

THE CONCEPT OF TIME IN MEGILLAT HA-MEGALLEH

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INTRODUCTION

Abraham bar Hiyya is one of the less well known representatives of medieval Jewish thought.¹ References to his work are frequent, especially in footnotes, but studies specifically about bar Hiyya are quite rare.² The situation is understandable. Bar Hiyya's influence on later Jewish thought has not been anywhere near his more famous contemporaries like Judah Halevi and Abraham ibn Ezra. Still, he occupies an interesting position in an equally interesting time period when the intellectual centre of the Jewish civilization was moving from Islamic to Christian countries, involving changes in all domains of life, including political, theological and cultural. As a learned man, bar Hiyya is as many-faceted as his more famous contemporaries. In addition to his works on scientific topics like astronomy, mathematics, the calendar and land surveying, he wrote two works with a theological content: *Hegyon ha-nefesh* on repentance and *Megillat ha-megalleh* on redemption. In both works, the author combines philosophical and scientific material with the interpretation of Biblical text in a unique way to make his point. This article is part of an attempt to understand *Megillat ha-megalleh*³ by reading it as a whole,

¹ Abraham bar Hiyya lived in northeastern Spain at the beginning of the 12th century. Very little is known about his life. Normally it is assumed that he was born around 1065–1070 and that he would have died in 1136. He is associated with Barcelona and it is possible that he has had a position in the court there.

² Vajda (1946), Waxman (1965) and Wigoder (1969) have each written a summary of the philosophical and theological views of bar Hiyya. The only monograph on bar Hiyya, *Judaism as Philosophy* by L. Stiskin, is problematic and suffers from an uncritical and tendentious approach.

³ The only printed edition of this work is *Megillat ha-megalleh*, ed. by A. Poznanski, Berlin 1924. This edition is also available in the internet in www.seforimonline.org. In this article, this edition is referred to as MM, followed by page number and row numbers. The only modern translation is *Libre Revelador*, in Catalan by Millas-Vallicrosa, 1929.

as a deliberate composition in which each part is to be understood in its immediate textual context, and the text as a whole in its historical and cultural context.

Bar Hiyya opens *Megillat ha-megalleh* with a lengthy discussion on the nature of time. This discussion takes up the whole of the first chapter and the beginning of the second chapter of the book. The discussion begins with philosophical material, but later adopts an exegetical approach. By the 12th century, there existed a long history of philosophical discussion concerning time. Therefore it is natural that earlier research has tried to determine bar Hiyya's position concerning time within these philosophical traditions. This has not been easy, and the results so far are confusing. This may be partly due to the fact that this research, which has been interested in specific views, has tended to concentrate on isolated passages instead of reading them in their textual context.⁴ Bar Hiyya's style, however, is often rhetorical. He especially likes to present various material to support his argument, as well as to instruct the reader. Therefore, to understand the point in his argument, it is necessary to read the complete text instead of some isolated passages. Following this approach, this article will first explore the philosophical background, then move on to outline bar Hiyya's discussion on time in *Megillat ha-megalleh*. The remaining chapters will approach two main questions: what was bar Hiyya's concept of time and what is the function of the discussion on time in *Megillat ha-megalleh* as a whole. Of these two questions, even if the first one is certainly of interest in the history of Jewish philosophy, the latter question is more important in order to understand the thought of Abraham bar Hiyya.

PHILOSOPHICAL BACKGROUND

Philosophical concepts of time in medieval thought

The main conceptions of time in the Middle Ages⁵ – Aristotelian, neo-Platonic and Augustinian – all originate in the antiquity. The Spanish Jews of the 12th century were familiar with Arabic philosophy, which was largely a continuation of the Aristotelian and neo-Platonic traditions of the late antiquity.

Aristotle discussed time extensively in his *Physics* (IV:10–14), starting from paradoxes that seemed to indicate that time does not exist. The past is no more, the future is not yet, and the present is without magnitude. To present a coherent view of time, Aristotle shifted attention to an analysis of motion, and developed a definition of time as “the number of motion according to the before and the after”.

⁴ An exception to this is Guttman 1903. This article, written two decades before the publication of the printed edition, mainly describes the contents of the work.

⁵ For a general introduction, see Turetzky 1998: 5–65.

Time is linked to motion, and motion is linked to the change of position or state. In motion we can discern positions of “before” and “after”, and by counting the ordered positions in motion we experience time. Time and motion are thus mutually dependent. Being in time means being measured by time, as well as being contained in time between the past and the future. The eternal cannot be contained by time and therefore it does not exist in time. On the other hand, things that are being generated and corrupted, i.e. that sometimes are and sometimes are not, are bound by time and thus necessarily exist in it.

The Aristotelian definition of time links time strongly to physical motion. This has given rise to a question: which motion exactly? (Klein-Braslavy 1987: 229–230) The answers to this question fall into two categories. Time is either the counting of any motion, or the counting of the motion of the stellar sphere. The motion of the stellar sphere is considered the most regular, and the most easily observable motion in the world, because it generates directly the division of time into days, and also because it was held to indirectly cause all motion in the world.

