BOOK REVIEWS

About a new solution to the problem
of future contingents

Marcin Tkaczyk, **Futura contingentia**, Wydawnictwo KUL, Lublin (Poland), 2015, 450 pages, ISBN 978-83-8061-111-5.

Futura contingentia presents a new approach to the problem of future contingents. The monograph covers logical, philosophical and theological versions of the problem. Logic is not only a tool for the author, but also an important philosophical subject worth considering in its own right. Moreover, a method which can be extracted from the book fits well with methods preferred by the Lvov-Warsaw School. And that is exactly why one could claim that Tkaczyk represents the Polish style of philosophizing.[1] The book presents various forms and criticism of the problem, but also a new formulation and solution of it. We will here primarily discuss two chapters which in our opinion contain the most important results. The first is chapter four, which name might be translated as *The essence of futura contingentia*, and the second is chapter eight, entitled *Contingentia praeterita*.

The problem of future contingents (in Latin *futura contingentia*) appears to be a trilemma and not, as one might think, a dilemma. The author presents it in terms of the following three theses:

(1) At least one future event is contingent.

---

[1] The subject of *Futura contingentia* seems to be a peculiarly Polish one. Since Jan Łukasiewicz wrote his famous [4, 5], the topic has gripped many Polish logicians and philosophers. Recently, for example, in many papers and books it has been analysed from the perspective of the so–called *Master Argument*. See [1, 2, 3].

(2) All present and past events are determined.

(3) Any future event can be represented by some present or past event.

The author proves that the set of propositions (1)–(3) is inconsistent but that no two pairs of them form an inconsistent set. This shows us firstly that the problem of future contingents is an antinomy and secondly that it is indeed a trilemma. The proofs are given in the first–order theory **FCT** constructed by Tkaczyk, whose non-logical axioms are the formal equivalents of (1)–(3). In order to show their inconsistency, the most important thing is the possibility of representing future events by present or past events. Such a kind of representation is common to all variants of the antinomy and also a source of it. These constructions and results are the contents of the chapter four. One might well consider them the first of the most important results of the work.

The book gives two main versions of the antinomy. They can be extracted by an appropriate modification of thesis (3). For the semantic version we have:

(3′) Any sentence is either true or false.

For the theological version we have:

(3″) God knows the future.

The author claims that (3) is an enthymematical conclusion from (3′) as well as (3″).

Other versions discussed by the author are: one based on the modal theory of Jan Łukasiewicz and one developed from Diodorus Cronus. In the former case, the equivalent of (3) is not formed in the language of theory but in the metalanguage as a kind of rule of substitution, which unfortunately has a defect. It allows us to substitute the same expression in the formal equivalents of both (1) and (2), which lets us represent past and future events by the same expression.

In chapter four the author also considers three groups of arguments against the possibility of proving the inconsistency of (1)–(3). For instance, one could suggest that such inconsistency is merely illusory. Yet philosophers who made this claim have not been able to show that the antinomy cannot be established. The author refutes all the arguments. In many of them, the problem of future contingent events is presented as a dilemma, the thesis about the determined past was being completely omitted, and this is usually the main reason why many philosophers do not properly understand what the problem is about.

The second of the most important results described in the book is probably the presentation of possible solutions of the problem. We focus here on global solutions, since the local ones can help us to solve the problem only at the level of particular versions of the trilemma.

The author points out that the antinomy is strongly rooted in natural language and also in a basis of common knowledge. He discusses two global solutions. According to the first we need to accept the thesis of fatalism and so we need to reject (1). This means we need to accept that future is completely determined. What is important is that we need to be consistent for otherwise the problem still remain. For instance, the Stoics believed that the future is determined, but at the same time they believed that we can at least decide what an attitude we hold towards our fate. Such a gap is enough to prove the inconsistency of (1)–(3). According to the second solution we need to agree that there exist past contingents, which basically means we reject (2). The author emphasizes that from a logical point of view both solutions work, but there are some reasons for preferring the second one. Firstly, (2) begins with a universal quantifier and this is why it is easier to reject it. Secondly, the author finds a way of showing the validity of the second solution. And thirdly, fatalism entails sceptical consequences.

The core of the second solution is that we permit the existence of retroactive causes. Retroactive causes are basically those which are later than their effects. Now it seems hopeless to search for examples of such causes via scientific experiments. The author is aware of this and so presents a scientific approach to the cause-effect relationship which involves looking at the special theory of relativity. It is enough, however, to say that science almost completely reject any notion of retroactive causation. But, we can find some examples by considering performative utterances. The author presents an example of an inauguration ceremony that takes place in the third week after the start of term at a university.[2] The performative utterances delivered by the rector make all seminars, lectures and exercises which occurred during those first three weeks part of the academic year. In other words, these utterances change the past. More than that we can find examples of retroactive causes on the ground of a human activity of sense-making.[3] On that

---

[2] The example concerns the author's university.

