

## Malay Reasoning

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### Abstract

We discuss the nature of Malay statements using the term *moga-moga* or its equivalents *semoga* and *mudah-mudahan*, especially when referring to an implication. We show that this term is uniquely Malay. In fact, even though it may be translated as “hopefully”, “in hope”, “may”, “may it be”, “wish” and “let”, further analysis of its usage as we have shown here, these translations are found to be inaccurate. Therefore, we propose to anglicize the terms based on *moga-moga* so that we discuss here the *mogamic* reasoning and its relation with the well-known modal reasoning (modal logic), that is, the English modal reasoning. We show that the *mogamic* reasoning is different from the English modal reasoning. From the beginning of our discussion, we argue that our *mogamic* reasoning is suitable to include the other two Malay forms of reasoning, namely, the *budic* reasoning (based on the Malay proverbs and *pantuns* on *budi*) originally proposed by Lim (2003), Hassan (2003) and the Islamic reasoning, the *insya Allah* reasoning proposed by Shaharir (2013a); and simultaneously improve the concept of *budic* reasoning.

**Keyword:** Malay logic, mogamic reasoning, modal reasoning, *budic* reasoning, *insya Allah* reasoning

### Introduction

In our recent paper in Malay, Shaharir (2013a) made an extensive survey on the various writings on *epistemologi Melayu* (Malay epistemology) for the last two decades and its related discourses on *kosmologi Melayu*

(Malay cosmology). We found that the intention of those writings were to show that the Malay epistemology and cosmology are different from other forms of reasoning. Their arguments or examples, however, are not based on the difference in the Malay methods of finding knowledge as compared to the methods adopted by modern scientists or other groups of people. They have not shown that the *mantik Melayu* or *nyaya Melayu* (each represents the Malay logic in two different eras, namely, the Islamic era and the pre-Islamic era, respectively) is different or non-isomorphic with any of the presently known logical structures.

However, it is also interesting to note that even though philosophers and knowledge sociologists throughout the world have reached a conclusion that knowledge is not value-free but culture- or ideology-laden, their arguments also are not based on the nature of epistemology or scientific methods. In fact, they assume that as far as methods of obtaining knowledge or scientific methods are concerned, they are the same for every scientist all over the world; only the subjects to be investigated or studied and the assessment of the results are different. On the other hand, Shaharir (2010) has shown that even in the so called Western scientific methods (deduction and induction) are not universal, and there are findings based on dreams and nonstandard scientific methods, such as intuition and Bohm's dialogue. Shaharir (2012) also shows that the method of using different languages, particularly English and Malay, produce different mathematical concepts and this is certainly new and further strengthens the thesis that mathematics is also not value-free. Thus, it is only natural that we are further interested to show that **reasoning** itself is non-universal, as such there are the British reasoning, Indian reasoning, Chinese reasoning and so forth, and of course Malay reasoning. This is due to the fact that reasoning is very much related to logic and it is perhaps well-known that logic is not unique (there are many-valued logic and many infinite-valued logics) and it is also well known regarding the existence of literature on the Hindu logic and Chinese logic.

Shaharir (2013b) has discussed the well-known (especially among mathematicians) non-universal nature of logic and in particular (not well known) he has shown that there are three types of Malay logic: *mantik budi* (*budic* logic), *mantik moga-moga* (*mogamic* logic) and *mantik insya Allah* (*insya Allah* logic). In short, *mantik budi* is the logic based on *budi* as understood by those scholars such as Lim (2003) and Hassan (2003) in which *budi* is meant to be the *tribudis*: *budi bahasa* (language articulation and intellectual), *budi pekerti* (ethics and *adab* or

islamic conduct) and *budi bicara* (humane decision and *adab*), and we further argued (Shaharir 2013b) that *budic* logic necessarily means any reasoning associated with a religious value, i.e. Buddhist value before 13<sup>th</sup> century and Islamic value after that century.

