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Analysis of the Qur'an surah Al-Waqi'ah verses 7-56 based on a set perspective on mathematics

Yusri Kamilatul Huda[1], Tata Rahmasari[1], Suci Upita Loka[1], Richah Dian Azizah[1], Ulliya Fitriani[1*]

[1]Department of Mathematics Education, Faculty of Science and Technology,
Universitas Islam Negeri Walisongo Semarang
Jl. Prof. Dr. Hamka No. 3-5, Semarang, Indonesia, 50185
*Email: ulliyafitriani@walisongo.ac.id

Abstract: Al-Qur'an is the guide of human life, which is the source of all knowledge. Unfortunately, in modern times, there are still many people who do not believe that. This study will examine one of the many surah in the Qur'an, namely Surat al-Waqi'ah based on a set perspective on mathematics. The aim is to dissect and prove that religious knowledge (al-Qur'an) can be integrated with science (mathematics). This study uses the library research method, namely the collection of sources or literatures relevant to the subject, such as books of the Qur'an interpretation, books of the set, and journal articles. The results show that on the last day, people will be divided into three groups or sets, namely the right set (A); the left set (B); and the set of the previous people (C). The set of the previous people is a subset of the right set, so the combination of A and C is A itself. While the right set (including the set of the previous people) is disjoint to the left set. The right set and the set of the previous people, they will find pleasure in heaven, while the left set will be tormented in hell.

Keywords: al-Waqi'ah, mathematics, set perspective

Abstrak: Al-Qur'an adalah pedoman hidup manusia, yang merupakan sumber segala ilmu pengetahuan. Sayangnya, di zaman modern ini, masih banyak orang yang tidak mempercayai hal tersebut. Kajian ini akan mengkaji salah satu dari sekian banyak surah dalam Al-Qur'an, yaitu Surat al-Waqi'ah berdasarkan perspektif matematika. Tujuannya untuk membedah dan membuktikan bahwa ilmu agama (al-Qur'an) dapat diintegrasikan dengan sains (matematika). Penelitian ini menggunakan metode penelitian kepustakaan, yaitu pengumpulan sumber-sumber atau literatur yang relevan dengan pokok bahasan, seperti kitab-kitab tafsir Al-Qur'an, buku terkait himpunan, dan artikel jurnal. Hasil penelitian menunjukkan bahwa pada hari terakhir, masyarakat akan dibagi menjadi tiga kelompok atau himpunan, yaitu himpunan kanan (A); himpunan kiri (B); dan himpunan orang sebelumnya (C). Himpunan orang sebelumnya merupakan subhimpunan dari himpunan kanan, jadi gabungan dari A dan C adalah A itu sendiri. Sedangkan himpunan kanan (termasuk himpunan orang sebelumnya) adalah himpunan yang lepas dari himpunan kiri. Himpunan kanan dan himpunan orang terdahulu, mereka akan mendapatkan kenikmatan di surga, sedangkan himpunan kiri akan disiksa di neraka.

Kata Kunci: al-Waqi'ah, matematika, perspektif himpunan

Introduction

Mathematics is a subject that is taught at every level of education, from basic to higher education. Purnomo (2017) states that mathematics is a difficult subject, so some students think that mathematics is a scourge of learning in the classroom, which ultimately affects the interaction of the teaching and learning process. Meanwhile, according to Yeni (2015) states that learning mathematics is a learning experience given to students to gain competence in mathematical materials. Nunes & Bryant (2000) mention that mathematics has an important role in various disciplines and has a universal role in the development of other sciences or the development of modern technology. In addition, mathematics is like a banyan tree with branches and not like a palm tree (Jelatu et al., 2018).

The set is one of the basic materials in mathematics. Khoirunnisa (2014), which states that the set is a collection of objects that can be clearly defined (well defined). The set material in mathematics consists of various subjects such as notation, types, operations, and others. Sets can consist of real or abstract objects. In Islamic perspective, the set is not a taboo material, because in the Qur'an there are many verses related to the set material, including Surah al-Waqi'ah verses 7–56 (Nihayati 2017).