The Aristotelian definition was not accepted by all, the problem being that it linked time to corporeal existence and the motion of bodies. For Plotinus, who defined the basic neo-Platonic definition of time in his *Enneads* (III:7), time does not require physical motion, or even the existence of a physical world. Time is not motion, but duration. In a good Platonic manner, Plotinus divides the reality into the eternal and the changing. All reality unfolds in an emanation chain starting from the eternally unchanging and undifferentiated One and ending with the material world. The first hypostasis emanated by the One, Intellect, holds all forms in an eternally unchanging state. The following hypostasis, the Soul, contains the forms in a constant state of motion. This motion is both the life of the soul and the origin of the life in the lower world. For Plotinus, time is both the duration and the motion of the Soul. Aristotle had linked time to the physical world, whereas for Plotinus time originated in the emanation chain above the level of the material world.

Like Aristotle, Augustine too sought a solution to the paradoxes of time.⁶ For him, if time is to exist, it has to exist simultaneously with all its parts, past, present and future. How is this possible? The solution offered by Augustine is that the past exists in the present as the memory, the present as the perception, and the future as the expectation. For him, thus, the time is real only in the mind.

A medieval discussion on time was often accompanied with the question of the eternity versus creation of the world, or whether the time is finite or infinite. Classical philosophical traditions had regarded the world as eternal in one way or another. According to Aristotle, the world as a whole existed eternally, and only

⁶ Augustine: *Confessions* ch. 11, *City of God* ch. 11. See also Knuuttila 2001: 103–115.

the sub-lunar world was subject to generation and corruption, i.e. the becoming, changing and disappearing of beings. To account for the change Aristotle used the concepts of matter and form, potentiality and actuality. When something changes, its matter remains unchanged, while the actualization of form accounts for the change. In the change, something that the being has had potentially is thus brought into actuality. These Aristotelian concepts were later adopted also by other schools of thought, such as the neo-Platonists. As we will see, these concepts will be central tools in bar Hiyya's discourse.

For Aristotle, the world did not require a cause for its existence; it was the eternal motion within the finite world that required him to posit an unmoved mover outside of the world. Neo-Platonism differs in this point, as it describes a hierarchy of being overflowing from the unfathomable One, through the hypostases of Intellect and Soul and finally producing the physical world. This emanation chain, through which all being is completely dependent on the Deity, is eternal and necessary. Thus, original neo-Platonism differs significantly from the doctrine of creation as taught by the three monotheistic religions.

The Classical traditions thus considered the world to be eternal. When adherents of the Jewish, Christian and Muslim religious traditions started to engage in philosophical thought, many of them attempted to reconcile the finitude of time implied by their religion with the rationally derived conceptions of Classical philosophy. Augustine, for instance, followed the neo-Platonists in his conception of God existing in an eternally unchanging state, while strongly asserting the creation of the world and time together.

BAR HIYYA'S POSITION ACCORDING TO PREVIOUS RESEARCH

The results of the previous research on bar Hiyya's concept of time can be divided into three kinds.⁷

First, there are those who consider that bar Hiyya lacks a coherent view of time. For instance, Georges Vajda (1946: 194–196) mentions many aspects contained in bar Hiyya's discussion of time, but does not attempt to explain the differences. Specifically, he finds that in *Megillat ha-megalleh*, bar Hiyya presents an Aristotelian definition of time, whereas in *Hegyon ha-nefesh* he presents a non-

⁷ It should be noted that as far as I know, there is no actual study that would substantially concentrate on bar Hiyya's concept of time. Mostly, the research results cited here are gleaned from short passages in various studies. Only Waxman has dedicated several pages to this issue.

Aristotelian concept based on duration.⁸ In general, Vajda (1946: 218) considers bar Hiyya a mediocre thinker. Julius Guttmann (1924: XIV) also notes that bar Hiyya's definition of time: "it is said of time that it depends on the existents, is consequent to them, and all the created beings exist in it, but it does not exist except in the mind, visible by the heart" (MM 6: 22–23) is full of contradictions, even if this may be due to terminological problems.

Second, Meir Waxman pays attention to the same passage that troubles Guttmann, claiming that, according to bar Hiyya, time is

an internal intuitive sense or a concept in the heart, which in a specific manner is the basis to all perception or sense that transfers the knowledge of all change that happens in the world, and in a way, the knowledge of the things itself. It is impossible to receive knowledge on the existents without time, in other words, all existents are found within it, because without time we would not perceive the existents. This is also how time depends on the existents, because time is what conveys the knowledge of the existents.⁹

Waxman considers this view to be an original innovation of bar Hiyya; Funkenstein (1993: 116), however, regards it as Augustinian.

The third view has been presented by H. A. Wolfson (1929: 638–640), who considers the various definitions of time in *Megillat ha-megalleh* and in *Hegyon ha-nefesh*, and alongside of the Aristotelian definition, finds a definition of time as the measure of the duration of the existents. This concept, also mentioned by Vajda, is different from the Aristotelian definition while not in contradiction to it, and can be found also in Saadia Gaon and al-Ghazali.¹⁰

⁸ This is, as should become obvious in ch. 3 of the present paper, an over-simplification. *Megillat ha-Megalleh* contains several different definitions of time, including the Aristotelian one.

⁹ Waxman 1965: 149. Translation is mine.

