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Aristotle and the Stoics on Tomorrow's Sea Battle
The influence of 'time' in the debate on future contingents
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Aristotle and the Stoics on Tomorrow's Sea Battle

The influence of 'time' in the debate on future contingents

Abstract

How we view time is important in the debate on future contingents. However, how exactly does the concept of time that one uses influence the arguments against fatalism in this debate? In this paper, the answers of Aristotle and of the Stoics against fatalism are discussed and compared. Three solutions will be discussed: rejecting the Principle of Bivalence for future propositions, rejecting the relation between truth and necessity, and rejecting the link between necessity and fatalism. Aristotle states a difference between past and future that the Stoics do not and cannot use. This is due to the linear timeline that Aristotle uses. The Stoics, with their notion of a cyclical time, need to find different solutions for fatalism.

1) Introduction

Freedom in thought and action is one of the basic notions of our thinking. Without this freedom, many ethical systems would not exist. However, freedom is not only discussed in ethical contexts. In the other two main parts of philosophy, physics and logic, this debate also plays a role. Often these three parts of philosophy interact with each other. This is no different for the discussion concerning fatalism.

Fatalism is “the view that whatever is going to happen, is going to happen, *no matter what we do.*” (Kane 2005, 19)¹ Fatalism implies a necessitation that includes the idea of us being powerless to do anything about what happens. Our actions and thoughts are of no impact on the outcome of an event. Fatalism is a view that most philosophers argue against.² The reason for this is mainly ethical. A certain freedom in our actions or thoughts is needed for moral responsibility. When we accept fatalism, it becomes very difficult, if not impossible, to set up an ethical system.

An important question in the debate regarding fatalism is the question of future contingents. That is, do propositions about future contingent events have a truth value? The *locus classicus* of this question is Aristotle's *On Interpretation* 9, where he describes an argument for fatalism and argues against it. This argument has become known as the Sea Battle Argument. Important in the Sea Battle Argument is the relation between logic, in a broad sense, and necessity in the world around us. (DI 18b1-4)³ The question is asked whether a future contingent event can still fail to come about when a proposition stating that it is going to happen is true. For example, when 'Tomorrow there will be a sea battle' is true, can the sea battle still fail to come about? (DI 18a28-35) It seems as if the truth value of a proposition can cause an event to happen or not happen. However, when that is true, this implies that everything is the case or is not the case by necessity, since a proposition could be stated about all events. In that case, nothing happens by chance. (DI 18b4-16) According to Aristotle, this cannot be the case. Events do not happen because someone truthfully said that it would be this way. (DI 18b35-19a2) Aristotle thus states: “For it is not because of the affirming or denying that it will be or will not be the case.” (DI 19a1-2) Events happen due to our deliberations and actions, not due to the truth value of a proposition about this

¹ See also the definition of Rice: Rice 2015.

² In contrast with determinism; a position that is much more argued on whether it is true or not. Part of this is due to the fact that of determinism much more definitions exist. For example, according to some philosophers, it is compatible with freedom.

³ All references in the text using 'DI' refer to Aristotle's *De Interpretatione/On Interpretation*.

event. However, exactly how Aristotle argues against this fatalism, is widely discussed. In section three, the best known interpretations of his possible answer will be discussed.

Aristotle is not the only ancient philosopher who discussed this problem. The Stoics, among other philosophers, discussed it as well.⁴ Fragments of their writings (and paraphrases of these) about fate, determinism and fatalism are numerous.⁵ Moreover, they also discussed issues related to the specific debate of future contingents.⁶ In section four, the replies of the Stoics against fatalism will be discussed.⁷

Aristotle's *On Interpretation* 9 has been discussed many times. However, it is not often compared with the replies of other philosophers. Furthermore, most often merely the relation between logic and ethics is discussed. However, the third component of philosophy, physics, also plays a role in the debate on future contingents, namely in relation to the notion of time. The notion of time that these ancient philosophers use, molds their logical axioms, and with that, their vision of ethics and freedom. The notion of time that Aristotle and the Stoics use differ significantly.

How do these visions of time by Aristotle and the Stoics influence their arguments against fatalism in the debate on future contingents? To answer this question, several things will be discussed in this article. The answers given by Aristotle and the Stoics will be compared in order to shed light on how the notion of time plays a role in the debate regarding fatalism. Herein, the relations between physics, logic, and ethics will be taken into consideration. Comparisons between Aristotle and the Stoics in this debate have been written before.⁸ However, discussing both philosophies in the light of the concept of time is new.

In order to compare both philosophies, a common starting point is needed.

⁴ Of course, many other philosophers also wrote about fatalism. In this article I will not focus on their answers against fatalism.

⁵ See also: Sandbach 1975; Sambursky 1959; Baltzly 2014.

⁶ For example, Cicero's *On fate* is an important work in this debate. It is not the original source of the discussions, but rather a good testimony of many theories of antiquity. In *On fate*, Cicero writes down a dialogue between several philosophies. One of those regards the Stoics. Even though Cicero does not always agree with these theories, he does describe them in a clear way.

⁷ In the discussions of Stoic texts, the Megarians play an important role as well. They created many of the arguments against which the Stoics replied. For example, the Master Argument, Mower Argument, and Lazy Argument.

⁸ Other interesting comparisons between Aristotle and the Stoics can be found in papers of Priscilla Sakezles and Michael White. Sakezles compares the ideas of (moral) responsibility of both philosophies. White compares the alethic modalities in both philosophies. See: Sakezles 2007; and White 1980.

Therefore, the next section will be dedicated to schematising a fatalism-argument that can be used to discuss both Aristotle's and the Stoics' views on fatalism. After this, the solutions for fatalism of both philosophies will be discussed and compared against the background of their theory of time.

2) The argument for fatalism

Throughout the years, several arguments have been set up to demonstrate why fatalism could be true. Aristotle's *On Interpretation* 9 is regarded as the *locus classicus* of this argument. He was the first to write down a logical argument for fatalism, and used this argument to demonstrate why there is no fatalism in our lives. However, there are several interpretations of this text.⁹ Some are very similar to each other, others emphasize completely different premisses.

In this section, I wish to set up an argument for fatalism as based on Aristotle's text. After this, I will show in which ways this argument can be refuted. This overview is meant to form a basis for comparing the solutions that Aristotle and the Stoics offered to solve the issue of fatalism. In the last part of this section, I will argue why specifically this argument can be used for comparing both Aristotle and the Stoics.