This study will discuss in detail Surah al-Waqi'ah verses 7–56 based on the set perspective on mathematics. The aim is to optimize the proof that science is not contradictory with religious science; both can be integrated without reducing the purity of one of them (Khoiriyah & Rizki 2017). This study is needed to encourage the muslim generation, particularly young people, to be more enthusiastic about studying both religious and general knowledge, because both are important and interrelated. In addition, this research can also increase the faith or belief of muslims in the miracles of the Qur'an.

Materials and Methods

This research uses the library research method or literature study method, which is carried out by collecting literature from various sources, such as books of Qur'an interpretation, national journals, and other relevant books. This type of library research is closely related to the collection of library data obtained from various library information sources, one of which is scientific journals (Syaodih et al., 2009). This study focuses on analyzing the data obtained from the interpretation of the Qur'an in Surah al-Waqiah verses 7–56 to define the three groups of people on the day of judgment clearly so that it can be stated as the concept of a set in mathematics. This study focuses on descriptive analysis by outlining the data and then analyzing and discussing it so that the data can be studied clearly (Baharsyah & Admoko, 2020).

Result and Discussion

Al-Qur'an is the revelation of Allah revealed as a miracle to the Prophet Muhammad through the intermediary of the angel Gabriel, and reading it is worship. The Qur'an consists of 114 surah, including Surah al-Waqi'ah. Surah al-Waqi'ah is the 56th surah and belongs to the Makkiyah group (the surah that was revealed before the Prophet Muhammad moved to Medina). Surah al-Waqi'ah consists of 96 verses and is believed to be a surah inviting sustenance. Al-Waqi'ah itself means the last day ('Abdullah et al., 2017). This is in accordance with the contents of the verses which explain the last day, the condition of people at that time, and so on (Ash-Shiddieqy, 2011).

Surah al-Waqi'ah verse 7 explains that on the day of judgment, people will be divided into 3 groups.

وَ كُنْتُمْ اَزْوَاجًا ثَلَاثَةً (٧)

Meaning:
"And you become (of) three kinds". (QS. 56: 7)
*Note: Qur'an translations in this paper is from Tanzil.net website.

Then, in verses 8–10, it is explained that the three groups are the right group (ash-haabul maymanah), the left group (ash-haabul masy'amah), and the group of the previous people (as-Saabiquun).

فَأَصْحَابُ الْمَيْمَنَةِ مَا اَصْحَابُ الْمَيْمَنَةِ (٨) وَ اَصْحَابُ الْمَشْئَمَةِ مَا اَصْحَابُ الْمَشْئَمَةِ (٩) وَ

السَّابِقُوْنَ السَّابِقُوْنَ (١٠)

Meaning:
"(8) Then the companions of the right – what are the companions of the right? (9) And the companions of the left – what are the companions of the left? (10) And the forerunners, the forerunners". (QS. 56: 8-10)

In mathematics, groups with the clear elements or members are commonly referred to as sets. A set is a collection of different objects with predetermined conditions (Rusli et al., 2018). A set is a collection of objects that can be clearly described (Walpole, 2010). Abdussakir (2009) defines a set as a collection of clearly defined objects. The meaning of "object" in this definition is very broad. Objects can be real objects or abstract objects. This is in line with the opinion of Khoirunnisa (2014), who states that the set is a collection of objects that can be clearly defined (well defined).

Since it will be discussed from a mathematical perspective, it is clear that we need to denote the three sets first. In mathematics, the set is denoted by using uppercase or capital letters (Marsudi, 2010), so that we get:

A : The right group
B : The left group
C : The group of the previous people

Ash-habul maymanah (the right group) consists of two words, namely *ash-hab* and *al-maymanah*. *Ash-hab* means the owner, and *al-maymanah* is similar with *al-yamiin*, which means right. The word *al-yamiin* comes from the basic word (mashdar) yumn, which means blessing. The blessing is identical with goodness and happiness. So, *ash-habul maymanah* is the group of people who accept the charity notes with the right hand. They are the ones who will get pleasure and happiness.