**Mogamic logic** (first time used here) is our terminology to describe a kind of nondeterministic nature of the common Malay implicative statements which are accompanied by the words *moga-moga*, *semoga*, *harap-harap*, *diharapkan*, *mudah-mudahan* and *insya Allah* (some kind of hope, perhaps with the help of situation, relevant people, or the unknown source such as god). Such statements are discussed by Shaharir (2011) based on the old Malay language on the seventh century inscriptions, even though in that paper and unwittingly repeated in Shaharir (2013b) we have made erroneously identified the term *punarapi* in the inscription to be *moga-moga* or its equivalent. We use the same statements here, with corrections, as additional support to our arguments that *moga-moga* is not the same as its English translation such as “may”, and “let” as made by other well-known scholars of the Malay inscriptions, Coedes and Damais (1992), or other common translations: hopefully, in hope, may it be, and wish. The *insya Allah* logic as discussed in Shaharir (2013 b, c) is a reasoning which is accompanied by the Islamic teaching by *mutakallimun* which asserts that everything comes from and ends with *Allah* (the Muslim God). Thus, every reasoning must be accompanied by *insya Allah* (=by *Allah*’s willing), and hence the term *insya Allah* reasoning or *insya Allah* logic.

We always define logic as a method of reasoning so that a source of logic is mainly a language. Thus, it is only natural that logic is value-laden as a language has been proven to be so. In this paper we intend to deliberate on the three Malay logic forms on their nondeterministic nature which we group together into one kind of Malay reasoning which we chose to call it the *pentaakulan moga-moga* or *mogamic* reasoning which we purposely extend its meaning to include the five terminologies: *budi*, *moga-moga*, *semoga*, *mudah-mudahan* and *insya Allah*.

### **Mogamic Reasoning**

A reasoning in any language necessarily uses conjunction (and, with or *dan*, *dengan* in Malay), disjunction (or, or *atau* in Malay), negation (complement, no, none, not, without or *pelengkap*, *tak* /*tidak*, *tiada*, *tanpa*, *bukan* in Malay) , and implication (if ... then, therefore or *jika ... maka* , *maka*..., *sekiranya*...,*seandainya*..., *jikalau*lah ..., *oleh sebab*

*itu ... in Malay*). Let us call these terms as among the **basic components of reasoning**. Different reasonings arise from the different meanings of those basic components of reasoning. The most well-known basic component of reasoning which has situational or cultural different meaning is the implication, namely, a deterministic implication and a non-deterministic implication. An example of a deterministic implication would be “*dua kali lima sepuluh*” or in a complete grammatical statement and more transparently implicative, “*Jika dua didarab dengan lima maka jadi sepuluh*”; or in English, “two times five is ten” or “**If** two is multiplied by five **then** it becomes ten”.

In a nondeterministic implication, an example would be, “*Jika pagi nanti matahari naik maka esoknya matahari naik juga*”, or in English “**If** later this morning the sun rises **then** tomorrow morning the sun will also rise”; another example (with different category of subjects and of course a controversial statement as well), “*Jika pendapatan rakyat tinggi maka mereka akan lebih bahagia*”, or in English “If the income of the people are higher than they would be happier”. No one will dare to say the second sentence consists of sure events, i.e. **maka** or **then** in the second and the third sentences are not the same meaning as in the first sentence. Normally, in the second sentence, one would use **modal words** such as “*barangkali*” (*probably*), or “*mungkin*” (*possibly*). So in this case, thus the second sentence becomes, “*Jika pagi nanti matahari naik maka paling barangkalilah esok paginya matahari naik juga*” or “**If** later this morning the sun rises **then most probably** that tomorrow morning the sun will also rise”.

In the third statement the nondeterministic nature of the reasoning is worse than the second statement because the subject itself is not well defined (subjective). Another important point is that **maka** in the second statement (concerning the sun rise) is not the same meaning as **then** due to a different value in the Malay and English language. **In this case, it is very much related to the words *barangkali* and *mungkin* which are semantically very much different from their respective English terms - probable and possible, respectively** (as already discussed at length in Shaharir, 2012). The term **maka** in the second sentence can of course be replaced by *moga-moga* which we will show that the nondeterministic nature of the event will be more general than probable or possible.

However, even the first sentence, a careful person would not agree that the implication is deterministic or a sure event. First of all the strict implication (without any reservation) is only valid in a very

idealistic situation: we need two sets of five items which are identical to each other. Hence, to be exact, the implication in this case is also nondeterministic in nature. We would say in Malay: *dua kali/darab lima moga-moga sepuluh*, or in a more transparently implicative statement, *Jika dua dikali/didarab dengan lima maka moga-moga sama dengan sepuluh*. An approximately equivalent statement in English would be “Two times five is hopefully equal to ten”; or “If two is multiplied by five then hopefully it is equal to ten.” However, *moga-moga* is more than just a hope; it is related to *budi* and *insya Allah*. Both are related to the will of the Muslims’ God, but *budi* is also related to humane decision and Islamic spiritualism. Thus, there is a great loss in the translation of *moga-moga* into “hopefully” or even worse if we try to replace it by “may”, so that the sentence become “May two times five become ten”. The meaning of the later sentence would not be the same as “*moga-moga dua kali lima sepuluh*”. In fact, “may” is just the same as “can”, or “could”; or a modal form related to “possible” (used to express state of being possible) whereas “hopefully” is used to express something we would like to happen or to be true because we have a good reason to believe it so (Cambridge English Dictionary & Thesaurus).

