Understanding and Appreciation of the Concept of *Shirk* according to Mathematical Theory

Pemahaman dan Penghayatan Konsep Syirik Menurut Kacamata Matematik

Ahmad Munawar Ismail
Ismail Mohd

ABSTRACT

Shirk means associating any partners with Allah SWT. Tawhid clearly teaches us that Allah SWT does not share His Rububiah (Lordship) or divine attributes with anything or any partner. A clear example of shirk is idolatry or polytheism, that is worship of deity, god or anything other than Allah. Shirk is a paramount sin in Islam, the one unforgivable sin. However, this term is in the holy verses of the Qur'an that are "difficult" for humans to understand and appreciate. Usually, the interpretation of the word shirk will be given a description of its meaning and consequences to the perpetrator. The common interpretation is that whoever associates anything with Allah, then he has indeed committed a great sin. Muslims are also warned that indeed Allah SWT will not forgive the sin of shirk while Allah SWT will forgive all sins other than shirk, for whom he wills. In effect, all doors of paradise are shut to those who commit shirk. This article is related to the debate on shirk and its significance according to Islamic law and mathematical measurements. The analysis and findings of the study in this article are obtained through the methods of content analysis, document analysis and vectors concept in mathematics. The vectors concept in mathematics has been chosen as a tool to decipher this term to the maximum extent possible. It was chosen because a vector has elastic properties, is easy to set up and is representative of the matter relating to shirk. Therefore, it can be used to explain the definition, interpretation and consequences of shirk. The results of the study show that shirk is not only placed in the category of major sins in Islamic law but also the position of the perpetrators of shirk is considered as insulting Allah SWT and the religion of Islam. This position can not only be assessed from the Islamic law viewpoint but also through mathematical measurements, formulas and arguments. Through mathematical measurements it is impossible for us to assign partners to Allah, except by those who are very stubborn and intend to insult Allah. In this paper, the arguments are given based on mathematical knowledge that indeed human beings should not commit shirk not only because of its consequences, but also because it involves Allah as the Creator of all creatures as well as all other creation.

Keywords: *Qur'ān, shirk; sin; vector; uncountable; Mathematics*

ABSTRAK

Syirik bermaksud kufur atau tidak beriman kepada Allah. Ia berlaku apabila seseorang itu membandingkan Allah SWT dengan sesuatu yang pelbagai bentuk dan sekutu dalam RububiahNya. Syirik adalah maksiat yang paling besar atau sangat besar. Kedudukan hukum ini bukanlah suatu yang tersembunyi bahkan telah jelas dan terang. Namun begitu, istilah ini termasuk dalam ayat-ayat al-Quran yang "sukar" difahami dan dihayati oleh manusia. Lazimnya, interpretasi terhadap kalimah syirik akan diberikan huraian mengenai maksudnya dan akibat kepada pelakunya. Tafsiran lazim kepada terma ini antaranya termasuklah barangsiapa yang mempersekutukan Allah maka sesungguhnya dia telah melakukan dosa yang besar. Umat Islam juga diberi peringatan bahawa sesungguhnya Allah SWT tidak akan mengampuni dosa orang yang melakukan amalan syirik ini sedangkan Allah SWT akan mengampuni segala dosa yang selain dari (syirik) itu, bagi siapa yang dikehendakinya. Artikel ini adalah berkaitan perbahasan mengenai syirik dan signifikan dosa besar syirik menurut syariat Islam dan ukuran serta hujah matematik. Analisis dan dapatan kajian dalam artikel ini diperolehi melalui kaedah analisa kandungan, analisa dokumen dan konsep vektor dalam matematik. Konsep vektor telah dipilih sebagai alat untuk menghuraikan terma ini semaksimumnya kerana vektor adalah satu alat yang mempunyai sifat kenyal, mudah diatur semahu kita dan boleh bersifat sebagai perwakilan kepada perkara yang ada kaitan dengan syirik sehingga dia dapat digunakan untuk menerangkan maksud syirik dari sudut makna, huraian (tafsiran) dan akibatnya. Hasil dapatan kajian menujukkan syirik bukan sahaja diletakkan dalam kategori dosa besar dalam syariat Islam bahkan kedudukan pelaku syirik adalah dianggap sebagai penghinaan kepada Allah SWT dan agama Islam. Kedudukan ini bukan sahaja boleh dinilai daripada sudut pandang syariat Islam bahkan melalui ukuran, formula dan hujah matematik.Melalui ukuran matematik adalah mustahil kita dapat menyekutukan

Allah kecuali mereka yang sangat degil dan bertujuan menghina Allah. Hujah-hujah berdasarkan ilmu matematik ini juga menunjukkan bahawa sesungguhnya manusia tidak boleh melakukan syirik bukan sahaja kerana akibatnya, malah ia tidak sepatutnya berlaku memandangkan ia melibatkan Allah sebagai pencipta kepada makhluk.

Kata kunci: Al-Quran; syirik; dosa; vector; terpermanai

INTRODUCTION

In general, the characteristic of the Qur'ān consists of two groups of verses, namely the group of verses Muḥkam and the group of verses Mutašābihāt. The word of Allah in Chapter al-Imran verse 7 which means,

He who has sent down to you (O Muhammad) the Holy Book of the Qur'ān, most of the Qur'ān is the verses of 'Muḥkamāt' (which still has a firm, clear meaning and clear definition); the verses of muḥkamāt *are the mother (or principal) of the contents of the* Qur'ān. And the others are the verses of 'Mutašābihāt' which are vague, not clear in meaning or definition. Therefore (different understandings arise according to the content of their hearts) - as for those who have in their hearts a tendency towards deviant, then they always follow what is vague from the Qur'ān to seek slander and 'tā'wīl' *(twist interpretation according to their lust). Whereas no one knows his 'tā'wīl' *(interpretation of its true meaning) except Allah. And the person who remains steadfast and deep in his knowledge in th*e sciences of religion, says: "We believe in Him, everything *come from the side of our* God". And no one takes lessons but warnings except those who think.