Quraish Shihab in Tafsir al-Misbah explains that this right group will be filled by pious people. Pious people means people who do everything that Allah has commanded and stay away from all of his prohibitions (Shihab, 2012). Meanwhile, Wahbah az-Zuhaili in Tafsir al-Wasith (2012) explains that the right group will be filled by people who do good. In mathematics, elements or members of a set are usually denoted by lowercase letters (Rusli et al., 2018). So, it can be written

$A = \{x/x \in pious\ people\}$

or

$A = \{x/x \in people\ who\ do\ good\}$

Furthermore, in verses 27-40 it is explained about the retribution for the right group.

وَاَصْحٰبُ الْيَمِيْنِ مَا اَصْحٰبُ الْيَمِيْنِ ۝ فِيْ سِدْرٍ مَّخْضُوْدٍ ۝ وَطَلْحٍ مَّنْضُوْدٍ ۝ وَظِلٍّ مَّمْدُوْدٍ ۝ وَّمَاۤءٍ مَّسْكُوْبٍ ۝ وَّفَاكِهَةٍ كَثِيْرَةٍ ۝ لَّا مَقْطُوْعَةٍ وَّلَا مَمْنُوْعَةٍ ۝ وَّفُرُشٍ مَّرْفُوْعَةٍ ۝ اِنَّاۤ اَنْشَأْنٰهُنَّ اِنْشَاۤءً ۝ فَجَعَلْنٰهُنَّ اَبْكَارًا ۝ عُرُبًا اَتْرَابًا ۝ لِّاَصْحٰبِ الْيَمِيْنِ ۝ ثُلَّةٌ مِّنَ الْاَوَّلِيْنَ ۝ وَثُلَّةٌ مِّنَ الْاٰخِرِيْنَ ۝

Meaning:
"(27) The companions of the right – what are the companions of the right? (28) (They will be) among lote trees with thorns removed. (29) And (banana) trees layered (with fruit). (30) And shade extended. (31) And water poured out. (32) And fruit, abundant (and varied). (33) Neither limited (to season) nor forbidden. (34) And (upon) beds raised high. (35) Indeed, We have produced the women of paradise in a (new) creation. (36) And made them virgins. (37) Devoted (to their husbands) and equal age. (38) For the companions of the right (who are). (39) A company of the former peoples. (40) And a company of the later peoples". (QS. 56: 27-40)

The essence of the 19 verses above is that the right group will get pleasure and a high position in heaven. They consist of the previous people and the later people with the same percentage. *Ash-habul masy'amah* (the left group) also consists of two words, namely *ash-hab* and *al-masy'amah*. Lafadz *al-masy'amah* is taken from the *syu'm*, the antonym of the *yumn*, which means left. So, *ash-habul masy'amah* is a group of people who receive a charity notes with their left hand. They are the ones who will be punished or tormented.

In the interpretation of al-Misbah, it is stated that the left group will be filled by people who often commit sinful acts such as extravagance, arrogance, shirk, and others. The left group can also be denoted as follows:

$B = \{y/y \in people\ who\ commit\ sainful\}$

In verses 41-56 it is explained in detail about the retribution for the left group and the reasons why they should accept it.

وَاَصْحٰبُ الشِّمَالِ مَآ اَصْحٰبُ الشِّمَالِ ۞ فِيْ سَمُوْمٍ وَّحَمِيْمٍ ۞ وَّظِلٍّ مِّنْ يَّحْمُوْمٍ ۞ لَّا بَارِدٍ وَّلَا كَرِيْمٍ ۞ اِنَّهُمْ كَانُوْا قَبْلَ ذٰلِكَ مُتْرَفِيْنَ ۞ وَكَانُوْا يُصِرُّوْنَ عَلَى الْحِنْثِ الْعَظِيْمِ ۞ وَكَانُوْا يَقُوْلُوْنَ اَبِذَا مِتْنَا وَكُنَّا تُرَابًا وَّعِظَامًا ءَاِنَّا لَمَبْعُوْثُوْنَ ۞ اَوَاٰبَاۤؤُنَا الْاَوَّلُوْنَ ۞ قُلْ اِنَّ الْاَوَّلِيْنَ وَالْاٰخِرِيْنَ ۞ لَمَجْمُوْعُوْنَ اِلٰى مِيْقَاتِ يَوْمٍ مَّعْلُوْمٍ ۞ ثُمَّ اِنَّكُمْ اَيُّهَا الضَّاۤلُّوْنَ الْمُكَذِّبُوْنَ ۞ ثُمَّ اِنَّكُمْ اَيُّهَا الضَّاۤلُّوْنَ الْمُكَذِّبُوْنَ ۞ فَمَالِـُٔوْنَ مِنْهَا الْبُطُوْنَ ۞ فَشَارِبُوْنَ عَلَيْهِ مِنَ الْحَمِيْمِ ۞ فَشَارِبُوْنَ شُرْبَ الْهِيْمِ ۞ هٰذَا نُزُلُهُمْ يَوْمَ الدِّيْنِ ۞