¹⁰ Wolfson 1929: 638–640 cites examples from Saadia, al-Ghazali and bar Hiyya as follows: Saadia gives two definitions: "time is nothing but the extension of the duration of bodies" (Emunot ve-deot II, 11) and "the essence of time is the duration of these existent things" (Emunot ve-deot I, 4).

al-Ghazali gives "time is a term signifying the duration of motion, that is to say, the extension of motion" and also that "time is a term signifying the measure of the motion of the spheres according to the division into prior and posterior". Thus the common term here is the extension or duration or either bodies, existent beings or motion.

It is to be noted that the different definitions use different words for "extension": Saadia: *מדה*, Al-Ghazali: *המשך*, and for "duration": Saadia: *בא קיום השאריות*, Bar Hiyya: *עמידה, עמדה*.

Wolfson assumes a common literary source for this definition, and assumes that the Greek term *διουρασις* lies behind these various Arabic and Hebrew terms. According to Stern (Altmann & Stern 1958: 75–76) this common source is Pseudo-Plutarch's *Placita Philosophorum*, I, 21. The word *مدة* is, however, missing from the existing Arabic text of *Placita*

THE DISCOURSE ON TIME IN MEGILLAT HA-MEGALLEH

This chapter outlines the contents of the relevant parts of *Megillat ha-megalleh* on the issue of time. The discussion on the nature of time takes up the whole first chapter of *Megillat ha-megalleh* and the beginning of the second chapter (MM 5–19). The tone of discussion in the first chapter is based on an eclectic perusal of philosophical material, whereas in the second chapter attention is turned into an exegetical application of the ideas presented in the first chapter. Only the main course of the discussion has been included here. I have chosen to highlight some issues in the outline, but comments have been placed in footnotes.

POTENTIALITY AND ACTUALITY

Bar Hiyya starts his discourse on time by asserting that there is a consensus on the fact that the world has been created.¹¹ He then establishes that he is quoting the views of philosophers:

The philosophers that investigate the origin and the beginning of the creation have said that everything that was to go into actuality, when still in potentiality, was divided into three principles (MM 5:4–5).¹²

Before things came into being, they were in a state of potentiality, consisting of matter, form and privation. When God removed the privation, the things became actual.¹³

Philosophorum (Daiber 1968: 173) and Stern is assuming that Qusta ibn Luqa is translating *διαστημα* as *מבד*.

11 This claim is an exaggeration, which can be taken as a characteristic of bar Hiyya's rhetoric style. In MM 10 bar Hiyya himself writes:

because among the non-Jews there are those who deny a principle of religion saying that the world has no beginning and that time is eternal; it does not have a beginning, and there is no need to say that it has no end. There are also those non-Jews who admit that time has a beginning, but do not admit that it has an end, but that it keeps moving continuously without end.

12 וחכמי המחקר הדורשים על ראשית היצירה והתחלה אמרו שכל היוצאים לידי מעשה הם נחלקים בעמידתם בכח לשלושה ראשים All translations, unless stated otherwise, are mine.

13 Bar Hiyya is here using the Aristotelian concepts of matter, form and privation in a very un-Aristotelian way. In Aristotle, these concepts account for the phenomenon of change in the sublunary world which as a whole is eternal, but consists of beings subject to constant change, generation and corruption. Bar Hiyya is now applying the concepts of matter and form in a neo-Platonic way to the genesis of the world as a whole. Since the birth of neo-Platonism, the use of Aristotelian terminology no longer indicated adherence to strict Aristotelianism.

FORM, ABSENCE OF FORM AND TIME

Bar Hiyya now presents a peculiar trichotomy. All variation¹⁴ in the world, he says, is either due to an effective form, absence of form, or time. Whatever has a form is useful and positive, and can be perceived through the senses. Examples of this include: life, light, wisdom, peace, wealth and being clothed.¹⁵ Whatever lacks a form is usually harmful, and is not perceived because of something actual that would exist in the thing, but rather because of absence of sense-perception. Examples now include the opposites of the positive cases given above: death, darkness, ignorance, evil, poverty and nakedness.

Finally, there is a thing, which is neither characterized by having a form nor by absence of form that it could have had, and this thing is time. It has neither a form nor does it suffer from absence of form. Rather, it is dependent on the created beings. The existence of time is consequent to the existence of created beings. Furthermore, time is not perceived like the two first cases that account for variation, but in a more indirect way. It is not known through a form it has, neither is it understood through absence of perception.

The existence of time is different from the existence of created beings. These find their existence by being extended in time, but the existence of time is full of paradoxes: how can time be said to exist if the past is no more and the future is not yet, and the present has no duration and no stability. Therefore, bar Hiyya writes that “they have said of time that it depends on the existents, is consequent to them, and all the created beings exist in it, but it does not exist except in the mind, visible by the heart”. (MM 6: 22–23)¹⁶ This definition asserts that time and

¹⁴ The exact meaning of the term used by bar Hiyya here, *hilluf*, is not self-evident. According to Guttman 1924: XIV, bar Hiyya is speaking of *accidents* of beings. This question will require further attention in the future. Here I have chosen to translate it using the word “variation”, which in English covers both “change” and “differences” between various beings. Guttman’s interpretation may be roughly justified because the differences between things would be accounted for because of the properties of beings, whether essential or accidental.