Schematisation of the argument

Given the many interpretations of *On Interpretation* 9, it will be difficult to give one interpretation with which everyone agrees. However, this paraphrase of the argument is intended to reconstruct the logical argument in Aristotle's text, without forcing it in one specific interpretation. That is, the premisses stay as close to Aristotle's own text as possible, including ambiguities. The argument contains eight steps:

- 1) For every time (t) and every proposition (p), either p is true or p is false, and not-p is true or not-p is false. (DI 18a28-31; 18b4-5)
- 2) If 1), and given the Law of Non-Contradiction, then for every time (t) and every proposition (p), p is true or not-p is true. (DI 18a38-39; 18b17-25)
- 3) Suppose that one person says that, one year from now, p is true; and another person says that not-p will at that time be true.
- 4) Given 2) and 3), either what the first person or what the second person

⁹ For example, Markosian uses a relation between truth and inevitability: Markosian 1995. Rice argues with use of the Principle of Bivalence and makes the step from truth to necessity: Rice 2015. And Gaskin uses the necessity of the past to state that if an event happens, it was necessary that that event would be true, and thus that this event is necessary: Gaskin 1995.

says is true. (DI 18a35-39)

- 5) If 4), then, one year from now, either p is true or not-p is true.
- 6) If 5), it is necessary that the event stated by p happens (if p is true) or does not happen (if not-p is true), one year from now. (DI 18a34-35; 18b1-4; 18b10-16)
- 7) If 6) and assuming that 6) can be generalised: everything that happens, happens of necessity. (DI 18b4-8; 18b30-35)
- 8) If 7), then there is fatalism.

The first premiss is also known as the Principle of Bivalence. This principle states that a proposition (p) must have either the truth value 'true' ($V_p=1$) or 'false' ($V_p=0$). To avoid further difficulties with a partially denied Principle of Bivalence, in which p can be true but not-p is for example without a truth value, I stated the Principle of Bivalence for both p and not-p. Given this formulation of the Principle of Bivalence, the Law of Excluded Middle (the second premiss) follows from the first premiss. Given the Law of Non-Contradiction, which states that two contradictories cannot both be true, when the first premiss is true, this implies that every proposition (p) or its contradictory (not-p) is true.¹⁰

Let me explain this argument with an example. Suppose that one person states now (i.e. at t_0) that a sea-battle will take place tomorrow (i.e. at t_1), and another person states now that no sea-battle will take place tomorrow. In that case, one of these persons will be saying something that is true. The first person states something true when a sea-battle takes place tomorrow, and the second person when no sea-battle takes place then. However, when one of them is stating the truth, then necessarily either a sea-battle or no sea-battle will take place. This implies that at t_0 , what happens at t_1 is already necessary.

Note that the concept of 'necessity' is ambiguous here. Aristotle writes: "For if every affirmation or negation is true or false it is necessary for everything either to be the case or not to be the case." (DI 18a34-35) However, it is unclear what is meant by 'necessity' here: the sea-battle (or not happening of the sea-battle) itself, or only the disjunction of a sea-battle or no sea-battle. This ambiguity can be found in the argument in premiss six. The 'necessary' here can apply to the parts of the disjunction (necessarily p or necessarily not-p), or to the

¹⁰ Regarding the differences between the Principle of Bivalence and the Law of Excluded Middle, already a large discussion exists. Some interpreters of Aristotle state that he denied the former while others state that he denied only the latter. To avoid these discussions, I use the Principle of Bivalence as a step towards the Law of Excluded Middle. For more information, see: Goble 2001; Kneale and Kneale 1962; Gottlieb 2015.

disjunction as a whole (necessarily, p or not- p). The reason I use this ambiguity in the premiss, is that Aristotle himself also had this ambiguity in his argument. Furthermore, several arguments against the fatalism-argument are based on this ambiguity. Therefore, it will also be discussed when describing the interpretations of Aristotle's text, and when describing a solution of the Stoics by means of different notions of modal concepts.

Ways of rejecting the argument

It might be noted that several of the premisses above follow logically from the other premisses. Therefore, in this paragraph I will discuss all premisses and state whether they can be denied or not. Based on this, three methods of arguing against the fatalism-argument will be shown.

The first premiss was “For every time (t) and every proposition (p), either p is true or p is false, and not- p is true or not- p is false”. This premiss can be denied. That is, when someone denies that the Principle of Bivalence is valid, he will deny this premiss.

The second premiss states that “If 1), and given the Law of Non-Contradiction, then for every time (t) and every proposition (p), p is true or not- p is true.” I argue that this premiss cannot be denied, since it follows logically from the first premiss. When p is true or false and not- p is true or false, and p and not- p cannot have the same truth value, then one of them must be true while the other is false. Of course it could be opted that the Law of Non-Contradiction might be denied. However, given that this is one of the first logical principles, denying this principle would imply changing the whole logical system. That is something no commentator on Aristotle wished to do.

The third premiss states: “Suppose that one person says that, one year from now, p is true; and another person says that not- p will at that time be true.” This premiss cannot be denied, given that it is an assumption in the argument. It serves no other goal than to start the argument itself after having stated the logical principles we work with.

The fourth premiss was that “Given 2) and 3), either what the first person or what the second person says is true.” This premiss cannot be denied, since it follows logically from premiss two and three. When either p or not- p is true, and if one person states p and the other not- p , logically either the first or the second person says something that is true.

The fifth premiss states that “If 4), then, one year from now, either p is true or not- p is true.” This premiss cannot be denied. When a person states that p and

thereby states something that is true, then p is true, and similarly for not- p .

The sixth premiss is: “If 5), it is necessary that the event stated by p happens (if p is true) or does not happen (if not- p is true), one year from now.” This is a step in the argument that can be argued against. Between the fifth and sixth premiss, the notion of necessity is added.¹¹ If a proposition (p) is true, then the event stated by that proposition is necessary, according to this premiss, and similarly for not- p . However, it is questionable whether this necessity must be added. This is mainly due to the ambiguity in this premiss which I described above. The necessity in the premiss can be read in two ways: as covering the individual parts (necessarily p or necessarily not- p) or as covering the whole disjunction (necessarily, p or not- p). The distinction between these two readings caused the distinction between the two main interpretations of Aristotle's text. These will be discussed in the next section.