Sayyiq Qutb (2010) explained, the reason of the revelation of this verse is because there are a few people from Christianity have used the words 'Mutašābihāt' to uphold their belief in Jesus as the spirit of God and not of mankind. This belief clearly showed that they have left the Muḥkamāt verses that firmly explain the absolute principle of Waḥdānīāh, Allah The Only One and reject allies in any form. This contradiction can be seen in the words of Allah in Chapter an-Nisā' verse 171 which means,

O People of the Book! Do not go to extremes regarding your faith; say nothing about Allah except the truth. The Messiah, Jesus, son of Mary, was no more than a messenger of Allah and the fulfilment of His Word through Mary and a spirit created by a command from Him. So believe in Allah and His messengers and do not say, "Trinity." Stop! —for your own good. Allah is only One God. Glory be to Him! He is far above having a son! To Him belongs whatever is in the heavens and whatever is on the earth. And Allah is sufficient as a Trustee of Affairs.

According to al-Zuhaily (2009), this verse described that the Jews and Christians in matters relating to Jesus as this was beyond the limits set by Allah Almighty. They have done *shirk* by recognizing the attribute of the Prophet ʿĪsā as

the God and making it part of their religion. The words of Allah Almighty in Chapter al-Māī'dāh verse 72 which means,

Indeed, those who say," Indeed, Allah is al-Masih ʿĪsā, son of Maryam." Whereas ʿĪsā (himself) said, "O Children of Israel! Worship Allah, my Lord and your Lord." Surely those who associate (others) with Allah, then surely, Allah forbid heaven for him, and he will dwell in hell. And there is not a helper for the wrongdoers.

Allah's punishments are great towards those who are committing *shirk*. Based on mathematical perspective, it is said that if there is a scale called the Sin Scale (SS), thus, it function is to measure the sin. If given the measurement of SS, the smallest first sin is 10SS in size, then the greater sin will definitely more than 10SS and respectively until the scale of the measure reaches 100SS depending on the type of sin committed, then the major sin (still within the scope of forgiveness) certainly exceeds 100SS which is the greatest sin, called *shirk*. Since it is the greatest sin, therefore there is no other sin that greater than *shirk*. Similarly, if there is a scale measuring the power, it will be called as Great Scale (GS), therefore the greatest will have measurement that cannot be challenged by others. This article will focus on the arguments to understand and appreciate some verses in the Qur'ān about *shirk* to lead into a deeper understanding and trying to fulfill the promise of «There is no god but Allah». This paper has also debate about the meaning, interpretation and effect when polytheism adopted into human being, especially Muslims. When the creed of *shirk* has been understood and learnt by the Muslims, then they will surely did not do the blasphemy. Thus pledge "Indeed my prayer, my worship, my life and my death only to Allah" (Qur'ān, Chapter al-Baqarah verse 162), will be achieved in the perfect life.

THE CONCEPT OF *SHIRK*

Most of lectures and articles about *shirk* was discussing about the definition and punishment only. The impact of such sources can be seen in today's society life. Those who really understand will be able to see the effect of *Tawhid* in their lives, but

other elements still visible (*shirk* element) through their way of life and relationship. In general, *shirk* is an action to deny or do not believe in Allah (Ibn Manzur 1993). Muhammad Abdurrahman al- Khumayyis (2004) mentioned the view of al- Azhari al- Syafie that, *shirk* is when someone is associating Allah Almighty with something different in shapes and allies of His *Rubūbīāh* (Attributes). This view is taken based on the words of Allah in Chapter al- Luqman verse 13 which means,

Do not do shirk to Allah, because shirk is the greatest malicious". According to him, the letter بـ on the word بالله give meaning, "Do not worship other than Him by making something as an ally of Allah". Based on the words of Allah, al-Azhari al-Syafie has translated shirk as turning away (worship) to other than Allah and whoever turns away (worshipping His creatures, therefore the doer is mushrik (polytheist), because there is no ally for Allah, not a rival and ally.

As for Ar-Raghib Al- Ashfahani, there are two types of *shirk* in Islam that must be monitored, the first type is *al–shirk al-akbar* or known as *Shirk Jaly* (the major *Shirk*), which is to associate an ally for Allah Almighty. He stated that this type of *shirk* is the greatest disbelief. Second, the *al-shirk al-asgar* or known as *Shirk Khafy* (the concealed *shirk* and *nifāq*). Both can occur in one's wish and intention (*I'tiqād*) towards *Rubūbīāh* and *'Ulūhīāh*, or on specific actions or gestures towards Allah. Meanwhile, the concealed *shirk* can happened during worshipping to Allah. It is divided into two, namely *shirk* in term of words and deeds which are the division of *Shirk 'Ulūhīāh*. Both of these types are the major *shirk* that cannot be forgiven or minor *shirk* that cannot be forgiven too (Al- Khumayyis 2004). The danger of this *shirk* is explained repeatedly by Allah Almighty through his verses. Among of it, in Chapter al- Ma'idah verse 72 which means,

Those who say, "Allah is the Messiah, son of Mary," have certainly fallen into disbelief. The Messiah ˈhimselfˈ said, "O Children of Israel! Worship Allah—my Lord and your Lord." Whoever associates others with Allah ˈin worshipˈ will surely be forbidden Paradise by Allah. Their home will be the Fire. And the wrongdoers will have no helpers.

This verse explained about the great danger of *shirk* and Allah Almighty called them as oppressors and forbids *Jannah* (heaven) for them. They will be placed in *Jahannam* (hell) and when they are thrown into *Jahannam* and suffer in it, there will not be a single *Šafā'āt* (intercession) or there will be no one who can be a helper for them (Ibn Kathir 2004;

Al- Tabbari 2009). Allah Almighty has also mentioned the same thing in Chapter an- Nisā' verse 48,

Indeed, Allah does not forgive associating others with Him (in worship),1 but forgives anything else of whoever He wills. And whoever associates others with Allah has indeed committed a grave sin.