Meaning:

"(41) And the companions of the left – what are the companions of the left? (42) (They will be) in scorching fire and scalding water. (43) And a shade of black smoke. (44) Neither cool nor benefical. (45) Indeed they were, before that, indulging in affluence. (46) And they used to persist in the great violation. (47) And they used to say, "When we die and become dust and bones, are we indeed to be resurrected? (48) And our forefathers (as well)?". (49) Say (O Muhammad), "Indeed, the former and the later peoples (50) Are to be gathered together for the appointment of a known day". (51) Then indeed you, O those astray (who are) deniers. (52) Will be eating from trees of zaqqum. (53) And filling with it your bellies. (54) And drinking on top of it from scalding water. (55) And will drink as the drinking of thirsty camels. (56) That is their accommodation on the Day of Recompense". (QS. 56: 41-56)

The essence of the 16 verses above is that in the hereafter, the left group will get a very painful punishment or torment as a retaliation for what they did in this world. The reason why they get such a punishment is because they like to splurge, commit major sins, and so on. *As-saabiquun* (the group of the previous people) is also taken from the Arabic *as-sabq*, which means earlier or the arrival of someone in one place before another. In the interpretation of al-Misbah, it is explained that the as-saabiquun group are believers who precede or are superior to other believers in all fields of goodness. They will also get in heaven before other believers.

Muhammad bin Ka'ab and Abu Harzah Ya'qub bin Mujaahid said, "And the previous people (believers) are the prophets." As-Suddi said, "They are the inhabitants of 'illiyyiin." Ibn Sirin said, "And the previous people are those who pray in the two Qiblas (the Aqsa Mosque and the Grand Mosque)." And Al-Hasan and Qatabah said, "And those who were the first (believers), namely from every Ummah" (Syakir et al., 2014)

Then Imam Ahmad narrated from Aisha from the Prophet SAW that he said, which means:

"Do you know who is the first people that get in the shade of Allah Azza wa Jalla on the Day of Resurrection?" They replied, "Allah and His Messenger know best." He said, "Those whom, when they given the right, they receive it; when the right is asked of them, they give it; and they judge for humans (others) just as they judge themselves."

Of the many opinions on the interpretation of lafadz *as-saabiquun*, with the mathematical notation of the group of the previous people it can be written as follows:

$C = \{z/z \in \text{ people who excel in goodness}\}$

Furthermore, in verses 11–26, it is explained in more detail about the reward for the group of the previous people. In essence, they will get a higher and more enjoyable experience than the right group in heaven.

اُولٰۤىِٕكَ الْمُقَرَّبُوْنَ ۞ فِيْ جَنّٰتِ النَّعِيْمِ ۞ ثُلَّةٌ مِّنَ الْاَوَّلِيْنَ ۞ وَقَلِيْلٌ مِّنَ الْاٰخِرِيْنَ ۞ عَلٰى سُرُرٍ مَّوْضُوْنَةٍ ۞ مُّتَّكِـِٕيْنَ عَلَيْهَا مُتَقٰبِلِيْنَ ۞ يَطُوْفُ عَلَيْهِمْ وِلْدَانٌ مُّخَلَّدُوْنَ ۞ بِاَكْوَابٍ وَّاَبَارِيْقَ

وَكَأْسٍ مِّن مَّعِينٍ (۱۸) لَّا يُصَدَّعُوْنَ عَنْهَا وَلَا يُنزِفُوْنَ (۱۹) وَفَاكِهَةٍ مِّمَّا يَتَخَيَّرُوْنَ (۲۰) وَلَحْمِ طَيْرٍ مِّمَّا

