

Aristotelian Categorical Syllogism: An Alternative Pedagogical Approach

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Abstract: This paper deals with the rules of Aristotelian categorical syllogism as presented in various logic textbooks by Filipino authors. These textbooks allot a chapter or a considerable space for a discussion on categorical syllogisms. However, the presentations exhibit marked discrepancies and differences, which primarily involve the number of rules stipulated, rule number sequence, and the rule statements. From the viewpoint of instruction, in which diversity of learning sources and independent learning are desired, the above-indicated differences and discrepancies not only expose learners, particularly the beginners, to unnecessary difficulty and confusion but also stifle their ability and opportunity for an effective and independent learning. To address this problem, this paper offers a distinct alternative pedagogical approach to Aristotle's categorical syllogism. The approach, which employs specialized symbols, not only eliminates the need to indicate the rule statement number and sequence but also reconciles the discrepancies and differences found in the textbooks. It also provides a pragmatic strategy for teaching and learning the rules of valid categorical syllogisms more efficiently and effectively.

Keywords: pedagogical approach, logic, Aristotelian categorical syllogism, rule statement

Introduction

This study offers an alternative pedagogical approach to Aristotle's categorical syllogism. This approach entails the use of specialized abbreviations, which eliminate the need for the provision of rule numbers as well as the numerical sequence of the rules governing valid categorical syllogisms.

Aristotle's immortal works in the field of logic¹ are collectively called the *Organon*, which comprises six texts, namely, *Prior Analytics*, *Posterior Analytics*, *Topics*, *Categories*, *On Interpretation*, and *Sophistical Refutations*.² The bedrock of Aristotelian logic is the theory of syllogism, which is found in *Prior Analytics*.³ For many centuries, Aristotelian logic was taught in universities and colleges around the world.⁴ However, Aristotelian logic has been gradually eclipsed by the emergence of modern symbolic logic.⁵

In the Philippine tertiary education, logic is part of the general education courses and is now offered in most undergraduate degree program curricula. However, with the implementation of the K-12 curriculum, logic as a course is offered in the senior high school level. Inasmuch as most philosophy and logic professors in the country have been educated in Catholic seminaries, Aristotelian logic generally forms part of the logic courses.⁶ This is evident in the inclusion of the categorical syllogism in most logic textbooks by Filipino authors. There are more or less a hundred logic text-books by Filipino authors available in bookstores and libraries. Generally, all of these books apportion a chapter or a considerable space for the discussion on Aristotelian categorical syllogism.

A categorical syllogism is a form of a deductive argument consisting of three statements—the major and minor premises and the conclusion—which contain three terms.⁷ In the presentation and discussion of the rules governing valid categorical syllogisms, authors assign *rule numbers* to specific *rule statements*, such as, rule # 1 “*There shall be three and only three terms in a categorical syllogism.*” However, authors vary significantly not only in the assignment of *rule numbers* but also in the counting of the rules.

Logic Textbooks Selection

For the purpose of shaping a narrative of the problem, a selection of logic textbooks by Filipino authors is made. While the selection is arbitrary,

¹ Alfredo Ferrarin, *Hegel and Aristotle* (New York: Cambridge University Press, 2001), 186.

² Lawrence Krader and Cyril Levitt, eds., *Noetics: The Science of Knowing and Thinking* (New York: Peter Lang Publishing, Inc., 2010), 352.

³ Dov M. Gabbay and John Woods, eds., *Greek, Indian, and Arabic Logic*, Vol. 1 of *Handbook of the History of Logic* (California: Elsevier, B.V., 2004), 34.

⁴ Veronica L. Borbon, et al., *College Science, Technology and Society* (Quezon City: Rex Bookstore, 2000), 74.

⁵ Henry A. Virkler, *A Christian's Guide to Critical Thinking* (Oregon: Wipf and Stock Publishers, 2006), 181.

⁶ Most of the members of the philosophical associations in the Philippines studied in Catholic owned institutions where Aristotelian-Thomistic philosophy is taught.

⁷ Morris Cohen and Ernest Nagel, *An Introduction to Logic*, ed. by John Corcoran (Indianapolis: Hackett Publishing, 1993), 77.

it should not necessarily affect the value and validity of the findings and conclusion as this representation should be enough to establish the existence of the problem this paper commits to address. Further, each of the 20 Filipino-authored books that are part of the selection, allocates a chapter or some considerable space for the discussion on Aristotle's categorical syllogism. Below is a tabular presentation of the authors, book titles, year of publication, and number of rules for a valid categorical syllogism.

| Authors | Titles | Number of Rules |
|---------------------|--|------------------------|
| Agapay, R. | Logic: The Essentials of Deductive Reasoning (1991) | 8 |
| Ardales, V. | Logic Made Easy (1998) | 10 |
| Babor, E. | Logic: The Philosophical Discipline of Correct Thinking (2003) | 8 |
| Bauzon, P. | Logic for Filipinos (1994) | 8 |
| Calandria, R. | The Art of Logic: Postscript to Classical and Symbolic Logic (1997) | 8 |
| Ceniza, C. | Elementary Logic (1994) | 9 |
| Cruz, C. | Introduction to Logic (1995) | 10 |
| Fronza, E. S. | Reason for the Reasonable: An Introduction to Logic and Critical Thinking (2005) | 6 |
| Gualdo, R. | Logic: Basics of Correct Reasoning (2000) | 8 |
| Jayme, V. | Introduction to Logic (2002) | 9 |
| Joven, J. | Teaching and Learning Logic (2006) | 8 |
| Maboloc and Pascual | Elements of Logic: An Integrative Approach (2012) | 10 |
| Malitao, A. | Essential Logic (2003) | 10 |
| Martinez, S. | Logic: A Textbook in Deductive Reasoning (1980) | 3 |
| Meer, T. | Basics of Logic (2004) | 9 |
| Montemayor, F. | Harmony of Logic (2004) | 8 |
| Piñon, M. | Fundamental Logic: The Science of Correct Thinking / Logic Primer (1973/1979) | 8 |
| Tabotabo et al. | Introduction to Logic: A modular Approach (2008) | 7 |
| Tan, A. | A First Course: Logic (2003) | 6 |
| Timbreza, F. | Logic Made Simple for Filipinos (2001) | 8 |