According to Ibn Kathir (2004), this verse showed whoever associates Allah with others, then indeed he has committed a great sin. Indeed, Allah Almighty will not forgive the sin of *shirk* but Allah Almighty will forgive all sins other than *shirk,* for whom He wills. Al- Tabbari (2009) explained, this verse is a call to those who have been given the Book to believe in the commandment as a justification to the truth. Indeed, Allah Almighty never forgives the sins of those who have associated Him. He does not forgive *shirk* and *kufr*, but He gave the forgiveness of those who have done wrong (excluding *shirk*). This verse clearly explained that for each person who has committed a great sin, then forgiveness is merely the will of Allah, if He wills then the sin is forgiven, and with His wills too, then the punishment is given to the person who has committed the sin, as long as the sin is not the act of *shirk* (associating Allah). The emphasis on the dangers of *shirk* was explained by Prophet Muhammad Peace Be Upon Him (PBUH) in his hadith as narrated by Imam Muslim,

أيُّ الذنبِ أعظمُ عندَ اللَّهِ ؟ قال أن تجعلَ لَّهِ نِدًّا وهو خلَقَك قال قلتُ له : إنَّ ذلك لعظيمٌ . قال قلتُ : ثم أيُّ ؟ قال : ثمَّ أن تقتُل ولدَك مخافةَ أن يطعَمَ معَك قال قلتُ : ثمَّ أيُّ ؟ قال ثمَّ أن تُزانِيَ حليلَةَ جارِك.

(Imam Muslim, Sahih Muslim, The Book of Al-Iman, Chapter Kaun As-Syirku Akbaha Al-Zunuba wa Bayani A'zamaha Ba'duhu, No. 86)

The meaning;

"What is the greatest sin in the sight of Allah?" Prophet Muhammad PBUH replied, «That you make an associate for Allah while He created you" 'Abdullah said, "I said again to the Messenger of Allah, "Indeed it is a very great sin." 'Abdullah said, "I asked, "Then what else?" Prophet Muhammad PBUH replied, "Then that you killed your son for fear that he would harm you." 'Abdullah said, "I also asked, "Then what?" Prophet Muhammad PBUH replied, "Then that you committed adultery with your neighbor's wife."

Al-Nawawi in his description of this hadith stated that *shirk* is the major sin and the greatest. The *hukūm* (order) for this sin is very clear and the greater sin after committing *shirk* is the sin of killing innocent soul. While the sins of adultery,

sodomy, rebellion against the elderly, usury and others are also included in major sins but have their own interpretation of the position of those sins. Its position varies based on the condition, level, value and practice of damage that a person has done (al-Nawawi 2008).

METHODOLOGY

This study has used content analysis and document analysis from a specific qualitative study design to examine and analyze the concept of shirk from an Islamic perspective. To answer the objective of analyzing shirk from measurements and mathematical arguments the concept of vector in mathematics has been used. The concept of vectors in mathematics has been chosen as a tool to decipher these terms to the maximum extent possible. It was chosen because the vector has elastic properties, easy to set up and as a representative to the matter that related to shirk. Therefore, it can be used to explain the definition, interpretation and consequences of shirk. The next discussion will be focusing on the mathematical formulae on the image of *shirk* as the greatest sin and the reason to conduct punishments that suit to the *mushrik* (a polytheist). In order to be able to mathematically understand the definition, interpretation and consequences of *shirk*, this article is compiled and written to gather understanding of *shirk* in depth.

CONCEPT OF SIMPLE MATHEMATICAL

It is not easy to choose a mathematical concept that can describe *shirk* in term of definition, interpretation and consequences which can caused fear to the perpetrator. The suitable concept as assume that can be used is the concept of vector. The vector has elastic properties, easy to set up and as a representative to the matter that related to *shirk.* Therefore, it can be used to explain the definition, interpretation and consequences of *shirk*.

VECTOR

A vector is an element that has both has magnitude and direction. For example, Northeast monsoon blows with a speed of 30 km/hour is a vector because it has a speed of 30 km/h (as magnitude) and Northeast as the direction. In mathematical symbol, this symbol ●→ is used to represent a vector, for example vector A, written as ●→ A with ● at the beginning, the length of the arrow is called the magnitude and sharp point of the arrow is the direction. Normally this vector is drawn on the line in one-dimension, on the plane in two-dimension and on the space in three-dimension with each can be described as in Figure 1(a), (b) and (c). In the abstract and imagination, the vector can be illustrated in mind for the larger dimensions or equal to four.

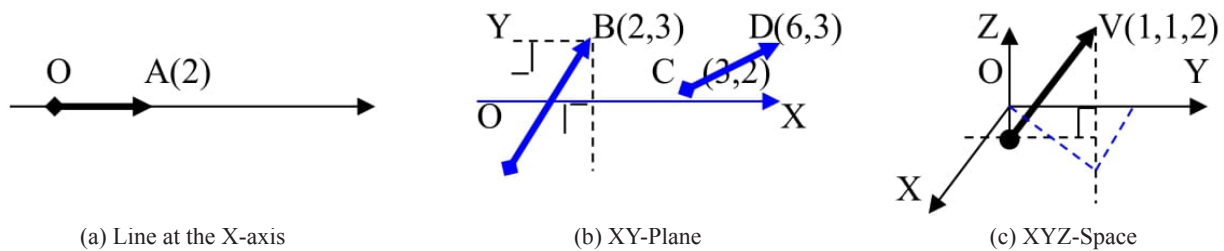(a) Line at the X-axis   (b) XY-Plane   (c) XYZ-Space

FIGURE 1. Line (one-dimension), Plane (two-dimension) and Space (three-dimension)

In Figure 1(a), (b) and (c), the magnitude of vector A, B and V is mark in order with |A| = 2, $\|B\| = \sqrt{2^2 + 3^2} = \sqrt{13}$ and $\|V\| = \sqrt{1^2 + 1^2 + 2^2} = \sqrt{6}$. Vector A (one-dimension) is derived from the origin O (0), vector B (two-dimension) is derived from the origin O (0,0) and vector V (three-dimension) is derived from the origin O (0,0,0). Vector CD is derived from C (3, 2) and pointed at D (6,3) with each (3,2) and (6,3) is the coordinate points prefix and suffix for vector CD.