¹⁵ To a modern person it appears odd that bar Hiyya ascribes such abstractions to sense-perception. Guttman 1924: XIV proposes that this may be due to Kalam influence. This question also merits attention in the future. A possible explanation is that bar Hiyya, or his source, differentiates between sense-perception as having individual particular beings as its objects, and intellect as having universal concepts and truths as its object. Actually, bar Hiyya’s discussion on the fall of Adam in MM 61–62 confirms that he differentiates between a sensory distinction between good and bad and an intellectual distinction between good and evil.

¹⁶ ומכאן אמרו על הזמן שהוא תלוי בנמצאות ונמשך אליהם וכל היצורים נמצאים בו והוא אינו נמצא אלא בתוך הדעת ונראה בעיני הלב

created beings are mutually dependent, and this assertion is an important element in bar Hiyya's discourse on time. The definition also claims that time has no real existence, that it exists only in the mind.¹⁷

BEING IN TIME

Bar Hiyya then considers the actual meaning of "being in time":

"But you shall not think that a thing exists in time like a thing that is inside another, but understand that a thing is consequent to another, depends on it and follows it." (MM 6: 23–25).¹⁸

This definition clarifies and reinforces the concept of mutual dependence between time and created beings. Next, bar Hiyya enumerates and explains nine different ways that something can be said to be inside something else.¹⁹ Being in time, according to bar Hiyya, is the most universal of these nine kinds of "something in something". The creation contains nothing, either a substance or an accident, that is not in time. "All they come in time", he writes, "Time is consequent to them, inseparable from them, overlaps and surrounds them from two sides, before and after" (MM 8: 2–4).²⁰ The dependency of all creation on time is now emphasized.

No other relation, not even the relation between an individual and her species, or a species and a genus, is as universal as "something being in time". Concerning universals, bar Hiyya displays a nominalist position when he states that an individual is not in need of its species to exist. Rather, the species is mentally determined out of some characteristics that the individuals share. Yet every created thing is in need of time in order to exist. Time, thus, has a higher ontological status than universals. Universals are mental concepts, whereas all the creation needs time to become actual and to exist. Bar Hiyya now returns to his trichotomy (form, absence of form and time) from the beginning of the discourse, and states that even form and absence of form are dependent on time in order to exist.

17 At this point, however, we should be cautious and note that the passage starts with the words "they have said" מכאן אמרו על הזמן, i.e., bar Hiyya is quoting a philosophical view, or perhaps even a mixture of views.

18 והדבר הנמצא בזמן אל תבין ממנו דבר שהוא עומד בתוך דבר אבל הוי מבין ממנו דבר שהוא נמשך בדבר ונתלה בו והולך אחריו

19 This follows Aristotle's Phys. IV:3, bar Hiyya, however, adds the case of being in time.

20 כלם הם באים בזמן והזמן נמשך עמהם ואינו נפרד מהם והוא מקיף עליהם ועודף להם משני צדיהם לפנים ולאחר

TEMPORAL AND NON-TEMPORAL PRECEDENCE

Bar Hiyya then returns to the topic of creation and to the concepts of potentiality and actuality. Every created being, he writes, is first in potentiality before moving into actuality. However, even before the state of potentiality, things existed first in divine wisdom and after that in divine thought.²¹ However, bar Hiyya does not allow the existence of time before creation.

Time is nothing but the counting of the movement of the change of the created beings as the earlier and the later, and before the six days of creation was no change, and if there is no change to cause movement, there is no time. (MM 8: 33–35)²²

When we talk in terms of before and after before the creation, we are using a non-temporal concept of precedence. Bar Hiyya now presents five different kinds of precedence: precedence in time, by nature, by order, by rank and by cause.²³ These tools allow him to discuss various processes both before and after the creation, even if time only came into being with creation.

This section further reinforces the mutual dependence of created beings and time by introducing the Aristotelian definition of time which makes time dependent on physical motion. Furthermore the pre-existence of the created beings, in a non-temporal sense, in the divine mind is mentioned.²⁴

END OF TIME

Bar Hiyya next turns to proving that time is finite, that is has not only a beginning but also an end. He bases his proof on the following premises:

²¹ Bar Hiyya mentions on several occasions that things existed before (in a non-temporal sense) creation in *mahshavah tehorah*, literally “pure thought”. Here he may be influenced by either the concept of Active Intellect current in the Aristotelian tradition in e.g. al-Farabi and ibn Sina, or the neo-Platonic hypostases of Intellect and Soul. The most plausible source is, however, a neo-Platonic tradition that identified the Active Intellect with the neo-Platonic Intellect, see Fenton 2000: 59 and *Rasā'il Ikhwān al-Safā*, III: 187. Corresponding to bar Hiyya's Wondrous Wisdom, we find in Isaac Israeli Wisdom placed above the Intellect, see Altmann & Stern 1958: 159–164.

²² כי אין הזמן אלא מנין גלגול החלוף על הנמצאות בנקדם ובמאוחר ולפני ששת ימי בראשית לא היה שם חלוף ואם אין שם חלוף שיהיה מתגלגל אין שם זמן. Note the frequent use of שם in the meaning of “there is”, which is an Arabism and atypical of bar Hiyya's language.