Etymologically, “may” means “able” or “have power”, or “auxiliary of prediction” whereas “hopefully” (exists only in the 17th century) means “in a manner we would wish to, expect to, or look forward to”(Online Etymological Dictionary). Therefore, *moga-moga* is not equivalent to **may** or **hopefully**. These definitions are not fully in agreement with the meaning of *moga-moga* in the above examples. Even if *moga-moga* is based on the two most authoritative Malay dictionaries, *Kamus Dewan* and *Kamus Besar Bahasa Indonesia*, its definitions are not in agreement with **may** or **hopefully** above. In these two dictionaries, *moga-moga* or equivalently *semoga* means *mudah-mudahan*, *kiranya*, *hendaknya* and *agar* since “*kiranya*” involves some prior calculations before hoping for the will of Allah, and hence it is not exactly the same as **may** or **hopefully**. In fact, examples of sentences given in the two dictionaries show that *moga-moga* must necessarily involve the grace of Allah: *berdoa moga-moga dipelihara Allah* (roughly means, pray hopefully to be cared by Allah); *moga-moga kita mendapat kekuatan lahir dan batin* (roughly means, **hopefully with the grace of Allah**, we obtain the inner and outer strengths), *semoga tuan berbahagia* (roughly means, **hopefully Allah** would make you happy). The most common statement in Malay is *semoga rohnya dicucuri rahmat* (roughly means, **hopefully his/her soul is granted the grace of Allah**).

Etymologically the terms *moga-moga* and *semoga* are most likely from the Sanskrit word *samyoga* (Sanskrit Dictionary for Spoken Sanskrit) which means “chance or coincidence”; thus it shows *moga-moga* or *semoga* must necessarily be uncertain or non-deterministic which we have been assumed since the beginning of our discussion. However, *semoga* (earlier spelling: *sa-moga*) and *moga-moga* (both can be from *moga*) may be originally Malay words because based on English-Sanskrit Dictionary (Sanskrit Dictionary for Spoken Sanskrit), “hopefully” is *sazamsam* or *sapratyazam* in Sanskrit; whereas in English-Pali Dictionary, “hopefully” is *sapekkham* in Pali.

Let us look at more examples on sentences which involve the terms *semoga/moga-moga/mudah-mudahan* and the translations in old Malay to get more of their characteristics.

In a Malay inscription, the Talang Tuwo inscription (dated 606 S=684 AD) there are many examples of statements which involve equivalent words for *moga-moga*, i.e. *semoga* and *mudah-mudahan* such as the following [the Malay version is from Noriah (1999); and the English version is from Coedes and Damais, 1992]:

*Di asannakala di antar margga lai tmu muah ya ahara  
dngan air nimumnya*

(In the present Malay: **Semoga** mereka mendapat makanan dan air **sekiranya** mereka lapar di perjalanan  
English (Eng): If they are hungry at a halt or on the road,  
**let** them find food, and water to drink)

*Jadi laki swayambhu punarapi tmu ya.*

(In the present Malay: {*Tambahannya*}, {*seandainya*}  
*mereka lahir sebagai lelaki mudah-mudahan mereka  
memiliki kekuatan sendiri, ...; { } = tambahan penulis;*  
Eng: **May** they be born male, able to exist by  
themselves)

Note that the first implicative statement involves *semoga* and subjects concerned are all well-defined: hungry and food and water; whereas in the second implicative statement the subjects involved are a well-defined object: a male, and a fuzzy object: the strength. These two examples again show not only the inaccuracy of translation *semoga* to **let** and *mudah-mudahan* to **may**, but that *moga-moga* (equivalent to *semoga* and *mudah-mudahan*) is more general than possible (only on fuzzy

objects) and probable (only on crisp objects). The translation of *semoga* (which is equivalent to *moga-moga*) to **let** is inaccurate because the nearest meaning of **let** to the relevant Malay term here is (1) used to say that we wish something to happen very much, or (2) allow something to happen (Cambridge Dictionary and Thesaurus). This is a bit far off from *semoga* or *moga-moga*.