The seventh premiss states that “If 6) and assuming that 6) can be generalised: everything that happens, happens of necessity.” This premiss follows from premiss six and therefore cannot be argued against. Following the premiss, a step is made from an example or singular case to the more general form. There is no reason why one proposition should be handled as in this argument and another proposition of the same form should not.

The eight premiss, or the conclusion, of the argument states that “If 7), then there is fatalism.” This conclusion seems to follow from the seventh premiss. However, it can be denied. One might point at a difference between the seventh premiss and the conclusion. In this case, a distinction is made between events happening from necessity and events happening due to fatalism.

Seeing all these premisses, it will be noted that the fatalism-argument can be attacked at three points: in premiss one, premiss six, and premiss eight. In short, this means that there are roughly three solutions for the fatalism-argument. One can deny the Principle of Bivalence; i.e. rejecting premiss one. One can reject the relation between the truth of a proposition and the necessity of an event; i.e. rejecting premiss six. Or one can reject the relationship between the necessity of events and fatalism; i.e. rejecting the conclusion. Based on these three solutions, I will discuss the solutions that can be found in Aristotle's and the Stoics' work.

¹¹ Exactly what kind of necessity is meant here – for example, logical, physical or temporal – is not entirely clear. Many discussions have been held regarding this topic. The scope of this article does not allow for further elaboration here.

Why use this argument?

However, before discussing these solutions, one point needs to be made. The reason that this fatalism-argument applies to Aristotle will be clear from the references to Aristotle's *On Interpretation* 9 made by the premisses. However, the same argument can also be used to discuss the Stoic answers against fatalism. Several passages show this.

First of all, a similar fatalism-argument can be found in ancient sources describing the Stoic answer to fatalism. Take for example Cicero's *On fate* 12-15:

Therefore everything falsely stated about the future cannot happen. But this conclusion is repugnant to you, Chrysippus, and it is on it that your main quarrel with Diodorus rests. (...) You say that even things which will not be are possible. (...) And you say that it had not been necessary that Cypselus should rule in Corinth, even though the oracle of Apollo had foretold it a thousand years earlier. But if you are going to endorse these divine predictions you will also hold things falsely said about the future to be in such a class that they cannot happen, so that if it be said that Scipio will take Carthage, and if that is truly said about the future and it will be thus, you must say that it is necessary. (LS 38E)¹²

In this fragment, Cicero uses a similar fatalism-argument as Aristotle used, while he describes the Stoics. He explains how the relation between something truthfully said about the future and necessary events is problematic for Chrysippus.

Secondly, the logical debate and the connection between logic and physics as found in the fatalism-argument above are also discussed by the Stoics. The relation between logic and physics can be found in several sources. For example, the Stoics reply to the so-called Mower Argument and the Truth-to-Necessity Argument. In these arguments, the link between true propositions and necessity in events is discussed. In section four, these arguments will be described in more detail.

3) Aristotle's reply to fatalism

As stated in the previous section, the argument for fatalism can be denied in

¹² All references in the text using 'LS' refer to Long and Sedley's *The Hellenistic Philosophers*, 1987.

roughly three ways. In this section, I will look at Aristotle's *On Interpretation* 9, the text where he discusses the logical argument for fatalism. I will demonstrate in which ways he might have argued against fatalism, based on the different interpretations that exist of *On Interpretation* 9.¹³

Rejecting the Principle of Bivalence

The first solution against the fatalism-argument was to deny the Principle of Bivalence. One of the interpretations of Aristotle's text describes this solution: the standard modern interpretation.¹⁴ According to this interpretation, propositions about the future do not always have the truth value 'true' or 'false'. (Craig 1988, 2-4) This interpretation seems to be mainly based on the beginning of Aristotle's text, where he writes:

With regard to what is and what has been it is necessary for the affirmation or the negation to be true or false. And with universals taken universally it is always necessary for one to be true and the other false, and with particulars too, as we have said; but with universals not spoken of universally it is not necessary. But with particulars that are going to be it is different. (DI 18a28-33)¹⁵

Several philosophers adhere to this interpretation. One of them is Dorothea Frede. According to her, only after an event has occurred or has not occurred, we can say whether a proposition about this event is true or false. Thus, the Principle of Bivalence only applies to propositions about the past or present. (Frede 1970, 70-1) Following the same interpretation, Jan Łukasiewicz created a logical system including the truth values 'true', 'false' and 'neither true nor false'. Propositions about future contingents obtain this last truth value. (Łukasiewicz 1970, 87-8) He thus rejects the Principle of Bivalence by adding an extra truth value to his logical system.

Two philosophers who propose a similar interpretation, but in a less radical way, are Rescher and Van Fraassen. (resp. Van Eck 1976, 11-12; Haack 1974, 85) They both state that some propositions do not obtain any truth value. Their system

¹³ NB: I have described many of the solutions that interpreters of Aristotle offer already in my state of the art. However, there I discussed them in giving a broad overview of the debate. In this article, I discuss them more critically when looking at the notion of time.

¹⁴ This interpretation is called the 'standard modern interpretation' by William Craig: Craig 1988.

¹⁵ Other lines of the text on which this interpretation can be based are: DI 18a34-35; 18b26-31; 18b36-18b39; and 19a1-2.

has truth value gaps.¹⁶ Strictly speaking, with this interpretation the Principle of Bivalence itself is not violated. A logical system with truth value gaps still has just two truth values. However, they deny that one of both truth values should always be assigned to a proposition. Therefore, following the argument for fatalism, using truth value gaps is enough to deny the conclusion of fatalism. These theories deny fatalism by denying the first premiss. With that, the rest of the argument loses its strength.¹⁷

Truth and necessity

The second solution to the fatalism-argument was to deny the relation between the truth of a proposition and necessity in an event. The second main interpretation of Aristotle's *On Interpretation* 9, called the non-standard interpretation, assumes exactly this solution.¹⁸

The relationship between truth and necessity can be denied in several ways. For example, Rudolf Carnap states that there is a difference between logical truth and truth based on facts. Whereas the former is a necessary truth, the latter is only contingent. Therefore, the truth of a proposition does not imply necessity in an event. It is not a logical truth. (Carnap 1958)¹⁹ Curt John Ducasse uses a different sort of distinction. According to him, there is a difference between the truth value of a proposition and our ascribing a truth value to a proposition. The truth value of a proposition does not make that proposition true or false, but is just a discovery of whether a proposition is true or false. The relation between reality and language only works from the former to the latter, but not vice versa. For example, the rain outside makes the proposition 'It is raining outside' true; however, this proposition cannot cause the rain. Therefore, ascribing a truth value to a proposition does not change anything to the event that is described. (Ducasse

¹⁶ See also: Perloff and Belnap 2011, 14. Perloff and Belnap explain the use of truth value gaps with an intuitive example. They remark that propositions might not have a fixed meaning at the moment of utterance; for example when one of the words of the proposition does not have a fixed meaning yet (e.g. 'the first child born next year'). However, at a later moment, this word can obtain a meaning, and with that give meaning to the whole proposition (e.g. 'I will leave all my money to the first child born next year'). Similarly, a proposition might not have a fixed truth value at the moment of utterance, but obtain one later.