VECTOR CONSTRUCTION

In Figure 2, each vector $\mathbf{u_1}=\overrightarrow{(1,0)}$ and $\mathbf{u_2}=\overrightarrow{(0,1)}$ are named as unit vector and each has a magnitude of 1 and their direction is equal to the positive direction of the X-axis and the Y-axis in order. For this article, unit vector (1.0) and (0.1) only written as $\overrightarrow{(1,0)}$ and $\overrightarrow{(0,1)}$. The combination or summation of $\mathbf{u_1}$ and $\mathbf{u_2}$ is $\mathbf{u_{1+}u_2} = \overrightarrow{(0,1)}+\overrightarrow{(1,0)} = \overrightarrow{(1+0,0+1)} = (1,1)$.
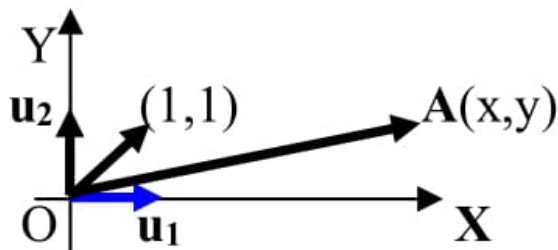
FIGURE 2. Unit vector $\mathbf{u_1}=\overrightarrow{(1,0)}$ and $\mathbf{u_2}=\overrightarrow{(0,1)}$

Each vector has its own unit. The unit vector for vector A with coordinates (x, y) is

$$u_A = \left(\frac{x}{\sqrt{x^2+y^2}}, \frac{y}{\sqrt{x^2+y^2}} \right)$$

In a two-dimensional plane, at least two vector (independent) such as $\mathbf{u_1}=\overrightarrow{(1,0)}$ and $\mathbf{u_2}=\overrightarrow{(0,1)}$ can co-exist to another vector in the independent XY-plane of $\mathbf{u_1}=\overrightarrow{(1,0)}$ or $\mathbf{u_2}=\overrightarrow{(0,1)}$ like $\mathbf{u}=\overrightarrow{(1,1)}$ through $\alpha\mathbf{u_1} + \beta\mathbf{u_2}=\alpha\overrightarrow{(0,1)}+\beta\overrightarrow{(0,1)} = (\alpha,\beta)=(1,1)$ if $\alpha=1$ and $\beta=1$.

Thus, $\mathbf{u_1}$ and $\mathbf{u_2}$ are said to span the entire XY-plane. Next the set of $\{\mathbf{u_1}, \mathbf{u_2}\}$ is named as the base of the XY-plane because the set of $\{\mathbf{u_1}, \mathbf{u_2}\}$ is independent and span at the XY-plane.

Argument 1

Two independent unit vectors, $\mathbf{u_1}=\overrightarrow{(1,0)}$ and $\mathbf{u_2}=\overrightarrow{(0,1)}$ can associate to form any vector with the set of $\{\mathbf{u_1},\mathbf{u_2}\}$ is said to span the two-dimension through a combination of linear $\alpha\mathbf{u_1}+\beta\mathbf{u_2}$ for $\alpha,\beta\in R$.

Proof

For the scale $\alpha,\beta\in R$, a linear combination of unit vectors, $\mathbf{u_1}=\overrightarrow{(1,0)}$ and $\mathbf{u_2}=\overrightarrow{(0,1)}$ give

$$\alpha\mathbf{u_1}+\beta\mathbf{u_2} = \alpha\overrightarrow{(1,0)}+\beta\overrightarrow{(0,1)} = (\alpha,\beta).$$

Therefore, (α,β) represents all vectors derived from the origin (0,0) in the XY-plane. Thus, the XY-plane is built.

Argument 1 can be expanded to the three-dimensional spaces and above.

Through the Argument 1, it can be concluded that a federation without a basic set, the whole two-dimensional plane will not be able to rule. This showed that the disadvantages of a single vector. In two-dimensional planes, it is required to have two independent vectors and plane span to control the whole plane.

VECTOR DESCRIPTION

Each vector $\mathbf{B}\neq\mathbf{0}$ which is independent from $\mathbf{u_1}=\overrightarrow{(1,0)}$ or $\mathbf{u_2}=\overrightarrow{(0,1)}$ can be described into multiple unit vector of $\mathbf{u_1}=\overrightarrow{(1,0)}$ and $\mathbf{u_2}=\overrightarrow{(0,1)}$, respectively through Figure 3(b) and Figure 3(c). Description of vector B = (2,3) on the X-axis (Figure 3 (b)) produces vector $\mathbf{B}_x =\overrightarrow{(2,0)}=2\overrightarrow{(1,0)} = \mathbf{2u_1}$. Description of vector B on the Y-axis (Figure 3 (c)) produces vector $\mathbf{B}_y =\overrightarrow{(0,1)}=3\overrightarrow{(0,1)} = \mathbf{3u_2}$.
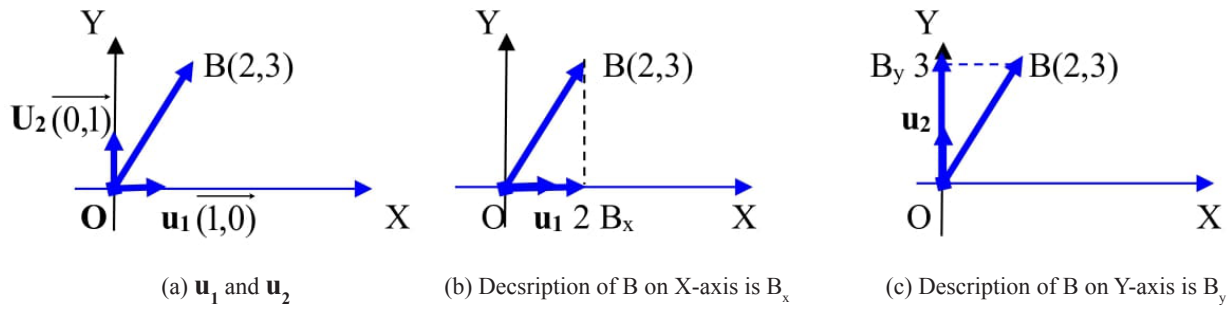
(a) $\mathbf{u}_1$ and $\mathbf{u}_2$ (b) Decsription of B on X-axis is B_x (c) Description of B on Y-axis is B_y
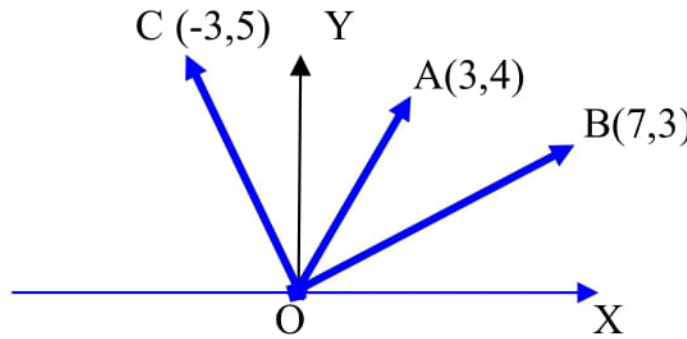
FIGURE 3. $B = (2,3) = 2\mathbf{u}_1 + 3\mathbf{u}_2$