²³ This follows Aristotle: Cat. 12.

²⁴ It is to be noted that in bar Hiyya not only the ideas, or forms of universals if you like, have this kind of pre-existence, but also the individual beings, as the following proof of the finitude of time will show.

- the infinite is incomprehensible (a mind can not encompass an infinite); quoted as an anonymous statement by “*those who investigate these matters*”
- time and created beings are mutually dependent
- created beings are contained in the divine mind and become actual one by one

Now if time is infinite, then the number of created beings must be infinite. But the divine mind, according to bar Hiyya’s first premise, cannot encompass an infinite. Thus postulating infinite time would be equivalent of saying that the divine mind cannot grasp the totality of created beings, which is theologically unacceptable. This would, of course, also contradict the third premise, but bar Hiyya does not make use of this fact. Anyhow, bar Hiyya concludes that time must be finite.²⁵

OPINIONS CONCERNING THE DURATION OF THE WORLD

After having shown that it is possible to argue through rational means that time is finite, bar Hiyya turns to examining the various values that non-Jewish scientists have proposed for the duration of the world. The presented values have either an astronomical or astrological basis. The sages of India believe in cycles of 4,320,000,000 years and 4,320,000 years, after which the planets, with their apogees and nodes, are said to return to the original position in which they all were created.²⁶ Bar Hiyya refutes these views on astronomical grounds. Astronomical knowledge, he states, is based on accumulated observations. The Indian cycles, however, are based on movements so slow that they could not have been

²⁵ One problem in this proof is the assumption that not even the divine mind is capable of grasping an infinite. Bar Hiyya may well be aware of this weakness, because he steps through the proof quite quickly, without repeating his point as he often does. Of course there were philosophers who would have accepted the premise.

In Jewish philosophy after bar Hiyya, the premise was accepted at least by Gersonides. See his Wars of the Lord, III: 2, listing difficulties related to God’s knowledge of particular beings: Particulars are infinite in number, yet knowledge is something comprehensive and inclusive. According to Aristotle, An. Post. 1:18, the infinite cannot be comprehended. Note how this argument uses the same premise that is used by bar Hiyya, but in a different way, arguing that God does not know particulars.

Of course, there were also many who would not have accepted that the divine mind cannot grasp an infinite number of beings (most notably Augustine; in Jewish philosophy after bar Hiyya, Maimonides accepted that God’s knowledge includes an infinite number of particulars: see his Guide of the Perplexed, III:21, and Gersonides, Wars of the Lord, II:2). Thus, considering the theological character of the book, bar Hiyya’s first premise is rather surprising.

²⁶ On this cycle, see Pingree 1968: 28–37.

detected during recorded human history.²⁷ Bar Hiyya also quotes and refutes opinions that the duration of the world is either 360,000 years²⁸ (a millennium per each celestial degree), 12,000 (a millennium per each Zodiacal sign), 7,000 years (a millennium per each planet) or 49,000 years (7,000 years per each planet).

Bar Hiyya's discourse now comes to a clear turning point. According to him, reason can show that time has an end, but it cannot derive a value for the duration of the world. This information is a divine secret, and knowable to humans only through divine inspiration. Therefore he turns to the Scripture in his enquiry, emphasizing repeatedly that this kind of investigation is permitted. Yet, he does not claim that it is easy to derive an unambiguous answer from the religious tradition. To illustrate this, he shows how the rabbinical tradition has provided several conflicting views on how long the Messianic age will last. Bar Hiyya thus does not expect an exact result. Rather, he is expecting to find a variety of results, and he is inclined to choose the answer which is being indicated by more evidence than the other alternatives.

PHILOSOPHY AND EXEGESIS

Even when bar Hiyya turns to investigating scriptural evidence, he continues to utilize philosophical concepts in his exegesis. Central to his discourse is the distinction of potential and actual. Bar Hiyya interprets a number of biblical verses to show that the word "create" designates God bringing being into a potential state, and the words "make" and "form" designate the bringing of being into actual existence. Additionally, bar Hiyya employs the duality of form vs. absence of form, which he understands in a neo-Platonic manner as good and evil respectively²⁹, especially in his exegesis of Is. 45:7:

You'll find that this verse contains the three kinds of existents of the world, which are form, absence of form, and time, that is continuously consequent to them. Furthermore, this verse divides time into two parts. One part corresponds to form, that is the light and the peace that is beneficial to the world. The second part corresponds to lack of form, which is the darkness and the evil that is harmful to the world. This is to teach you that all the days of the world are divided into these two kinds, peace and evil (MM 16: 22–26).³⁰

²⁷ This applies to the Indian concept of the movement of apogees and nodes. See also Pingree 1968: 33.

²⁹ Bar Hiyya clearly differentiates between "potentiality" and the "absence of form" here, which indicates that his use of the concepts is not strictly Aristotelian.

³⁰ ותמצא הכתוב הזה כולל את שלשת עניני הנמצאות בעולם והם הצורה ואפיסת הצורה והזמן הנמשך עמהם והולך. וחילק הכתוב הזה הזמן לשני חלקים. אחד מהם כנגד הצורה והוא האור לשום אותו כנגד השלום המהנה לעולם. והשני כנגד אפיסת הצורה והוא החשך והעמידו כנגד הרע המזיק לעולם ללמדך שכל ימות העולם נחלקים לשני חלקים אלו והם השלום והרע.