¹⁷ As with any interpretation, also this interpretation has received some criticism. For example, Berit Brogaard argued that the truth value of a proposition depends on the context of utterance, and not on later reflections on a proposition. Therefore, it is strange to use a logical system in which propositions may change their truth value. (Brogaard 2008, 326-35)

¹⁸ The name 'non-standard interpretation' originates from Craig: Craig 1988. It can be based on: DI 18b23-26 and 18b30-33.

¹⁹ See also: Goldstein 2005, 145. Goldstein makes a similar remark as Carnap.

1941, 329)²⁰

Another method in which the relation between truth and necessity can be denied comes from Alfred Ayer. Ayer makes the distinction between 'what will be will be', i.e. the tautology of ' $p \rightarrow p$ ', and 'what will be will necessarily be', i.e. ' $p \rightarrow$ necessarily p '. Even though it is (necessarily) true that p implies p (the first statement), this does not imply that p leads to necessarily p (the second statement). The idea that 'what will be will be' does not imply fatalism. (Ayer 1956, 185-92)

Based on this idea of Ayer you can state the difference between 'necessarily, p or not- p ' and 'necessarily p or necessarily not- p '. This is exactly the ambiguity that we saw in the sixth premiss of the fatalism-argument. Aristotle does not make it clear whether his concept of necessity applies to the disjunction as a whole or to the propositions individually. (DI 18a34-35) Given the ideas of Ayer, it can be argued that the former interpretation is true rather than the latter. That is to say, when 'necessarily, p or not- p ', we only state a tautology. No fatalism is implied by this necessity.

This interpretation of Aristotle's text is sufficient to deny fatalism, since it rejects the sixth premiss. That is, it denies that when either p or not- p is true, it follows that the event stated by p necessarily happens or does not happen.

Necessity and fatalism

The last solution that was described was to reject the link between the last two premisses. That is, according to this solution, necessity of an event does not lead to fatalism. However, this is a solution that cannot be found in Aristotle's texts. First of all, Aristotle's *On Interpretation* 9 demonstrates that Aristotle himself understood necessity in a fatalistic sense. Secondly, on the basis of another text of Aristotle, viz. *On generation and corruption* 2.11, it can be argued that from Aristotle's theory of causes it can be deduced that determinism or necessity for him implies fatalism. Both passages of Aristotle will be discussed below.

In his *On Interpretation* 9, Aristotle speaks about necessity. This necessity could be viewed in a deterministic and in a fatalistic way.²¹ When he sets out his argument, it is not yet clear which view Aristotle uses. However, when Aristotle starts his reply to the argument, it is clear that he interprets necessity in a fatalistic sense. In order to demonstrate the problem with necessity, he writes: "So there would be no need to deliberate or to take trouble (thinking that if we do this, this

²⁰ See also: Sanford 1989, 176-77. Sanford makes a similar distinction as Ducasse.

²¹ That is, one could discuss whether necessity can be compatible with freedom or not. Understood in a fatalistic sense, necessity is not compatible with freedom, while in a deterministic sense, it could be compatible with freedom.

will happen, but if we do not, it will not).” (DI 18b31-33) This focus on deliberation and taking action marks an important difference with a necessity compatible with freedom.²² According to Aristotle, necessity implies that when something is necessitated, it will happen no matter what we think of it or what we do to reach or avoid this event.

Besides these lines in *On Interpretation* 9, there are other theories of Aristotle that support the idea that necessity leads to fatalism in Aristotle's work. Sarah Broadie describes how Aristotle's theory of causes implies this link between necessity and fatalism. In her article “From necessity to fate: a fallacy?” she differentiates between determinism and fatalism. (Broadie 2003, 130) According to her, determinism is the view that it was always necessary that an event would happen or would not happen. Fatalism, on the other hand, is the view that an event would or would not happen no matter what else happened beforehand. This 'no matter what' shows the difference between normal necessity and fatalism.

In her article, Broadie argues that Aristotelian determinism entails fatalism. (Broadie 2003, 138-40) In *On Generation and Corruption* 2.11, Aristotle states that a chronologically earlier event must occur because a later one will: “what is prior must have come-to-be if what is posterior is to be”.²³ (GC 2.11 337b14; see also 337b14-24)²⁴ This idea in turn is based on Aristotle's theory of causes.²⁵ Aristotle's notion of the final cause as the main cause of events implies that necessitation runs from later events to earlier events.²⁶ This indicates that if an event is going to happen, that what leads up to it gains its necessity from this event. That is to say, when something is necessary in Aristotelian terms, this necessity means that all stages before the event were necessary too and were leading up to this event. Following Broadie's article, we could state that a necessary event is not influenced by prior events, but necessitates these events: if it is going to happen, the prior events must happen for the sake of it. These prior events cannot change the event itself, because they receive their necessity from

²² See also: DI 18b8-13. In this part of the text, Aristotle again mentions the idea that deliberation and taking action are important.

²³ As will be seen in the next section, this citation seems to have a lot in common with the Stoic theories on fatalism. However, one important difference between Aristotle and the Stoics should be noted here. In this citation, it is written that what is posterior is the reason that what is prior must happen. Aristotle's notion of causation works from later to earlier events, in contrast with the Stoics.

²⁴ All references in the text using 'GC' refer to Aristotle's *On Generation and Corruption*.

²⁵ See also Falcon's analysis of Aristotle's theory of causes: Falcon 2015.