FIGURE 4. Independent vectors

Figure 4 also showed that vector A cannot be obtained using the single vector B ($\neq$ A) or C ($\neq$ A). That is if A = αB to a real number α, then A is said to be dependent on B and vice versa. By calculation (mathematically),

$$A = (3,4) = \alpha B = \alpha(7,3) = (7\alpha, 3\alpha)$$

until exist two different values of α, which are $\alpha = 3/7$ and $\alpha = 4/3$. Both α should have the same value. Thus, a conclusion can be made in accordance with Argument 1 that the set of {A,B} is said to be a set of independent vector which means A is not equal to B either as a multiple or not, provided A and B are not vectors 0. Vector 0 is dependent to all other vectors.

BASIS

A vector basis is a set consisting of several independent and federation vectors among them to build the line (one-dimension), plane (two-dimension), space (three-dimension) and a higher-dimensional space or equal to 4. Therefore, for line is one vector only, for plane is two vectors only, for space is three vectors only and continues inductively. Usually two selected independent vectors in the two-dimensional plane are unit vectors for $\mathbf{u}_1$ and $\mathbf{u}_2$ which are combined in a linear combination of

$$\alpha \mathbf{u}_1 + \beta \mathbf{u}_2 = (\alpha, \beta); (\alpha, \beta \in [-M, M])$$

and able to construct all other vectors in a two-dimensional plane with M is a limited large number of all. In this case, the set of {$\mathbf{u}_1$, $\mathbf{u}_2$} was named as the basis for the construction of all vectors in the two-dimensional plane because $\mathbf{u}_1$ and $\mathbf{u}_2$ is independent and span to the two-dimensional plane. The biggest condition was imposed on M means that M can still be valued as a number, especially with computer capabilities. If M is not limited, we as human beings are certainly not able to pronounce it and if we are able to pronounce it then it means it is limited.

INFINITE VECTOR

Consider a vector in two-dimension whose size approaches M (a very large number means that if M is given a number, then there must be a number larger than it) but limited as illustrated in Figure 5.
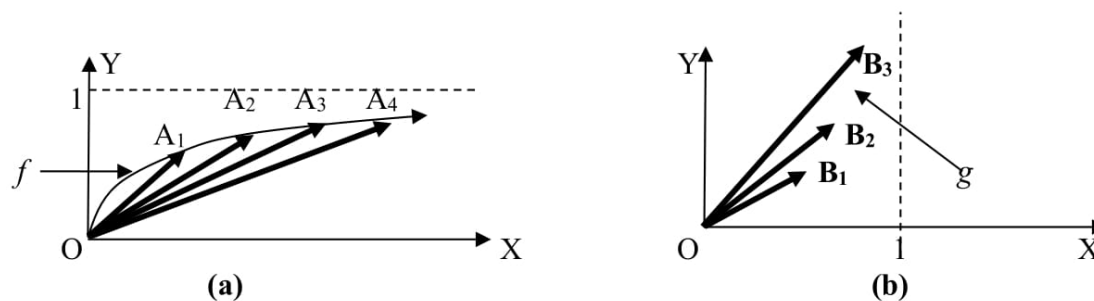
FIGURE 5. Sequence of infinite vectors of $A_1, A_2, A_3, \ldots, A_M, \ldots$ and $B_1, B_2, B_3, \ldots$

Each vector $A_1, \ldots, A_4$ in Figure 5(a) has a shape

$$A_i \ (i, \frac{i}{i+1}); \ i = 1,2,3,4$$

Generally, each vector A_x with coordinate

$$(x, \frac{x}{x+1}); \ (x \in [0,+\infty) \text{ and } x \text{ limited})$$

able to form with the coordinates at the arch

$$f(x) = \frac{x}{x+1}; \ (x \in [0,+\infty))$$

unit vector of $\mathbf{u}_A$ on vector $A_x \ (x, x \div (x + 1))$ is

$$u_A = \left(\frac{x+1}{\sqrt{1+(x+1)^2}}, \frac{1}{\sqrt{1+(x+1)^2}} \right)$$

As for Figure 5(b) showed that there is a sequence of infinite vector based on the sequence

$$B_1, B_2, B_3, \ldots$$

with the arrow ending at the coordinates $(x, x \div (x + 1))$ for $x \in (-\infty, 1)$ at the top arch of $g(x) = x \div (1 - x)$. Unit vector for B_x is

$$u_B = \left(\frac{1-x}{\sqrt{1+(1`-x)^2}}, \frac{1}{\sqrt{1+(1-x)^2}} \right)$$

Figure 5 showed that there is a vector existed with infinite magnitude but limited. Therefore, Figure 5, $A_x \ ((x, x \div (x + 1)) \rightarrow (+\infty,1))$ when $x \rightarrow +\infty$. It is same going for $B_x ((x, x \div (1 - x)) \rightarrow (1,+\infty))$ when $x \rightarrow 1$. Vector A_x when $x \rightarrow +\infty$ cannot be describe on the X-axis and the Y-axis even if the second coordinates of vector A_x is smaller than 1 or towards 1. Similarly, vector B_x when $x \rightarrow 1$, cannot be describe on the X-axis and also on the Y-axis even if the first coordinate of vector B_x is smaller than 1 or towards 1.

