vFp merely states a logical possibility “with no ontological claims whatever.” Robert P. McArthur, ‘Factuality and Modality in the Future Tense,’ *Nous* 8 (1974): 285.

¹⁷ Leibniz, “Discourse on Metaphysics,” 49; D. Pears, ‘Time, Truth and Inference,’ in *Essays in Conceptual Analysis*, ed A. Flew (London: MacMillan, 1956), pp.228-252. Although he doesn't grant any sense of necessity to the occurrence of future events, Paul Horwich also charges the proponent of the sea-battle argument with confusing physical cause and descriptive reference. P. Horwich, *Asymmetries in Time* (London: MIT Press, 1987).

of future events (call it ontological or preordained necessity) but that the fatalist confuses this kind of necessity with causal necessity, and it is only physical compulsion which removes events from our control. But this response is mistaken on both counts. First, logical determinism takes no stand on the question of causal determinism. Causal determinisms, whether physical, biological, chemical, psychological, sociological, or economic, are entirely separate problems from logical determinism; they need to be dealt with on their own terms.¹⁸ Second, it is not only physical compulsion, but also the passage of time, which places events beyond our control.¹⁹ Past events are beyond our control whether or not they were causally determined by the events which preceded them.

The logical determinist doesn't believe that the future-tense proposition's being true at an earlier time *makes* the event occur or *causes* the event to occur. (No more than anyone believes that the truth of a past-tense statement made the event referred to happen.) Nor does the fatalist believe that the proposition's being true at an earlier time refers to events in the past which make the event occur or causes it to occur. The truth of future conditionals simply shows that the alternatives are not genuine possibilities, as it treats the future as actual, that is, as capable of being described.

(4) Drawing a distinction: 'Hard' vs. 'Soft' Facts

This view, following Ockham's treatment of the problem of divine foreknowledge, doesn't try to explain the concept of contingency. Rather it

¹⁸ On this point I differ from Richard Taylor, who claims that Aristotle's argument depends on a denial of universal causal determinism. 'The Problem of Future Contingencies,' *Philosophical Review* 66 (1957): 66. Instead the asymmetry between past and future supported by Aristotle's argument affects our conception of causal laws in such a way as to undermine the doctrine of universal causal necessity to the extent that the doctrine follows from the concept of causation alone. However, the point made above concerning specific causal determinisms still hold. Such determinisms might conceivably challenge our concept of deliberation or action in a way that makes it rational to believe that, even though statements about the future have no present truth value, such events are not within one's control.

¹⁹ In the *Metaphysics*, Aristotle explicitly distinguishes these senses of necessity. *Metaphysics* V.v and VI.ii.vi.

tries to block the inference to logical determinism by drawing a distinction between so-called 'hard' and 'soft' facts. Facts such as (S1) "In 1908 it was true that Obama would be elected in 2008" are said to differ from facts such as (S2) "In 1908 Lincoln was many years in the grave". The latter is a 'hard fact' (relative to 1908) – and hard facts are characterised in two ways: as facts which are "really" about the past, and as facts which it is not within anyone's power to change (or to change the truth-value). 'Soft facts' then are facts which are not really about the past, and they are within someone's power to change.

Responses to this distinction have focused on showing that the definitions proposed are inadequate because they lead to counterintuitive results, such as the fact of God's existence turns out to be a soft fact.²⁰ Here I want to give two different sorts of response. The question that needs to be posed is: Why is this distinction not *ad hoc*? If the distinction is introduced simply to save the present truth-value of future contingents, then it would indeed be *ad hoc*. However, the distinction is thought to have intuitive plausibility because of certain kinds of sentences which are ostensibly about the past, but in fact are not. Sentences like (S3) "Lincoln died more than a century before Obama was elected", if stated in 1908, looks like a statement about the past, according to proponents of this distinction, but in fact is not because it is partly about the future. As a 'soft fact', it is one which someone (or many someones) could have done something to change. Hence, the truth of future statements is compatible with agents having the power to change those events, even after the events referred to.

The analogy between these two types of sentences ((S1) and (S3)) is not a very good one. Sentences like (S3) are partly about the past and partly about the future, although it might be better to say that they are about the (temporal) relation between past and future events or states of affairs, and of course this is something that can be altered in the present.

²⁰ Counterintuitive—and embarrassing—for proponents of this distinction, since it is introduced only to try to save belief in the existence of God from the problem of divine foreknowledge, an argument related to Aristotle's sea-battle argument. See M. Adams, 'Is the Existence of God a 'Hard' Fact?' in *God, Foreknowledge, and Freedom*, ed. J. Fischer (Stanford University Press, 1989), pp. 74-85, as well as the other papers in this collection.

So one must say that 'soft facts' like (S1) are about (or express) a relation between past events (or states-of-affairs) and future events. So it turns out that "Obama will be elected in 2008" expresses a relation between 2008 and another (earlier) time, but "Obama was elected in 2008" expresses no such relation to another time, but is simply about 2008. So the effort to avoid one kind of asymmetry, that of past and future, requires that one accept another asymmetry, between the way factual descriptive statements refer to time. And this latter asymmetry is one which strikes me as having no intuitive plausibility.²¹

(5) Counter-analogy: Past events are unproblematically considered to be factual as well as contingent.

Those responding to the logical determinist reply that we accept that contingency and actuality are compatible attributions of past events. Why not of future events as well? No one denies the coherence of saying that "x did happen but it might not have." So why not accept "x will happen but it might not"?