FROM TIME TO HISTORY

From here, bar Hiyya proceeds through an exegesis of scriptural verses with the support of specific philosophical concepts and ideas, to claim that the original creation contains everything in potentiality, and that each creation day is a species of its own, containing within itself such forms that will be actualized in the period corresponding to that day, so that there is a real correspondence between the days of the creation and history.³¹

It has now been established that these seven days are the days of the world. Additional proof is provided by the Torah, which testifies that the creation of all works of the world was completed³² on the seventh day, and that all the created beings that exist in potentiality will have finished moving into actuality³³ on the seventh day, as it is written "God rested on it of all the work that He had created in order to be made"³⁴ (Gen. 2:3). You see from this verse that the Holy One, blessed be He, established during the days of the creation all the created beings that exist in potentiality to move into actuality, and from then on they proceed into actuality, and on the seventh day all potential beings will have completed their becoming actual, as it is said "that He had created in order to be made". All created beings have moved into actuality and will rest. This is like King Solomon, may his memory be blessed, said in his wisdom: "there is nothing new under the sun" (Eccl. 1:9). The existents that become actual on this day are not new, but have existed in potentiality since the six days of the creation, to become actual in their proper time and moment, as it is written "there is a time for everything, and a moment for every purpose under the heaven" (Eccl. 3:1). (MM 18: 31–19: 10)

Bar Hiyya has now reached another turning point in his discourse. By interpreting the Scripture according to a number of philosophical concepts, he has moved his discussion from the nature of time to developing a concept of history, even if his view of history is a theological concept, the unfolding and actualization of a divine plan, of the form-seeds planted by God in creation. The issue of time is now closed. There is no summary on the nature of time; no definition of time is presented. The emphasis has shifted to history, which will be one of the main

³¹ Bar Hiyya's ideas here are in many ways similar to those of Augustine. In the latter, the creation includes seminal reasons for what is going to come into being later. Yet it would be wrong to say that bar Hiyya's concept of creation is Augustinian. For instance, for bar Hiyya, the days of the creation are not only archetypes but also perfectly normal days measured by the rotation of the sphere.

³² At this point, bar Hiyya is using the days of the creation ambiguously, sometimes referring to the actual days of the creation, sometimes to the periods that according to his claim correspond to the days of the creation.

³³ יהיו נשלמים לצאת למעשה, that is "will have completed their moving into actuality", thus here bar Hiyya is referring to the future period.

³⁴ כי בו שבת מכל מלאכתו אשר ברא אלהים לעשות. I have translated the verse to emphasize bar Hiyya's interpretation which clearly separates 'creation' and 'making' as subsequent phases.

discussion topics throughout the rest of the book, along with an enquiry into the date of the redemption.

THE DISCUSSION ON TIME IN THE CONTEXT OF MEGILLAH HA-MEGALLEH AS A WHOLE

One of the problems of the previous research has been to extract the views concerning the nature of time in *Megillat ha-megalleh* without considering how bar Hiyya develops and employs these views in the rest of his book. Therefore, before we try to evaluate bar Hiyya's position on the question of time, in order to arrive at a complete picture of bar Hiyya's possible intentions, we need also to investigate the complete structure of the work. This structure can be summarized as follows:

1. An introduction, in which the author argues that the study of the coming of the redemption is permitted, and announces that he is going to investigate the date of redemption, and that this investigation will also prove that the Messiah cannot have come already.
2. A discussion on the philosophical and scientific views on the nature of time, converging on the concept that time is finite.
3. An exegetical application of the philosophical concepts of time, resulting in a view that all history is contained in the creation; that history consists of good, evil and mixed periods; and that these periods correspond to the days of the creation. This is followed by an examination of history mainly as recorded in the Bible, in an attempt to match the periodical structure with the perceived facts of history. Finally, the author applies the periodical model to estimate a date for redemption. There are also diversions to specific topics, such as the theory of the five levels of supreme light and the three levels of prophecy.
4. A defense of bodily resurrection at the beginning of the messianic age, based on both scientific and exegetical arguments. A large part of the chapter consists of a commentary on Gen. 2–3 with an argument that man was originally created immortal; this condition was lost but will eventually be regained through the tree of life that is the Torah. Even here, the theoretical and exegetical ideas are applied in calculations for the time of redemption.
5. An investigation of parts of the Book of Daniel combined with a comparison with history since the Babylonian exile, followed by yet another attempt to calculate the date of redemption.

6. A justification for the use of astrology in order to convince those who do not accept the Biblical evidence, followed by a description of a theory how the conjunctions of Jupiter and Saturn coincide with major political upheavals. This theory is then applied to a detailed examination of history from the time of the exodus to bar Hiyya's own times, followed by an extrapolation to the future to determine the time of redemption.

Finally, it must be noted that even if eschatological calculations occupy a major role in *Megillat ha-megalleh*, the tone of the book is far from being exhortative or from advocating active forms of messianism. The methods and topics encountered throughout the book are typical of the rationalistic orientation of Spanish Jewry. The question of the messianic prediction runs through the book like a thread, keeping it together. There is no single date proposed but rather a number of possible dates spread over a couple of centuries. The emphasis, thus, seems to be to prove that redemption is inevitable, and that it will happen in the next few centuries, rather than to present an exact date for it.