Other examples of *moga-moga* (= *semoga* or *mudah-mudahan*) statements on the Talang Tuwo inscription are as follows:

1. *tmu ya kalyanamitra.*  
(In the present Malay: **semoga** dia beroleh sahabat yang bijaksana;  
Eng: **May** they possess a wise friend)
2. *Waro payanya tmu sukha*  
(In the present Malay: **Semoga** cara ini cara terbaik bagi mereka untuk beroleh kegembiraan di kemudian hari;  
Eng: **May** be for them the best means of obtaining joy)
3. *Sawanyaknya wuatnya huma parlak manyecak muah*  
(In the present Malay: **Semoga** semua ladang dan kebun yang mereka tanami subur;  
Eng: **May** all clearings and gardens made by them be full of crop)
4. *Ya mamghidupi pasu prakara marhulun tuwi wrddhi muah*  
(In the present Malay: **Semoga** binatang pelbagai jenis yang ditanak dan para hamba abdi yang mereka miliki sihat;  
Eng: **May** the livestock of all kinds reared by them, and the slaves owned by them prosper)
5. *Awasana tmu ya anuttarabhisamyaksamwodhi*  
(In the present Malay: **Semoga** mereka memperoleh kesedaran yang lengkap dan tertinggi  
Eng: **May** they finally obtain complete and supreme enlightenment)

6. *Wiryya rajin tahu di samisranya silpakala*  
(In the present Malay: **Mudah-mudahan** mereka dianugerahi kekuatan, ketekunan dan kepakaran seni;  
Eng: **May** they be bestowed with energy, diligence, knowledge of all the arts)
7. *Punarapi dhairryamani mahasattwa wajrasarira*  
(In the present Malay: {tambahannya} **mudah-mudahan** mereka tegas dan memiliki bangun badan berlian mahasattwa  
Eng: And again, **may** they be firm in their opinions and have the diamond body of the *Mahasattwas*) [literal trans.]

Each of the *moga-moga* statement above is an implicit implicative statement (with an implicit premise or premises) and the objects involved in each of the statements are fuzzy objects. Therefore, we can conclude that *moga-moga* can be used on any subject matter (crisp or fuzzy object); *moga-moga* cannot be accurately translated into English and therefore we propose it to Anglicize it as **mogamic**, so that we have **mogamic** statement, **mogamic** implication, **mogamic** reasoning, etc.

In general, we say:

*Jika A maka moga-moga B* or  
If A then **mogamically** B.

We call this a **mogamic implication** (*implikasi moga-moga*). Note that, **moga-moga** is more general than *barangkali* (probable, probably) or *mungkin* (possible, possibly) especially when considering *barangkali* or probable is suitable only for well defined (or crisp) subjects in A and B, and *mungkin* or possible is suitable only for subjective (or fuzzy) matters in A and B; whereas the subject matters in a **mogamic** implication can be crisp or fuzzy or more than that, generically **mogamic**. Thus, we have our first axiom:

**Axiom MM1:** A *mogamic* statement is a generic statement which includes a classical modal statement using the terms probable, possible, not necessarily false, or *insya Allah*.



Let us consider a statement with a conjunction or disjunction or both. In Malay, a statement such as “A and B” for any kind of A and B (crisp or fuzzy), does not mean that the result is certainly a statement concerning those identical elements in the statement A and the statement B; or in the fuzzy case it does not necessarily mean a statement whose element satisfies a fuzzy model of “and”, namely “a minimum of membership function of A or B”. Thus, we cannot say that “A and B” is C but, following the analogy of fuzzy mathematics, and considering the *budic* reasoning and *insya Allah* reasoning as well, we propose the following axioms:

**Axiom MM2:** “A and B” is *mogamically* C, or in Malay “*Moga-moga A dan B ialah C*”. Similarly with a statement “A or B”; symbolically,  $A \wedge B = (\text{Moga}) C$ ,  $A \vee B = (\text{Moga}) D$ , where the memberships function of C and D are *wusta*  $\{-\mu_A, -\mu_B\}$ , and *wusta*  $\{\mu_A, \mu_B\}$  respectively, in which *wusta* is roughly “a just-fair and balanced point or value of a function” as defined by Shaharir (2013c),  $\mu_X =$  membership function of X

The question arises: does *mogamic*, as a modal word which includes possible, probable or not necessarily false, homomorphic with respect to (w.r.t) “and” or “or” or both?; or symbolically:

Moga (A  $\wedge$  B) = Moga (A)  $\wedge$  Moga(B) or/and Moga (A  $\vee$  B) = Moga (A)  $\vee$  Moga(B)?