[3] As a human beings we are able to make things senseful (meaningful). Here is an example given by the author: we can agree that II World War began in 1931 with

basis the author claims that in some cases we can partially influence our past. After such reasoning the author asserts a thesis about the partially open past (he calls it the *thesis of contingentia praeterita*):

(4) Present or past events by which we represent contingent events are also contingent.

Taking into consideration (4) the author limits (2) in the following way:

(2′) All present or past events, which do not represent any of contingent events are determined.

Next he describes a formal equivalent of (2′) in **FCT** and proves that (1), (2′), and (3) are consistent. These analyses are the content of chapter eight, titled *Contingentia praeterita*. With these comments on the major results made, we now turn briefly to the remaining chapters.

In the first chapter we find details of the semantic version of the antinomy. For instance, reflections on the connections between the principle of bivalence and related principles such as the principle of excluded middle, the principle of non-contradiction and the principle of double negation. There are also some thoughts on theses (1) and (2). In the second chapter the problem is presented in its theological form. The notions of a god and the omniscience of a god are analyzed (the word 'god' is intentionally written without a capital, since it concerns any god). These notions are discussed within Christianity, Judaism and Islam. These particular theological deliberations are the contents of the third chapter. Logical issues appear in the fifth, as well in the sixth and the seventh chapters; what follows is a very brief summary.

The antinomy is discussed within the context of many-valued logic, especially in reference to the conception of Jan Łukasiewicz, in the context of Temporal Logic (both linear and branching) and, last but not least, in the framework of a logic of future contingents propositions.

In the case of many-valued logic the author analyses various structures of logical values, which hypothetically could remove the antinomy. The author presents and discusses the ideas of Łukasiewicz. He also discusses criticisms of them made by Ferdinand Gonseth and analyses an attempt to improve Łukasiewicz's approach given by Jerzy Słupecki. Tkaczyk demonstrates that Łukasiewicz's approach as well as similar

Japanese invasion of Manchuria, and thereby give to the statement that Germany did not begin II World War a sense. We cannot change the past but we can give it a new sense (meaning).

approaches fail. It appears that the tools of many-valued logic cannot be used for solving the problem of future contingents.

Ideas coming from Arthur Prior cannot be worked into a proper solution either, since in those systems of Temporal Logic which were thought to be provide a solution we cannot even form the problem. The systems offer to eliminate future contingent propositions but cannot be considered as models of language in which one could express and talk about such propositions. Also, as the author shows, non-adequate definitions of modalities appear in many cases of such systems. In other words, a revision of classical logic does not seem to be helpful. More than that, a revision of the principle of bivalence can only lead to a weaker version of it and a decision between these two versions does not influence the legitimacy of classical propositional logic. Therefore, as the author concludes, an adequate propositional logic of future contingents is classical propositional logic and the antinomy cannot be solved by purely logical means.

References

[1] Jarmużek, T., *Jutrzejsza bitwa morska. Rozumowanie Diodora Kronosa* (Tomorrow's Sea-Fight. Diodorus Cronus' Argumentation), Wydawnictwo Naukowe UMK, Toruń, 2013.

[2] Jarmużek, T., "Master Argument vs. sea-fight tomorrow", *Bulletin of The Section of Logic* 38, 3/4 (2009): 205–214. http://www.filozof.uni.lodz.pl/bulletin/pdf/38_34_9.pdf

[3] Jarmużek, T., and A. Pietruszczak, "The tense logic for Master Argument in Prior's reconstruction", *Studia Logica* 92, 1 (2009): 85–108. DOI: 10.1007/s11225-009-9187-0

[4] Łukasiewicz, J., "O determinizmie" (About determinism), in J. Łukasiewicz, *Z zagadnień logiki i filozofii. Pisma wybrane* (On the Issues of Logic and Philosophy. Selected Papers), J. Słupecki (ed.), PWN, Warszawa, 1961.

[5] Łukasiewicz, J., "Uwagi filozoficzne o wielowartościowych systemach rachunku zdań" (Philosophical remarks about systems of many-valued propositional logic), in J. Łukasiewicz, *Z zagadnień logiki i filozofii. Pisma wybrane* (On the Issues of Logic and Philosophy. Selected papers), J. Słupecki (ed.), PWN, Warszawa, 1961.

MATEUSZ KLONOWSKI
Department of Logic
Faculty of Humanities
Nicolaus Copernicus University in Toruń, Poland
matklon@doktorant.umk.pl