DOES BAR HIYYA PRESENT A PHILOSOPHICAL CONCEPT OF TIME?

What is a philosophical concept of time?

When we state a question like whether bar Hiyya presents a philosophical concept of time, it is proper to stop for a moment and consider what actually constitutes a philosophical concept. Understanding philosophy in its ancient and medieval role, we may define such a concept to be a conception that is rationally derived, argued and defended. This definition allows us to differentiate between a philosophical writer, who presents his conception in a rationally argued form, and a non-philosophical author, who may use philosophical material but who does not present in a proper philosophical context. Considering the previous research, the fact that Vajda and Wolfson, and to some extent Waxman too, are searching for a rationally consistent definition of time in bar Hiyya indicates that they are judging him on the underlying assumption that he is a philosophical author. An investigation of the work as a whole shows, however, that bar Hiyya's thinking is eclectic and he is using whatever materials he has in a manner best described as exegetical and rhetorical.

NOTES ON THE PREVIOUS RESEARCH

In chapter 2.2, we noted three kinds of results from earlier research on bar Hiyya's concept of time. The problem with Vajda's approach is not that he wouldn't have noticed the various elements bar Hiyya states about time, it is rather that he considered those elements as isolated statements, not as part of an extended argument. Both Vajda and Guttmann are inevitably correct in observing that bar Hiyya is presenting conflicting ideas concerning the nature of time, especially if we expect that bar Hiyya is attempting to give a philosophically sound definition of time. Considering the nature of the text, however, we have to exclude that it was written as a philosophical argument. The author starts with philosophical ideas which he then moves to apply exegetically. Another important factor is to consider whether and in which cases bar Hiyya is describing his own views as opposed to quoting the views of others. The structure of bar Hiyya's discourse seems to suggest that the author is making use of various philosophical dicta quite eclectically, not unlike the way he is later making use of biblical citations to argue his point and to conduct his discourse.

Thus, when Waxman presents his interpretation that bar Hiyya regards time as an internal, intuitive sense, we have to note that this interpretation is based on a small part of a problematic passage within a much longer text. It is not at all evident that bar Hiyya is presenting his own view here, as he introduces the passage with "*they have said*" in the manner of quoting an authority. According to Waxman's interpretation, bar Hiyya would have held a subjective notion of not only time, but the whole creation as well. Now when bar Hiyya says that the created beings exist in time, Waxman understands this to mean that time is a subjective sense through which we perceive things. Bar Hiyya, however, explicitly declares that beings exist in time because they are bound by time from before and after, which is an Aristotelian idea. From the discourse, it can further be inferred that beings exist in actuality because time allows them extended existence, *amidah*. It is difficult to match the subjective concept that Waxman proposes with the rest of the discussion that bar Hiyya is presenting, in which the reality, not the subjectivity, of the creation is essential. The internal logic of bar Hiyya's discourse excludes Waxman's interpretation. Furthermore, Waxman's interpretation emphasizes an epistemological aspect, i.e. the status of time as regards how one perceives the world. It is fully possible, that according to bar Hiyya, time is perceived in a more indirect way than the rest of the creation. In fact, this is what the beginning of his discussion, among other things, seems to suggest. However, the rest of the discussion discusses the ontology of time in itself and in relation to the rest of the creation. On this level, for bar Hiyya, time is anything but unreal

and subjective, it is in fact more fundamental than other created beings and the substrate for their extended existence.

That bar Hiyya, following a long tradition, describes time as the duration of created beings, was noted by H. A. Wolfson. In the outline of the text above we have noted how bar Hiyya employs the idea of the mutual dependence of time and created beings in his discourse. Therefore, the concept of time as the duration of created beings, which is likewise based on this dependence, is completely in line with our reading of bar Hiyya's text.

G. Wigoder (1969: 13–15) has given a summary of bar Hiyya's concept of time which, in general, agrees both with Wolfson and with our findings here. According to his summary, time is the expression of the duration of things in existence. There is no time when nothing is in actual existence. Time is finite, and when things cease to come into actuality, time will cease. Wigoder also mentions a further description of time in bar Hiyya's work on the calendar, *Sefer ha-ibbur*, according to which time is measured by the number of the movement of the sphere.³⁵

MAIN ELEMENTS OF BAR HIYYA'S CONCEPT OF TIME

Previous research has tended to enumerate and investigate the explicit definitions of time given by bar Hiyya. Such definitions that are found in the text can be roughly classified into

- time as duration, especially as that what allows the created beings to endure
- time as the measure of motion
- time as unreal and subjective

As Wolfson has indicated, the two first definitions are different but not conflicting, as long as time is connected specifically to the duration of created,

³⁵ Abraham bar Hiyya (1851: 3): "The movement of the sun and the moon follow the movement and the rotation of the (outer) sphere, and the movement of the sphere of the sun makes known the days and the nights, and in conclusion, the measure of time is nothing else than the number of the movement of the sphere." Isaac Israeli, too, (9th c.) had associated time with the movement of the sphere, see Stern in Altmann & Stern: 1958 74–75 translating Israeli's Book of Definitions par. 49: "The definition of time: an extension separated by the movement of the sphere."