Furthermore, is a compound statement such as “A and B, or C” and “A or B, and C”, distributive?:

“A and B, or C” = “Moga(A or C) and Moga(B or C)” ?

These issues will be discussed later on.

### **Reasons for invalidity of the present modal logic for the *mogamic* reasoning**

Modal logic is the study of the deductive behavior of the terms **possible** and **necessary** in expressions like ‘**it is possible that**’ and ‘**it is necessary that**’. This is of course an extension of the *mantik jihah* of Ibn

Sina (in his *al-Isyarat wa al-Tanbihdaht*, translated by Inati as *Remarks and Admonitions, Part One: Logic*, published by Pontifical Institute of Medieval Studies, Toronto 1984) which was extended by al-Katibi (in his *Al-Risalah al-Shamsiyyah* translated in 1854 by Sprenger and Kaye as *Logic for Samsaddin* but only completed by Rescher 1967 in his *Temporal Modalities in Arabic Logic*, published by Reidel). These two well-known scholars during the Islamic Civilization were pioneers in modal logic presumably motivated by the Arabic language and the *mutakallimun* discourse on the nature of cause and effect which was translated by French-English logicians as the occasionalism.

In early twentieth century the Western logicians proposed a new axiomatic modal logic who were actually not challenged by the occasionalism but by the state of the (Western) mathematical logic itself which has many unsolved paradoxes, in particular “the problem of false premises imply many correct implications”. With the new modal logic, partial solution of this problem has been obtained. However, in the present modal logic, possible and probable modes are regarded as of the same status even though linguistically and mathematically there is a subtle difference between the two terms and indeed different mathematical models have been established for them (possibility is for fuzzy objects, statements or sets which do not satisfy a Boolean algebra, whereas probability is for crisp objects, statements or sets which satisfy a Boolean algebra). Thus, for the present modal logic, only two basic modal terms (known also as operators) are introduced: *Necessary* and *Possible*. These terms are assumed to be related to each other in the following way:

The word “necessary” appears in an expression “necessarily ...” or “it is necessary that...”; whereas the word “possible” appears in an expression “possibly ...” or “it is possible that ...”. Further, it is assumed that the statement: “if  $p$  is necessary then  $p$  is true” is a true statement.

However in *mogamic* reasoning this last statement which is equivalent to a Malay sentence: “*Jika p perlu maka p benar*” is not necessarily absolutely true but only “*mogamically* true”. Therefore, based on this observation alone we may conclude that the present structure of modal logic is not suitable for *mogamic* reasoning. But let us examine further the whole structure of the present modal logic.

**What are the basic assumptions on the meaning of necessary and possible in order to obtain the important statement mentioned above and perhaps other interesting statements?**

The answer is given by the twentieth century logicians which is presented here based on Blackburn et al. (2004), Wikipedia (2011) and Zalta (1995).

**Axiom 0:** **necessary** is the same as **not possibly false**; and **possible** is the same as **not necessarily false** (regardless of whether it is actually true or actually false);

**Axiom 1:** *Necessitation Rule:* if a statement is true then (strongly) it is necessary the statement is also true; or symbolically, ( $p$  is a theorem)  $\rightarrow$  ( $N(p)$  is also a theorem).

**Axiom 2:** *Distribution Axiom:* If it is necessary that if a thing implies (strongly) something, then (strongly) if the thing is necessary then it is necessary that something occurs, or symbolically,

$$N(p \rightarrow q) \rightarrow (N(p) \rightarrow N(q)).$$

The three axioms (Axiom 0, Axiom 1 and Axiom 2) are known as **Kripke modal logic** (after the name of the inventor of this logic, Kripke, in 1940's). However, it is found that this system of logic is not sufficient to prove the validity of the important statement above: "if (an assumption) is necessary then (strongly) the assumption is true". The additional axiom 3 below remedies this defect:

**Axiom 3:** *Reflexivity Axiom:* If a statement is necessary, then (strongly) the statement is the case; or symbolically,

$$N(p) \rightarrow p$$

This axiom is not necessary valid for *mogamic* reasoning.

For further improvement of the modal logic, other axioms are proposed which also involves "possible":

**Axiom 4:** If it is necessary then (strongly) it is necessary that is necessary; or symbolically,  $N(p) \rightarrow N(N(p))$

**Axiom 5:** Whatever is, is necessarily possible; or symbolically,

$$p \rightarrow N(P(p))$$

The totality of these axioms,  $NML = \{\text{Axiom } n, n=0,1-5\}$  is known as a **normal modal logic**.