يَشْتَهُوْنَ (۲۱) وَحُوْرٌ عِيْنٌ (۲۲) كَأَمْثَالِ اللُّؤْلُؤِ الْمَكْنُوْنِ (۲۳) جَزَاءً بِمَا كَانُوْا يَعْمَلُوْنَ (۲٤)لَا يَسْمَعُوْنَ

فِيْهَا لَغْوًا وَّلَا تَأْثِيْمًا (۲۵) اِلَّا قِيْلًا سَلٰمًا سَلٰمًا (۲٦)

Meaning:
"(11) Those are the ones brought near (to Allah). (12) In the gardens of pleasure. (13) A (large) company of the former peoples. (14) And a few of the later people. (15) On thrones woven (with ornament). (16) Reclining of them, facing each other. (17) There will circulate among them young boys made eternal. (18) With vessels, pitchers, and a cup (of wine) from a flowing spring. (19) No headache will thet have therefrom, nor will they be intoxicated. (20) And fruit of what they select. (21) And the meat of fowl, from whatever they desire. (22) And (for them are) fair women with large, (beautiful) eyes. (23) The likenesses of pearls well-protected. (24) As reward for what they used to do. (25) They will not hear therein ill speech or commission of sin. (26) Only a saying: "Peace, peace"". (QS. 56: 11-26)

From the description above, we can see that the group of the previous people is part of the right group because in essence both groups are filled with good people who will get pleasure in heaven, the difference is only the level of virtue. However, it is not the other way around, the right group does not necessarily belong to the group of the previous people because as has been explained above that there are other special criteria or conditions that a person can enter to the group of the previous people besides doing good.

In mathematics, this is synonymous with the study of subsets. If A and B are sets, then set A is said to be a subset of set B if and only if every element of A is an element of B (Suryanti & Zawawi, 2020). Then, B is called a superset of A. This shows that the combination or union of A and B is B itself. The notation is:

$$A \subset B \Leftrightarrow (\forall x \in A \Rightarrow x \in B)$$
$$A \cup B = B \Leftrightarrow (b/b \in B)$$

Returning to our problem, we find that C is a subset of A, every member of C is a member of A but not vice versa. And the combination of C and A is A. It is denoted as follows:

$$C \subset A \Leftrightarrow (\forall z \in A \Rightarrow z \in A)$$
$$C \cup A = A \Leftrightarrow (x/x \in A)$$

Furthermore, we can also know that the left group is different with the right group, especially with the group of the previous people. The left group is filled by sinners who will get tortured while the right group is filled by good people who will get pleasure, there will not be a single person who enters directly in the two groups.

In mathematics, such things are known as disjoint sets. Means, the above problem can be denoted as follows:

$$A \parallel B = (A \cup C) \parallel B$$

The relationship of the three groups that have been specifically described, with the universe is the set of all humans on the Day of Judgment (noted: $S = \{s/s \in humans\ on\ the\ Day\ of\ Judgement\}$), it can be clearly illustrated in this following Venn diagram.
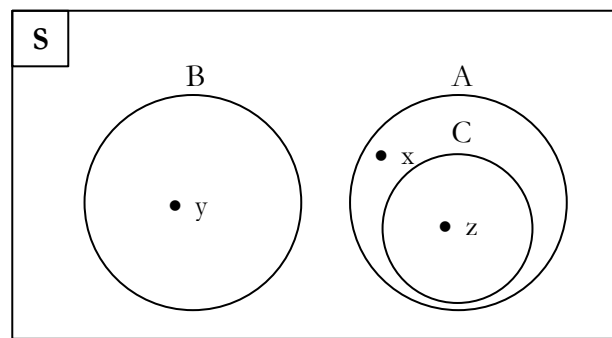
Figure 1. Venn diagram for $(A \cup C) \parallel B$
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Conclusion

Religious knowledge (al-Qur'an) can be integrated with science (mathematics). One of the proofs is that the division of human groups on the last day described in Surat al-Waqi'ah can also be explained by using the concept of a set that exists in mathematics. There are many other verses that can also be explained using a set perspective in mathematics. This can be a trigger for further research.

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