The answer is that the parallel between past and future is only apparent. This can be most easily seen by drawing on Hans Reichenbach's analysis of the temporality of sentences. As Reichenbach pointed out, there are three temporal aspects of a sentence – the time of the utterance (S), the time of the referent (E), and the temporal point relative to which the speaker refers to the referent (R).^{22,23}

A statement with the simple past tense would be symbolised (E—S,R):

²¹ As we will see in the next section, it is characteristic of the subjunctive mode that it refers to a time prior to the time of the event at issue. So a different way of putting the above objection is to say that the concept of a 'soft fact' is an attempt to surreptitiously claim that advantage of the subjunctive—contingency—while maintaining the designation of factuality.

²² (R) controls what is usually referred to as the 'aspect' of a sentence.

²³ I take Reichenbach's analysis from J.R. Lucas, *The Future* (London: Blackwell, 1989), pp. 18-25. I am not claiming that these are the *only* three temporal aspects of language. One may also consider the historicity of words and temporal assumptions of genres. But these are the temporal aspects relevant here. (It was Heidegger's later philosophy which focuses on the historicity of words; for an account, see my 'Language and Later Heidegger: What is Being?', *Philosophical Forum*, Winter 2009, pp. 489-499.)

<-----x-----x----->
E (S,R)

Pursuing the counter-analogy, the statements in question are:

X did happen but it might not have.
X will happen but it might not.

Each is a conjunction; the first conjoins a statement with the simple past tense with one in the past subjunctive (or past contingent), the second conjoins a simple future tense with the future subjunctive (future contingent). The first conjuncts of each statement are perfectly symmetrical with each other. The simple future refers to a future event relative to the moment of utterance, just as a simple past refers to a past event relative to the moment of utterance.

But the parallel breaks down with the second conjunct. The future subjunctive/conditional refers to the future event relative to the moment of utterance, just as the simple future does. However, the past subjunctive/conditional refers to the event relative to a moment at some time prior to the event. The future subjunctive is symbolised as (S,R—E),²⁴

<-----x-----x----->
S,R E

whereas the past subjunctive is symbolised as (R,E,S):

<-----x-----x-----x----->
R E S

To say "x might not have happened" is to say that at some time prior to x (usually just prior), it was possible that x would not happen.²⁵

²⁴ Note the symbolism is unable to capture modal distinctions, such as the difference between the simple future (future actual) and future subjunctive (future contingent).

²⁵ Cf. Mondadori and Morton, 'Modal Realism: the Poisoned Pawn' in *The Possible and The Actual*, ed. M. Loux (Ithaca: Cornell University Press, 1979), p. 243 n.16: "Tenses like 'might have' are a sort of future in the past, just as the future perfect tense is a past in the future." This is also the basic idea underlying V.H. Dudman, 'On

III. Conclusion

As a *reductio ad absurdum*, Aristotle's argument establishes that formal logic cannot apply symmetrically to statements about the past and statements about the future. I think it is important to see that the argument has this general conclusion, even if Aristotle himself qualified this conclusion by stating that it only applies to some statements. Aristotle grants truth-value for statements about future events which will come about according to natural necessity. It is worth pointing out that this latter point doesn't follow from the sea-battle argument itself; as noted earlier, the argument does not appeal to or concern matters of causal necessity. Claims to reduce contingency in cases of causal necessity will face serious problems arising from Hume's problem of induction. I believe that Hume's arguments could be used to show that contingency cannot be reduced in the face of timeless laws of nature, just as Aristotle's argument shows that contingency cannot be reduced in favor of timeless laws of logic, although that would require another paper.

Beyond the irreducibility of contingency, Aristotle's argument points the way to a consideration not merely of contingency, but of time itself. It is the asymmetry between past and future which poses a threat to the reality (or primacy) of the timeless, whether timelessness is to be found in the laws of logic, laws of nature, or a transcendental being (ego or God). The asymmetry of past and future may be taken as an intrinsic characteristic of time. In doing so, we can draw two conclusions which may serve as directions for future research. First, one traditional way of conceiving the difference between time and timelessness—in which time is pictured as a river as opposed to a static timelessness—is inadequate. No spatial image of time can be accurate, because spatiality erases the asymmetry between past and future. Second, we need to see that, even though it is presented in *De Interpretatione*, Aristotle's 'Sea-Battle' argument is every bit as much a discussion about time as the so-called 'Treatise on Time' in Aristotle's *Physics*. In determining Aristotle's views on time, one needs to try to determine how these two 'Treatises on Time' fit together—or fail to. So far as I know, no one has yet done so. If

Conditionals,' *Journal of Philosophy* 91 (1994): pp. 113-128.

analytic philosophers have ignored the Sea-Battle argument by considering it to be a trivial modal mistake, Continentalists have ignored it by—ignoring it.²⁶

²⁶ The most prominent example would be Derrida's 'Ousia and Gramme: Note on a Note from *Being and Time*,' in *Margins of Philosophy* (Chicago: University of Chicago Press, 1982), pp. 29-67. Derrida's article is a tour de force, reading Heidegger reading Hegel reading Aristotle. But 'reading Aristotle' on time here means reading the *Physics*, not the Sea-Battle argument. I know these brief remarks will not persuade followers of Derrida, who can plausibly claim that time motivates every aspect of his project. I am currently working on a comprehensive study of Derrida's treatment of time in in order to follow up these remarks.