²⁶ See also: Ph 2.3, 194b33-195a2 and 195a24-26; Ph 2.8, 199a6-8 and 199a15-19; Ph 2.9, 200a7-9. All references in the text using 'Ph' refer to Aristotle's *Physics*.

the later event. In other words, determinism leads to an idea of 'no matter what, the event is going to happen', which is fatalism.²⁷ Thus, accepting premiss seven in the argument, i.e. 'everything that happens, happens of necessity', implies fatalism. What is going to happen, happens necessarily from the beginning and whatever happens before, leads up to this event.²⁸

Overall, we thus see that Aristotle could have used two out of three solutions against fatalism. According to the standard modern interpretation, he rejected the Principle of Bivalence and thereby argued against the first premiss of the fatalism-argument. According to the non-standard interpretation, Aristotle argued against the notion of necessity in premiss six. The third solution does not seem to be possible in his philosophy.

4) Stoic answers to fatalism

In the former section, it was described that two out of three solutions for the fatalism-argument might have been how Aristotle argued against fatalism in his *On Interpretation* 9. In this section, I will discuss the same three solutions, and see

²⁷ In contrast with the movements of the heavenly bodies, sublunar events are not absolutely necessary, but only hypothetically. That is, not all events need to come about. However, when we assume that something is necessary, then this implies necessity in a fatalistic sense. Prior events cannot change anything about the event, because they are necessitated in order for the event to come about. In the sublunar world, Broadie adds to this, this means that even if a link in the actual chain of events failed to come about, some other chain would have been followed. (Broadie 2003, 140) The reason for this is that the necessitated event must come about one way or the other.

²⁸ As should be noted, the solutions described above are the main solutions offered on the basis of Aristotle's text. However, some authors have given a slightly different solution as well. For example, MacFarlane argues that having a notion of relative truth provides a solution to the fatalism-argument. He wants to keep hold of the so-called 'indeterminacy intuition', i.e. that propositions concerning the future are not yet true or false, and the 'determinacy intuition', i.e. that every proposition must have a fixed truth value. At different moments of evaluation, the former or the latter intuition seems more plausible. Therefore, MacFarlane wants to keep both principles. In order to do so, he rejects the 'absoluteness of utterance-truth'. This implies that propositions can change their truth value over time. Truth is relative rather than absolute. Interesting is that MacFarlane here sees a solution in Aristotle's text that seems much more closely connected with the Stoics than with Aristotle. Further study would be interesting here, but unfortunately does not fit in the boundaries of this article. (MacFarlane 2003, 321-336) Prior argues for several solutions. These are mainly based on the solutions as found above, but do differ slightly on some points. For Prior's solution of asymmetry between past and future propositions, see: Prior 1957; and: Prior 1976. For a solution with three truth values, see: Prior 1967; and: Prior 1953. For his position in the second solution, see: Prior 1969.

whether they can be found in Stoic texts.²⁹

The Principle of Bivalence

The first solution concerned rejecting the Principle of Bivalence. This solution can be found in interpretations of Aristotle's text. However, the Stoics do not use this sort of solution.³⁰ This is shown in several texts where the Stoics regard the Principle of Bivalence as self-evident.³¹ This even holds for propositions about the future, where the problems began for Aristotle. For example, Simplicius mentions the truth values of future propositions:

Concerning the contradictory pairs having regard to future time, the Stoics, on the one hand, think the same as [they think] in the case of the other [sorts of proposition] too. They say: 'As are the oppositions concerning present and past things, so too are future ones – both the [oppositions] themselves and their parts. For either "It will be" is true or "It will not be", since it is necessary that [future propositions] be either false or true (for according to them [i.e. the Stoics] future things have [already] been made determinate). (Simplicius *Cat.* 406.34-407.3, trans. Gaskin)

From truth to necessity

A second option of rejecting the fatalism-argument can be found in denying the sixth premiss of the argument. In this premiss, the notion of necessity is implied by the truth of a proposition. However, the Stoics do not agree with this link between truth and necessity. This becomes clear when looking at their responses to two connected arguments: the Mower Argument and the Truth-to-Necessity Argument. Both arguments are from the Megarians, and argue from truth to

²⁹ Looking at primary texts regarding the Stoics, it will be noted that many different fragments and passages are used. There are no guiding texts here as there are for Aristotle's treatment of fatalism. Furthermore, often not the original sources but testimonies of passages, such as Cicero's discussions, will be used when the original texts have not been preserved.

³⁰ A brief note should be made here. Even though the Stoics accepted the Principle of Bivalence, this is a different version from the principle than Aristotle might have used. The Stoics used a temporalised version, meaning that 'at any time every proposition is either true or false'. Propositions can change their truth value. This is something that is less ascribed to Aristotle's theory.

However, given that the debate on future contingents discusses propositions with a fixed reference to time based on the utterance of that proposition, e.g. 'tomorrow' or 'one year from now', this distinction between Aristotle and the Stoics does not play a role in the debate. Even though propositions can change their truth value, according to the Stoics, they still need to have one of both truth values at a given moment.

³¹ For example: LS 34A; 34C; 38G; and 20E.

necessity.

The Mower Argument consists of the following premisses (LS 38I):

- 1) <Necessarily, either you will mow or you will not mow.>³²
- 2) If you will mow, you will not perhaps mow, perhaps not mow, but you will certainly mow.
- 3) If you will not mow, you will not perhaps mow, perhaps not mow, but you will certainly not mow.
- 4) But 'certainly' implies 'necessarily'
- 5) <Therefore, you will either necessarily mow or necessarily not mow.>
- 6) Therefore, there is no contingency.³³

This Mower Argument is closely connected with the Truth-to-Necessity Argument, in which the link between truth and necessity is described in a similar way (LS 20I):³⁴

- 1) Of every contradictory pair either one or the other is true.
- 2) If one of every contradictory pair is true, it is also certain.
- 3) If it is certain, it is also necessary.
- 4) Therefore, of every contradictory pair one is necessary.

The Stoics regarded these arguments as a sophism. According to them, the conclusion cannot be reached from these premisses. In order to argue for this position, they explain that modal concepts such as 'possible' are compatible with freedom. The Megarians, and especially Diodorus Cronus, have a concept of 'possible' in which 'possible' is only that what is or will become true.³⁵ Add to that the idea that a proposition needs to be true or false at a fixed time, as is the case in the debate on future contingents, and you end up with necessitation. If 'tomorrow, p' is only possible when p must be true then, then this implies the necessity of p tomorrow. Therefore, in this vision, when it is true that you will mow, you will definitely mow. The possibility of mowing does not exist when you are not actually going to mow.