Likewise, in *Rasā'il Ikhwān al-Safā*, II, 17:

قيل انه مدة بعدها حركات الفلك

'it has been said that it [time] is duration numbered by the motions of the spheres'.

physical beings. This is where bar Hiyya clearly differs from Plotinus and most of the neo-Platonists, who also had understood time as duration. In bar Hiyya, time is linked to the duration of physical beings, whereas for Plotinus time is independent of material existence. In bar Hiyya, the conception of time and the material world as mutually dependent is central, and this is exactly what allows him to investigate the question of the coming of the redemption from a seemingly rational point of view. Therefore, the third definition of time as unreal and subjective is in contradiction with bar Hiyya's argument here, and taking into account his words "*they have said*", the passage can be interpreted as a quotation.

Apart from the explicit definitions of time, which may be quotations or which may reflect bar Hiyya's own concept of time, there are several points that can be inferred from the discussion:

- time is created and finite
- time is mutually dependent on the created beings
- time is related to the actualization of the potential
- time is related to form and privation, that is to good and evil

Thus, bar Hiyya combines in his concept of time the elements of time being tied to the existence of material creation and the mutual dependence of time and created beings. A similar view is found in the Arab philosopher al-Kindi:

It has been explained previously that time is not prior to motion; nor, of necessity, is time prior to body, since there is no time other than through motion, and since there is no body unless there is motion and no motion unless there is body. Nor does body exist without duration, since duration is that in which its being is, i.e. that in which there is that which it is.

Body, therefore, is never prior to time; and thus body, motion and time are never prior to each other.³⁶

From a purely philosophical point of view the concept of time as duration raises further questions. What exactly is duration? How is it possible to define duration without a reference to time, in order to avoid a circular definition? The Plotinian position links duration to the movement of the soul, but this is not what bar Hiyya is stating. For bar Hiyya, it seems, time is linked to the movement of beings from potentiality into actuality, which in itself is a motion in the Aristotelian sense. According to bar Hiyya's view, this motion follows a divine plan planted in creation. Time, thus, both measures and enables the actualisation of the divine plan. On the other hand, time is what allows the extended existence, *amidah*, of created beings, and it is this existence that defines duration. Bar Hiyya

³⁶ Transl. by Ivry 1974: 72–73. For the original Arabic, see al-Kindi 1950–53: 119.

does, thus, have a consistent concept of time, although not a rigorous philosophical definition for it.

THE FUNCTION OF TIME IN THE DISCOURSE

So far we have shown that despite some doubts, bar Hiyya might have a reasonably well argued concept of time. However, from the structure of the discussion, it should be evident that the text is not intended as a philosophical argument. For instance, despite his own neo-Platonic leanings, he totally omits all mention of the duality of eternity versus time. If, then, we understand bar Hiyya's style as rhetorical, and if we read the text as a purposeful composition in which each part has its own function, we notice that bar Hiyya is utilizing both philosophical and scriptural materials for his particular purposes, which are not philosophically motivated. He does not explicitly discuss the different philosophical views on time; neither is he really interested in presenting a philosophically consistent and argued definition of time. I will now attempt to summarise the text from this point of view.

In the first part of his discourse, bar Hiyya presents several different but overlapping descriptions of time. There is no reason to assume that the totality of these descriptions would necessarily constitute his personal formulation of the philosophical concept of time. In some places, he is explicitly indicating that he is presenting the views of others. One gets the impression that bar Hiyya is citing philosophers in the same manner that different traditions are cited and discussed in rabbinic literature. Still, there are some central characteristics in bar Hiyya's conception of time, namely that

- time and creation are mutually dependent
- time is finite, it comes into being at creation and it has an end.

That time comes into being with the creation was a view that was current, especially among theologically oriented philosophical thinkers. The view can be reconciled with Aristotelian physics, even though Aristotle himself maintained that the world is eternal. According to Aristotle, time is the number of motion of bodies. If the existence of bodies is considered dependent on the creation rather than eternal, the Aristotelian definition of time mandates that time comes into being with the creation. As we have seen, the mutual dependence of bodies, motion and time had been strongly emphasized by the 9th century Arabic philosopher al-Kindi.

Bar Hiyya's discourse makes a transition from the purely philosophical material into an exegesis combining scriptural verses with philosophical ideas, based on the motivation that unaided reason cannot determine an unambiguous

answer for the duration of the world. Using selected verses of the scripture, he re-introduces the duality of form versus lack of form, or in other words, good versus evil. This duality, according to bar Hiyya, also applies to time, so that periods of time, corresponding to the days of the creation, contain seeds of good and evil, planted by God during the creation. When bar Hiyya here turns to a discussion of history, he has provided a philosophically and exegetically supported argument not on the definition of the nature of time, but on how the whole of history consists of an inevitable course determined by God. The use of philosophical material is apparently intended to deepen and extend the validity of this argument. On this basis, he continues to produce arguments to explain the present situation of the Jews and to present claims that the hope of the Jews is still valid. Like his contemporaries, Judah Halevi and Abraham ibn Daud, Abraham bar Hiyya brings history to witness and to defend the validity of the Jewish religion.

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