The NML also gives the nature of possible, necessary and **contingent which is defined as not necessarily false and not necessarily true** (i.e. possible but not necessarily true).

Thus, the NML is a three-valued logic, {necessary, possible, contingent}, which also gives the following important theorems:

T1.1. The necessity of A and B is strongly equivalent to the necessity of A and the necessity of B, or symbolically,

$$N(A \wedge B) \leftrightarrow N(A) \wedge N(B).$$

In other words, ‘necessity’ is homomorphic w.r.t ‘and’.

T1.2. The possibility of A or B is strongly equivalent to the possibility of A or the possibility of B, or symbolically,

$$P(A \vee B) \leftrightarrow P(A) \vee P(B)$$

In other words, ‘possibility’ is homomorphic w.r.t ‘or’.

T2.1. If A strongly implies B then (strongly) the necessity of A strongly implies the necessity of B and the possibility of A strongly implies the possibility of B, or symbolically,

$$(A \rightarrow B) \rightarrow (N(A) \rightarrow N(B)) \text{ and } (P(A) \rightarrow P(B)),$$

In other words, necessary implication and possible implication are weaker than the usual implication.

T2.2. If the necessity of A strongly implies B then the possibility of A strongly implies the possibility of B, or symbolically,

$$N(A \rightarrow B) \rightarrow (P(A) \rightarrow P(B)).$$

T2.3. If the possibility of A strongly implies B then the necessity of A strongly implies the necessity of B, or symbolically,

$$P(A \rightarrow B) \rightarrow (N(A) \rightarrow N(B)).$$

**T3. It is not true that**

The necessity of A or B strongly implies the necessity of A or the necessity of B; the possibility of A and the possibility of B strongly implies the possibility of A and B.

Symbolically, these statements are as follows:

$$F[(N(A \vee B) \rightarrow (N(A) \vee N(B))), \text{ and}$$

$$F[(P(A) \wedge P(B)) \rightarrow P(A \wedge B)], \text{ where } F \text{ denotes "false".}$$

Now, it is clear that, as far as the algebraic structure of the NML is concerned, it is NOT just a Boolean algebra augmented with the “modal algebra” of the “necessary” or “N” and the “possible” or “P”. For example, even though “necessary” is homomorphic w.r.t. “and” (Theorem T1.1) but is nonhomomorphic w.r.t. “or” (Theorem T3); whereas “possible” is homomorphic w.r.t. “or” (theorem T1.2) but nonhomomorphic w.r.t. “and” (theorem T3). Similarly, the “not necessary” is homomorphic w.r.t. “and” but nonhomomorphic w.r.t. “or” (by T1.1 and T3). Of course, the distributive laws in modal logic are invalid as well. “Contingent” is also nonhomomorphic w.r.t. “and” and “or.”

The non-Boolean nature of the NML is unsatisfactory especially since it is inconceivable to have a *mogamic* statement which is nonhomomorphic w.r.t a conjunction or disjunction:

*Mogamic* A and/or B is not the same as *mogamic* A and/or *mogamic* B; symbolically,

$$\text{moga}(A \text{ and/or } B) \neq \text{moga}(A) \text{ and/or } \text{moga}(B)$$

with regard to the possible, not necessary or contingent as a model of *mogamic*.

More importantly, of course we would like to have the “strict implication” or “strong implication” to be replaced by the “*mogamic* implication” which some were hoping to model it by “possible” or “not necessary”, viz. “possible implication”, or “not necessary implication”. However, none of such statement is found in the present NML. The nearest statement in the NML in this regard is an implicative statement of the form given by “a possible statement strictly implies another possible statement” such as in the theorem T2 above. This is, of course, is not sufficiently satisfactory.

## Conclusion

We have examined the structure of *mogamic* reasoning (the Malay reasoning) in term of the well-known English modal reasoning (logic). It is found that the algebraic structure of the English modal reasoning is not suitable to be a model for *mogamic* reasoning. Elsewhere (Shaharir 2013d) we have discussed the incompatibility of all known logical structures with the nature of the reasoning based on the *mutakallimun* theory of cause and effect mentioned earlier. Since we have discussed earlier that the *mogamic* reasoning is to include also the *mutakallimun* reasoning, then we can also make use of the result to support the conclusion that the structure of *mogamic* reasoning is yet to be formulated. This shows that the algebraic structure Malay reasoning is not isomorphic to the English reasoning.

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