The Stoics, however, have a different notion of modal concepts. One text

³² Compare with premiss four of the fatalism-argument: one year from now, p is true or not-p is true.

³³ See also: Bobzien 1998, 80: following Stephanus, *Int.* 34.36-35.5.

³⁴ See also: LS 38G. The premisses as sketched above are as in Bobzien 1998, 79.

³⁵ See, for example, a description of their Master Argument and other passages in which the Megarian notion of 'possibility' is discussed: LS 38A-38C.

where this is shown comes from Diogenes Laertius:

Further, some propositions are possible, some impossible, and some necessary, some non-necessary. Possible is that which admits of being true and which is not prevented by external factors from being true, such as 'Diocles is alive'. Impossible is that which does not admit of being true, <or admits of being true but is prevented by external factors from being true>, such as 'The earth flies'. Necessary is that which is true and does not admit of being false, or admits of being false but is prevented by external factors from being false, such as 'Virtue is beneficial'. Non-necessary is that which both is true and is capable of being false, and is not prevented by external factors from being false, such as 'Dion is walking'. (LS 38D)

This fragment shows how one can speak of possibility without implying certain actualization. For the Megarians, something is only possible when it is or will become true. Therefore, when it is possible that I mow, I am or will be mowing for sure. This necessity, however, cannot be found in the Stoics' theory. According to them, an event can be possible without becoming true. Something is possible when it admits of being true and is not prevented by external factors from being true. Thus, a possibility may become true. However, it does not necessarily become true. (Hankinson 1999, 527)³⁶

Determinism versus fatalism

The third and last solution to the fatalism argument was to argue against the last premiss of the argument. As we saw in section three, this solution does not work for Aristotle, given his theory of causes. However, in Stoic theories, this solution seems to be used.

In order to show that there is a difference between necessity and fatalism, the Stoics reject the Lazy Argument, which also originates from the Megarians. Before we turn to this argument, it is important to note something. When arguing against the Lazy Argument, the Stoics make the step from a logical debate to a debate concerning fate. The Mower Argument and Truth-to-Necessity Argument, that were discussed in the paragraph above, were logical. The Lazy Argument concerns fate-determinism and its distinction from fatalism. The Lazy Argument

³⁶ Other primary texts also indicate this reading of the modal concepts in Stoic philosophy. For example, Cicero writes about Chrysippus that "you say that even things which will not be are possible". (LS 38E) Alexander makes a similar point. He writes: "that which nothing prevents from happening is possible even if it does not happen". (LS 38H)

can be seen as an extension of the Mower Argument.

One important testimony for the Lazy Argument is Cicero's *On fate*. In this text, Cicero describes the argument:

They pose it [i.e. the Lazy Argument] as follows: 'If it is your fate to recover from this illness, you will recover, regardless of whether or not you call the doctor. Likewise, if it is your fate not to recover from this illness, you will not recover, regardless of whether or not you call the doctor. And one or the other *is* your fate. Therefore it is pointless to call the doctor.' (LS 55S)³⁷

Following on this description, Cicero gives one of Chrysippus' answers to the Argument:

Some events in the world are simple, he [i.e. Chrysippus] says, others are complex. 'Socrates will die on such and such a day' is simple: his day of dying is fixed, regardless of what he may do or not do. But if a fate is of the form 'Oedipus will be born to Laius', it will not be possible to add 'regardless of whether or not Laius has intercourse with a woman'. For the event is complex and 'co-fated'. He uses this term because what is fated is *both* that Laius will have intercourse with his wife *and* that by her he will beget Oedipus. (LS 55S)

As can be read in this passage, the central concept for denying fatalism is 'co-fatedness'.³⁸ According to Chrysippus, there is a distinction between simple and complex events. Simple events are fixed and happen regardless of what someone does. However, complex events are not necessitated in this way. They depend on many events happening beforehand. According to the Stoics, all events in the world are like these complex events.³⁹ We cannot view them by themselves. They happen in a chain of events and are necessitated by all events happening before them.⁴⁰ Because of that, stating that something is necessary does not mean that it

³⁷ See also: Bobzien 1998, 182.

³⁸ See also: Bobzien 1998, 202.

³⁹ This is not shown in the quote above, but can be seen in other passages of the Stoics. For example: In LS 55N, it is written that nothing in the world exists independently of other things that have happened before, and that all things are causally attached to each other.

⁴⁰ It seems odd that the example of Socrates' dead is given in the passage of Cicero. However, the distinction between simple and complex events seems to be made here especially to underline what is meant by the concept of 'fate'. Even though we can distinguish between two sorts of events, all events that we speak about as fated are complex events. A fated event does not

happens 'no matter what'. That is, all events happening before this particular event play a role in necessitating it. This is what is meant by 'co-fatedness'. Events are not fated individually, but fated along with other events. (Baltzly 2014, §4; and LS 38H)

How this co-fatedness can protect us from the conclusion of fatalism is shown by another ancient source. Diogenianus describes Chrysippus' *On fate*. He writes:

Hence he [i.e. Chrysippus] says in book 2 [of *On fate*] that it is obvious that many things originate from us, but that these too are none the less co-fated along with the government of the world. And he uses certain examples, like the following. That the cloak should not perish, he says, was fated not absolutely but together with its being looked after. (...) For many things cannot come about without our wanting them and applying the most intense determination and efforts over them, since it is together with this, he says, that they are fated to come about. (LS 62F)

Thus, according to Chrysippus, events are fated along with other events. In this co-fatedness, our own free will plays a role. With this, a strict distinction between the internal and the external is made.

According to the Stoics, we need to make a distinction between the global and the innerworldly perspective. (Bobzien 2005, 497) Seen from the global perspective, all things happen according to fate and are necessitated. However, seen from an innerworldly perspective, some differences arise. Even though the causal chains of events in the world lead up to a certain situation, the attitude of our mind towards this is free. Therefore, even when we have no alternative possibilities when acting, we do have a freedom of will. (Sambursky 1959, 61)

This idea is made clear with the wagon-analogy. (Botros 1985, 290) Assume that a dog is tied to a wagon. The wagon rides away, so the dog has to follow. However, he still has a choice: does it want to follow or not? If he wants to follow, his own power and the necessity in the events around him unite. If not, he will be pulled along anyway. Thus, even though the dog has no choice whether he walks along with the wagon or not, he does have a freedom in deciding whether he wants to or not.⁴¹ Thus, important for Stoic freedom and responsibility for an

happen no matter what happened before, because it is co-fated along with the rest of the world order.