Argument 2

If A is a non-existent vector (cannot be written), then A does not have a unit vector.

Proof

Proof by contradiction will be made which is assuming that Vector A has a unit vector. Therefore, there is a scale of $\alpha,\beta \in [-M,M]$ until

$$A = \alpha\mathbf{u}_1 + \beta\mathbf{u}_2 = (\alpha,\beta)$$

In a conclusion, this means that A exists, and this goes against the assumption that the A does not exist. Thus, the assumption that A has a unit vector is incorrect.

Most of the available articles in the literature are discusses about *shirk* (polytheism) merely explain and interpret *shirk* only in order to comprehend or understand the definition and consequences of the action. In meantime, the author has not found any article in which the discussion on the reason of the act of *shirk* is a greatest sin and the consequences also very harmful. When there is no discussion about it, therefore many articles in the literatures only discussed the same topic about *shirk* and the differences only in the definition, use of terms, and interpretations. Based on this assumption, this article will put forward all ideas or concepts in mathematics to discuss *shirk* until it is clear that *shirk* is a greatest sin (not to be scaled towards infinity) and about the consequences until Allah Almighty says that in the Qur'ān, "the sin of *shirk* will not be forgiven".

The debate on *shirk* according to the mathematical knowledge is challenging the injustice even later will have the same conclusion, to proof that the *shirk*

is a greatest sin and will get a great torment. Thus, the highlights of *shirk* based on mathematical knowledge cannot be presented because the existing literature highlights only mentioned the same thing through different writings, but the content is the same. Besides that, it is cannot be informed about the views of researchers, speaker and author from the point of mathematics to *shirk*. Therefore, in this article, the main focus will be on mathematics theory using the vector theory and relate it to the *shirk*. It will be shown that *shirk* can be associated with vector. Vector is a concept that can be expressed or explained which related to the dimension. It is preferable to relate it with two-dimension, even

though human live in the three-dimension. Human place their feet or body in a two-dimensional space called a plane. Then they move on the plane to dominates three-dimensional space as the living space.

In the article (i.e. a two-dimensional plane, see Figure 6), vector OA or simply A is represented by an arrow from the point of origin (origin) O (i.e. (0.0)) to point A (i.e. (2,2)). The direction of vector A is northeast, and its size is calculated as follows:

$$\text{Vector size A} = \sqrt{(2-0)^2 + (2-0)^2} = \sqrt{8} = 2\sqrt{2}\,.$$
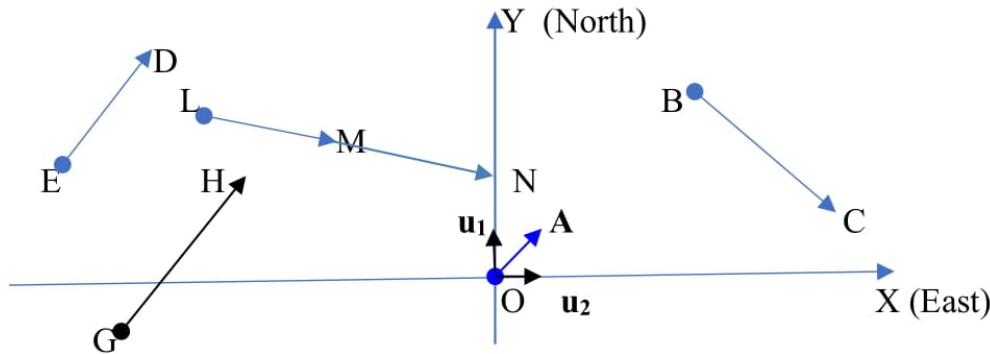
$$A(2,2),\ B(4,3),\ C(6,1),\ D(-5,4),\ E(-7,2),\ G(-6,-1),\ H(-3,2),\ L(-4,3),\ M(-2,2.5),\ N(0,2)$$

FIGURE 6. Description of several vectors

In Figure 6, beside vector A and BC, it is shown that several vectors with certain properties, (1) ED is parallel to GH and (2) LM is not parallel to ED. An interesting description in this section is that two parallel vectors are dependent on each other. In this parallel case, the magnitude or size of

the vector does not have to be the same. Have a look at the vector ED and GH which are said to be parallel because they have the same direction. If the vectors are parallel, then one of them can be used to obtain the other vector. The calculation is needed for ED to become GH, as follow:

$$\begin{aligned}
ED &= (-5,4) - (-7,2) = \left[-5(1,0) + 4(0,1)\right] - \left[-7(1,0) + 2(0,1)\right] \\
&= 2(1,0) + 2(0,1) \\
&= \frac{2}{\alpha}\left(\alpha(1,0) + \alpha(0,1)\right) \\
&= \frac{2}{3}\left((-3 - (-6))(1,0) + (2 - (-1))(0,1)\right)\ ;\ \alpha = 3 \\
&= \frac{2}{3}\left((-3)(1,0) + 2(0,1) - ((-6)(1,0) + (-1)(0,1))\right) \\
&= \frac{2}{3}\left((-3,2) - (-6,-1)\right) = \frac{2}{3}GH
\end{aligned}$$

Therefore, the vector ED and GH are interdependent. The next vector,

$$LN = (0,2) - (-4,3) = (4,-1)$$
$$= (2 \times 2, 2 \times (-0.5))$$
$$= 2(2,-0.5)$$
$$= 2[(-2,2.5) - (-4,3)]$$
$$= 2LM$$

vector LN and LM are interdependent. In linguistic, the two vectors are associated. If Abu is associated with Lahab, then Abu and Lahab depend on each other when they are weak or strong. On the other hand, if they are not associated, therefore they do not depend on each other when they are weak or strong.

Another type of associated is the vector $\mathbf{u}_1$ and $\mathbf{u}_2$, they are associated to form the vector A = $\mathbf{u}_1$ + $\mathbf{u}_2$ (Figure 6). In general, each vector in a plane can be made using a set of $\{u_1, u_2\}$ therefore, each vector need each other in an environment and called mutually associated. Precisely, they will not be created without cooperation and there is no difference among them except those who have a degree of *taqwa* (piety).