⁴¹ This idea might sound rather counterintuitive. However, compare it with the thought experiment of Frankfurt. Following this thought experiment, it is argued that someone can be

action is the possibility not to perform that action. With this, a link with the second solution of the Stoics can be found. According to the Stoics, actions that are not actually performed, can still be possible. Therefore, even with no actual alternatives, the Stoics can talk about other possibilities in action.⁴²

A last question remains here: why can the Stoics use this solution while Aristotle cannot? The answer lies in the theory of causes that the Stoics use. As seen in section three, Aristotle's main cause is the final cause which views necessitation from later to earlier events. It seems here that his causes are about explanation rather than causation. (Hankinson 1998, 495)⁴³ His theory of causes explains how an event turned out to happen as it happened. It explains the happening of the final event, instead of the chain of events leading up to it.

To avoid that fate necessitates all events completely, the Stoics differentiate between different sorts of causes. For example, Cicero states that Chrysippus distinguished between 'complete and primary' causes, and 'auxiliary and proximate' causes. Here again the distinction between the internal and the external plays a role. Things can be partly caused by situations in their environment, but their own nature does play a role in how the chain of events continues. For example, a cylinder can be pushed of a slope by an external force, but its rolling down after that happens through its own force and nature. (LS 62D) The roundness of the cylinder is the complete and primary cause of its rolling down the hill, while giving it the first push is an auxiliary and proximate cause. According to the Stoics, fate only concerns those causes that are auxiliary and proximate. Thus, even though pushing a cylinder down a slope can come about by fate, it will eventually only roll because of its roundness. (LS 62C; LS 55F; LS 55I) Fate does not play a role in these internal features. The same counts for people. Even though events may be fated, our internal nature is free of fate. Therefore, people can still be responsible for their actions.⁴⁴

responsible for doing something, even if he could not have done otherwise. See also: Salles 2001, 3.

⁴² For examples on authors who regarded the Stoics compatibilists, see: Sorabji 1980, 85-8; Sharples 1983, 8-9; Frede 1984; LS, p. 107-12 and 392-4; Bobzien 1998.

⁴³ See also: Ph 2.3.195a33-b3

⁴⁴ Of course there are also arguments against this Stoic compatibilism. It reaches beyond the limit of this article to discuss these, but one quote should be made. In *On the Nature of Man*, Nemesius discusses Stoic compatibilism. He rejects the conclusions of the Stoics: "But if impulse also follows from necessity where is what is up to us left? For what is up to us must be free. But it would be free if in the same circumstances it were up to us sometimes to have impulse, sometimes not to. But if impulse also follows by necessity, it is clear that the result of impulse will also come to be by fate, even if it is brought about by us and in accordance with our nature, our impulse and our decision. (...) So what is brought about through us by fate is

Overall, the Stoics also use two out of three solutions against the fatalism-argument. However, they do not use the same arguments as Aristotle might have used. They do not reject the Principle of Bivalence, and thus do not use the first solution. They do use the second solution by arguing against the Mower Argument and the Truth-to-Necessity Argument. Finally, by creating the idea of co-fatedness, the Stoics use the last possible solution of the fatalism-argument. They reject that necessity leads to fatalism.

5) Time and future contingents

In sections three and four, we saw the possible replies of Aristotle and the Stoics to the fatalism-argument. How does time play a role in these answers? In general, multiple structures of time are distinguished. The standard topology of time is a “single, straight, non-branching, continuous line that extends without end in each of its two directions”. (Markosian 2016, §3) Other options for looking at time are: time as multiple isolated time streams, as a branching line, as a discontinuous line, or as a closed loop.⁴⁵

When looking at the philosophies of Aristotle and the Stoics, it will be noted that their theories of time differ significantly. Aristotle uses a linear and eternal timeline. According to him, time is a linear line with a 'before' and an 'after'. (Ph 219a30-b1) These two notions clearly divide time in two distinct parts. (Ph 222a18-20 and 222a35-b7) Time also is the number of motion in respect to these two parts. Since motion always exists, time will also be eternal. (Ph 222a30-31) The Stoics too link time to motion. (LS 51A) However, their notion of the world differs from that of Aristotle. According to the Stoics, there is a so-called Great Year after which a conflagration follows. They thus have the idea of an eternal recurrence of the world: after every conflagration a new world with exactly the same events starts. (LS 52B; LS 52C) Given this idea, the notion of motion becomes circular for the Stoics. If time then does follow motion, we must conclude that time is circular as well.⁴⁶ Thus, according to both theories, time is

not up to us, for by the same argument something will be up to a lyre, a pipe and other instruments, and all non-rational and inanimate things, when people act through them. But that is absurd.” See: Nemesius, *Nat.*, trans. Sharples and Van der Eijk, ch. 35.

⁴⁵ Furthermore, it can be asked whether time is symmetrical or asymmetrical. Are past and future identical, or do they have different characteristics?

⁴⁶ See also: LS p. 312: Given the Stoic notion of eternal recurrence, a linear timeline has some problems. A circular or closed conception of time does not have these difficulties.

connected to motion. However, since both theories have a different view of the motion in the world, their notion of time differs. With Aristotle's idea of an eternal world, time becomes eternal and linear. With the eternal recurrence of the world, the Stoic notion of time is circular, and so every future event merely repeats a past event.⁴⁷ How do these differences influence the possible arguments of both philosophies against fatalism?