Argument 3

Parallel vector is not span to the plane.

Proof

It is sufficient to point to an example of a parallel vector only. The choices are the parallel vector ED and GH and another vector that is not parallel to it i.e. BC. If the equation αED + βGH = BC can be solved, then Argument 3 is wrong. Thus, from

α(2,2) + β(3,3) = (2,-2) obtained a simultaneous equation:

$$2\alpha + 3\beta = 2 \quad \text{dan} \quad 2\alpha + 3\beta = -2$$

Obviously, the above simultaneous equation cannot be solved. This means that there are parallel vectors that cannot span the plane. Therefore, the Argument 3 is correct.

Argument 4

Two or more vectors that are not zero and are not parallel when combined (or associated) can form at least a third vector and the combined coefficient is zero.

Proof

Suppose there are two non-parallel vectors, AB and CD which each connect two coordinates (x_1, y_1) and (x_2, y_2) and two coordinates (x_3, y_3) and (x_4, y_4). The linear combination of two non-parallel vectors, AB and CD will produce a V vector with coordinates (c, d). Therefore, the obtained simultaneous equation as follow:

$$\alpha(x_2 - x_1) + \beta(x_4 - x_3) = c$$
$$\alpha(y_2 - y_1) + \beta(y_4 - y_3) = d$$

If $(x_2 - x_1)(y_4 - y_3) = (x_4 - x_3)(y_2 - y_1)$, then the vector AB and CD are parallel and according to Argument 3, the equation has no inversion which means there is no solution. Thus, the Argument 4 is correct.
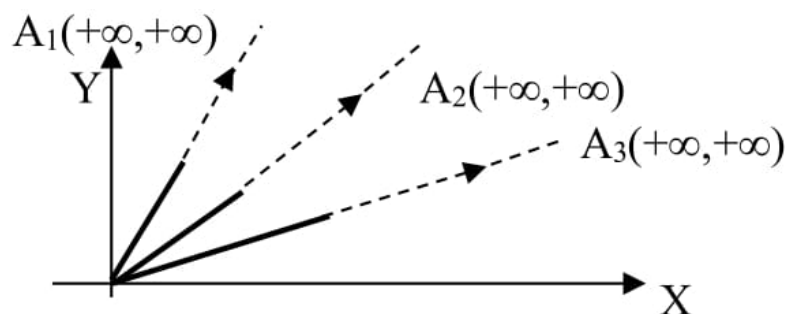
Consider Figure 7.

FIGURE 7. Non-existent vector description but exist

In Figure 7, the dashed line mark indicates that the related vector has no end. The position of the coordinate points of the A_1, A_2 and A_3 vectors is uncertain. Therefore, it is easier to say that the infinite vector does not exist (because it cannot be drawn or written). Thus, it can be concluded that there are two types of vectors namely:

$$B = \begin{cases} B^S, & \text{existing but cannot be represented} \\ B^M, & \text{existing and can be represented} \end{cases}$$

Therefore, although vector B^S exist but cannot be represented by coordinate points thus, they are called non-existent. In this case, existing or non-existent is the same. We cannot draw the non-existent vector clearly and accurately on a two-dimensional plane. However, the assumption of the vector trail can still be drawn but imperfectly like $A_1(+\infty,+\infty)$ vector in Figure 7. It is same for $A_2(+\infty,+\infty)$ and $A_3(+\infty,+\infty)$ vectors. However, these vectors can still be drawn imperfectly to show the existence of consensus (or associated) unit vector $\mathbf{u_1}$ and $\mathbf{u_2}$, for example, in forming vector $A_1(+\infty,+\infty)$. However, since the tip of the arrow on the vector cannot be represented, then the unit vector on itself cannot be counted, but the perfect and reasonable conclusion for a vector form for this case is that it has no associated in building itself. In other words, there are infinite magnitude vector (see Figure 5 and Figure 7) until the vectors are unable to be drawn or written even though they are existing by tracing their trails, which have no associated with any vector or themselves.

Argument 5

The infinite vector cannot be associated and cannot have any associate.

Proof

The proof is similar to the proof of Argument 2.

ALLAH

There is no god but Him. In any way, it is forbidden to associate Him with any other attributes or vector. It is impossible to draw any vector in two-dimensional plane until n-dimension with $n \to +\infty$. In addition, Allah Almighty is not dimensional (not located). Therefore, in accordance with Arguments 2 and 5, if the representative vector does not exist, there is no use to discuss the multiple unit vector for His construction. In other word, there is no vector can be associated or merged to represent Him. Similarly, even the unit vector in Himself cannot be created. In conclusion, nothing in this world can be associated with Him, Allah Almighty had mentioned that there is no ally for Him and it is strictly forbidden to associate anything with Him. The greatness of 20 attributes of Allah that every human being must know is that cannot be represented by any vector in any dimensional space including $n \to +\infty$. To believe in it, it is Allah, the Almighty. Mathematically, let us argue using logarithmic functions and exponential functions by placing the Almighty on the X-axis and the Almighty on the Y-axis as shown in Figure 8.

It is known that *'Maha'* or Almighty means always more and above than anything else and mathematically indicated in the following debate:
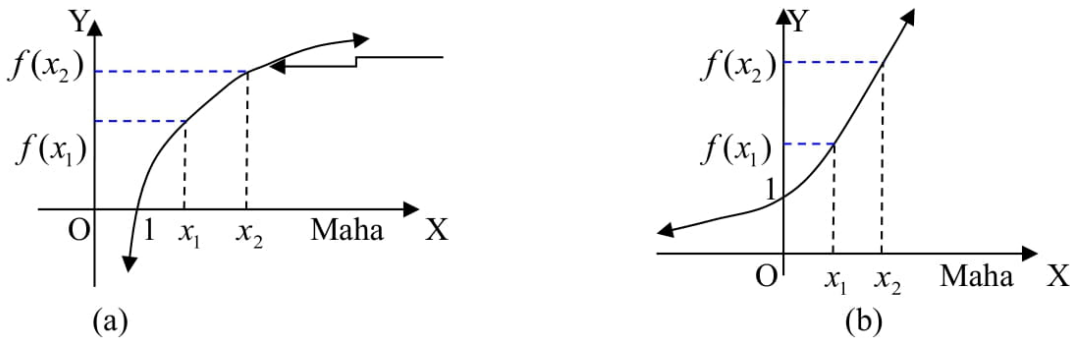