As seen in the first interpretation of Aristotle's *On Interpretation* 9, Aristotle might have rejected fatalism by stating that future propositions are not true or false. According to this interpretation, he rejected the Principle of Bivalence for these propositions. According to the second interpretation, Aristotle retained the Principle of Bivalence, but argued against the relation between truth and necessity for future propositions. Future events cannot be necessary in the way past events are. (Carnap 1958; Goldstein 2005, 145)

When looking at these two interpretations of Aristotle's text, it might be noted that they have one important feature in common: there is a strict distinction between past and future propositions. Even though past propositions are true or false, future propositions are not always true or false; and even though past propositions are necessary, future ones are not necessary in the same way. These distinctions can only be made by Aristotle, because he uses an eternal and linear timeline.⁴⁸

Let us then look at the Stoic arguments against fatalism. Given that they do not reject the Principle of Bivalence, their first option of arguing against the fatalism-argument is by rejecting the relation between truth and necessity. Following this solution, we saw that the Stoics use a wider concept of 'possibility' than was used by some other philosophers. According to the Stoics, something can be possible without becoming actualized at a certain point. Furthermore, in their second solution they use a concept of co-fatedness. Events are co-fated along with the rest of the world order. Because of that, things never happen no matter what

⁴⁷ A question is whether time really starts over again every cycle, but this is of no importance here. Even if time were linear and just went on conflagration after conflagration, the world's motion would still be circular. Thus, the question regarding our actions would face the same problem.

⁴⁸ Furthermore, Aristotle even links necessity to circularity. In *On Generation and Corruption* 2.11, he states that "it follows that the coming-to-be of anything, if it is absolutely necessary, must be cyclical – i.e. must return upon itself" (GC 338a3-5) and that "it is in circular movement, therefore, and in cyclical coming-to-be that the absolutely necessary is to be found. In other words, if the coming-to-be of any thing is cyclical, it is necessary that each of them is coming-to-be and has come-to-be; and if it is necessary, their coming-to-be is cyclical" (GC 338a15-18).

happened before. Everything follows from earlier events. Thus, even though the present state of events determines how the future will develop, there are still other possibilities. This idea is linked strongly to the idea that possibilities do not need to be actualized per se.

Overall, what can be noted in the Stoic replies is that they do not differentiate between past and future as Aristotle did. They do not pose different actual possibilities for future events, and make their idea of freedom compatible with the determinism that follows from their idea of the eternal recurrence of the world.

Comparison between Aristotle and the Stoics

Considering how Aristotle could have argued and how the Stoics argued against the fatalism-argument, some differences in their answers can be noted. These can for a large part be explained by their notion of time. As stated at the beginning of the article, for both Aristotle and the Stoics, the relation between physics, logic and ethics is important. We will briefly compare both answers based on the relation between these three.

Let us start with the step from physics to logic. How can the notion of time, i.e. a physical concept, influence the logical arguments against the fatalism-argument? We saw that Aristotle differentiates strongly between past and future in both possible arguments against the fatalism-argument. The Stoics, in contrast, do not make this difference. When the Principle of Bivalence applies to the past, it must also apply to the future. Similarly, when speaking about future events, they state that there need not really be actual alternative possibilities. Even when just one event is going to happen, other options are still possible since they do not need to become actualized.

Let us then look at the step between logic and ethics. How do these logical differences influence the ethical part of the debate for both philosophies, and how does ethics influence their logics? As seen in Aristotle's possible answer, according to him we need actual options to have freedom. Following the first possible solution, a future proposition cannot be true or false yet. Following the second possible solution, future propositions cannot be necessitated yet. When something is necessary, this implies fatalism. According to the Stoics, however, we can have freedom without having multiple options. Because of that, there is moral responsibility in a deterministic worldview. This can also be seen in their answer to the Lazy Argument. Even though an event is fated to happen or not happen, one still needs to undertake action to work towards or to prevent this

event.

We thus see that the possible answers of Aristotle and the Stoics are formed around their notion of time. Aristotle's notion of time does allow him to make a difference between past and future. The Stoics' notion of time does not. Therefore, they focus on different aspects. Even if the future is necessitated in the same way as the past, we still can speak about possibilities and freedom in our actions.

6) Conclusion

In short, we saw above that the fatalism-argument as I schematized it knows three possible replies. Firstly, one can reject the Principle of Bivalence for future propositions. Secondly, one can reject the step from truth to necessity for these propositions. And thirdly, one can reject that the necessity that follows from the argument leads to fatalism. Interpretations of Aristotle's *On Interpretation* 9 show that the first and second solution might have been what Aristotle had in mind. The third solution would not have worked for him due to his idea of causes. The Stoics, in contrast, accepted the Principle of Bivalence, but could and did use the second and third solution. In comparing these two philosophies, it has been noted that time does play a considerable role. With both solutions that Aristotle could have had in mind, he does make a difference between past and future that the Stoics cannot, and do not, make.

Let us come back to the question we started with: how do the visions of time by Aristotle and the Stoics influence their arguments against fatalism in the debate on future contingents? In short, it can be stated that Aristotle's use of a linear timeline allows him to differentiate between past and future propositions and events. The Stoics, in contrast, use a cyclical timeline. Because of that, they cannot make this distinction between past and future. All solutions against fatalism need to be fit within this idea.

These visions of time by Aristotle and by the Stoics influence the debate on two levels. Firstly, in the step from physics to logic; secondly, in the step between logic and ethics. At the first level, we saw that Aristotle can state a difference between past and future propositions in two ways. In the first solution he might have had in mind, he rejected the Principle of Bivalence for future propositions, while accepting it for past and present propositions. In the second solution he possibly used, he stated that future propositions are necessary in a different way than past propositions are, if they can be necessary at all. The Stoics

cannot use these distinctions. They state that the Principle of Bivalence, given that it applies to past propositions, must apply to future propositions as well. At the second level, Aristotle again makes a distinction between past and future events. According to him, in order for the future to be open, there need to be multiple actual possibilities. There cannot be just one chain of events that is possible. The Stoics, in contrast, state that there can be freedom even with just one actual possibility. Something can be a possibility without being actualized. Therefore, freedom is compatible with a worldview in which all events are determined.

We thus see that in the mainly logical debate of future contingents too, the relation between all three aspects of philosophy – physics, logic, and ethics – needs to be taken into consideration. Only when also looking at physical notions, the logical differences, and with that the ethical differences, can really be understood.

Of course, this article forms just a first step in exploring the influence of time in the debate on future contingents. The topic could use much more research. For example, how can other ancient philosophies such as Epicureanism be fit in this comparison? Furthermore, other issues of temporal logic should be looked at. Following the debate on future contingents, we see that, even though implicit, the Stoics do make their logic compatible with their worldview. Is this also true for the rest of their philosophy? And can this clarify further differences between the logical systems of Aristotle and the Stoics? Finally, this research could be a first step in considering how time plays a role in the overall debate on fatalism. How can these considerations change the way we look at freedom these days? Let us hope the future is open enough to allow for such further research.

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