FIGURE 8. Debate on the definition of Almighty

Each number is selected on the X-axis, for x_1 that matched with the Almighty is always exists x_2 greater than x_1 because of the Almighty. For each x_1 earlier in match with $f(x_1)$ means the Almighty is on the Y-axis, then, there will be the Almighty with $f(x_2)$ that will be bigger than $f(x_1)$ the Y-axis corresponding with x_2 at the X-axis. Therefore, for each of x_1 at the X-axis that corresponds to the $f(x_1)$ at Y-axis is always exist x_2 on the X-axis with the state of $x_1 < x_2$ that corresponds with $f(x_2)$ at the Y-axis with the situation of $f(x_1) < f(x_2)$, then the Almighty cannot be represented with x_1 at the X-axis and also $f(x_1)$ at the Y-axis because there will always be other x at the X-axis which is bigger than others and this is same goes to the x_2 and $f(x_2)$.

With such argument, through the *Maha* or Almighty, Allah cannot be represented with something else but with "there is no god but Allah". Thus, it is impossible for us to associate Him with anything else. However, those who insult Allah by associating Him with other things, the doer or perpetrator is committing *shirk* by all means.

CONCLUSION

It is common knowledge that explaining the concept and implications of shirk in languages other than the language of the Qur'an is very difficult especially through the language of mathematics. The choice of vectors as a theory to describe shirk and its implications may not be able to instill fear in shirk perpetrators but is significant in bringing empirical evidence as to why shirk is placed in the category of major sins and unforgivable sins. Although not something that is right but at least challenge tyranny by bringing the description of shirk from a different perspective. The conclusion of the discussion of this article is, the analysis from both perspectives whether Islamic or according to mathematical measurements shows that the polytheist has done harm to himself in this world and akhirat. The polytheist will not only receive a heavy retribution in the akhirat but oppress himself in the world, degrade the standard of humanity, make himself a pitfall for committing superstitions and a hindrance to works that are beneficial to human beings. The above discussion had showed that human being are creatures that tend to associate with anything in their action. Meanwhile, Allah is the creator and it is impossible to make a representation for Him, therefore, it is impossible too to find His ally or be made an ally for Him. If it is also done in a way that is impossible, then we have done something impossible for Allah and this action is a very insulting to Allah. Thus, the action is imposed as a greatest sin to the polytheist for committing *shirk*. There is no forgiveness from Allah to those who commit *shirk* against Him.

ACKNOWLEDGMENT

REFERENCES

Al-Qur'ān al-Karim

Abdullah Basmeih.1980. Tafsir Pimpinan Ar-Rahman Kepada Pengertian Al-Qur'ān. Kuala Lumpur: Bahagian Hal Ehwal Islam Jabatan Perdana Menteri.

Birkhoff, de Boor. 1965. Piecewise polynomial interpolation and approximation. In Garabedian, H. L. Proc. General Motors Symposium of 1964. New York and Amsterdam: Elsevier. pp. 164–190.a

Al-Dahlawi, Ahmad Ibn 'Abdul Rahim. (t.t.). Al-Fawz al-Kabir fi Usul al-Tafsir. Karachi: Nur Kar Khannah.

HAMKA, Abdul Malik Karim Amrullah. 2015. Tafsir al-Azhar Jld 1. Selangor: PTS Publishing House.

Ibn Kathir, Isma'il ibn 'Umar. 2004. Tafsir Ibnu Katsir. Jil. 3. terj. M. Abdul Ghafar E.M & Abu Ihsan al-Atsari. Bogor: Pustaka Imam Asy-Syafi'i

Ibn Manzur, Jamaluddin Muhammad bin Mukram. 1993. Lisan Lil Lisan Tahzib Lisan Arabi. Juz. 1. Beirut: Dar Al-Kitab Al-Ilmiah.

Muhammad Abdurrahman Al-Khumayyis. 2004. Syirik dan Sebabnya. Jakarta: Gema Insani Press

Mohd, I. B., Wen, G. K. and Dasril, Y. 2009. New class of non-parameter filled function. *Journal of KALAM* 1(1): 6 - 14.

Muslim, Abi al-Husayn Muslim al-Hajjaj al-Qusyairy al-Naysabury. 2010. Matan Sahih Muslim. Dar el-Hadith: Qaherah.

Al-Nawawi, Mahy al-Din Abi Zakaria Yahya bin Syarf. 2008. Sahih Muslim bi Syarh al-Nawawi. Qaherah: Dar Ibn Rajb & Dar al-Fuad.

Sayyid Qutb. 2010. Tafsir Fi Zilalil Quran (Terj.) Kuala Lumpur: Pustaka Darul Iman.

Al-Tabbari, Abu Ja'far Muhammad bin Jarir A. 2009. Tafsir Thabari. Jil. 4, 9, 13 & 17. terj. Syaikh Ahmad Muhammad Syakir & Syaikh Mahmud Muhammad Syakir. Jakarta: Pustaka Azzam.

Wawan Djunaedi Soffandi. 1994. Terjemah Syarah Shahih Muslim. Terj. Vol 1. Indonesia: Penerbit Mustaqim.

Al-Zuhaily, Wahbah bin Mustafa. 2013. Tafsir al-Munir fi al-Aqidati wa al-Syariati wa a al-Manhaj (Terj.). Jakarta: Gema Insani.

AUTHORS

Ahmad Munawar Ismail
Research Centre for Theology and Philosophy,
Faculty of Islamic Studies,
Universiti Kebangsaan Malaysia
43000 Bangi, Selangor,
Malaysia
munawar@ukm.edu.my

Ismail Mohd
Laboratory of Computational Statistics and Operations Research,
Institute for Mathematical Research,
Universiti Putra Malaysia (UPM),
43400 Serdang, Selangor,
Malaysia
ismailmohd@upm.edu.my