Table 1: Logic Textbooks and Categorical Syllogism for Number of Rules

The table above shows a general picture of the problem, namely, *a*) dissimilar ways of counting the rules; *b*) dissimilar assignments of numbers to rule statements; and *c*) discrepancies in the rules involved. Specifically, the authors variably fix the number of rules from three, six, seven, eight, nine to ten. Of the 20, nine authors specify eight rules; four authors enumerate ten rules; three authors fix the rules at nine; one author propounds seven rules; two authors count six rules; and one author limits the rules to three.

Among the nine authors who identified eight rules, Timbreza⁸ and Agapay⁹ share generally the same rule number sequence and the same rule statements. The minimal difference between them is the manner by which the rule statements are expressed or worded. Notably, Agapay's presentation is more concise and direct to the point compared with Timbreza's.

| Timbreza's Eight General Syllogistic Rules | Agapay's Rules of Syllogism |
|---|--|
| <p><u>I. Rules on the Terms</u></p> <ol style="list-style-type: none"> 1. There must be only three terms in the syllogism. 2. Neither the major nor the minor term may be distributed in the conclusion, if I is undistributed in the premises. 3. The middle term must not appear in the conclusion. 4. The middle term must be distributed at least once in the premises. <p><u>II. Rules on the Premises</u></p> <ol style="list-style-type: none"> 5. Only an affirmative conclusion can be drawn from two affirmative premises. 6. No conclusion can be drawn from two negative premises. 7. If one premise is particular, the conclusion must also be particular; if one premise is negative, the conclusion must also be negative. 8. No conclusion can be drawn from two particular premises. | <p><u>a) Rules on Terms:</u></p> <ol style="list-style-type: none"> 1. There must be three and only three terms 2. No term must have greater extension in the conclusion than it has in the premises. 3. The Middle Term must not appear in the conclusion. 4. The Middle Term must be universal at least once. <p><u>b) Rules on Propositions:</u></p> <ol style="list-style-type: none"> 5. Two affirmative premises yield an affirmative conclusion. 6. Two negative premises yield no conclusion. 7. When one premise is negative, the conclusion must be negative; when one premise is particular, the conclusion must be particular. 8. When both premises are particular, there is no conclusion. |

⁸ Florentino Timbreza, *Logic Made Simple for Filipinos* (Quezon City: Phoenix Publishing, 2001), 85-98.

⁹ Ramon Agapay, *Logic: The Essentials of Deductive Reasoning* (Mandaluyong: National Bookstore, 1991), 111-121.

Bauzon,¹⁰ Piñon,¹¹ Gualdo,¹² Babor,¹³ Montemayor,¹⁴ Calandria,¹⁵ and Joven¹⁶ indicate practically the same rule statements as Agapay's and Timberza's, varying only in the numerical order of the rules. Moreover, Babor and Calandria exhibit marked differences. Babor provides a separate rule on the composition of "three categorical propositions." This provision may be unnecessary as Aristotle's categorical syllogism fundamentally requires three categorical statements, namely, the major and minor premises and the conclusion. Calandria's stipulation for rule # 2 - "Each term must appear only twice in the categorical syllogism"¹⁷ - may also be unnecessary as this can be integrated in the elaboration of his rule # 1 on the three-term requirement. Nonetheless, these do not in any way imply that Babor and Calandria or any of the authors mentioned above are mistaken since they have the liberty to employ any method they deem best suited to their purpose.

Ardales,¹⁸ Cruz,¹⁹ Maboloc and Pascual,²⁰ and Malitao²¹ enumerate ten rules for valid categorical syllogisms. Of the four, Malitao and Cruz observe the same numerical sequence and essentially the same corresponding rule statements except for rule # 10. On the one hand, Malitao specifies in rule # 10 that "The subject term of the premise must be asserted in the conclusion."²²

Cruz, on the other hand, signifies in rule # 10 that "The subject of the conclusion must be found in the minor premise."²³ While expressed variably, in the final analysis, rule # 10 for both authors denotes the same principle. Maboloc and Pascual, and Ardales share essentially the same rules with Cruz and Malitao except for a few considerable disparities in the numerical order of the rules.

¹⁰ Prisciliano Bauzon, *Logic for Filipinos* (Manila: National Bookstore, 1994), 132-141.

¹¹ Manuel Piñon, *Fundamental Logic* (Quezon City: Rex Bookstore, 1973) 139-162.

¹² Rosendo Gualdo, *Logic: The Basics of Correct Reasoning* (Valenzuela: Mutya Publishing, 2000), 60-69.

¹³ Eddie Babor, *Logic: The Philosophical Discipline of Correct Thinking* (Quezon City: C & E Publishing, Inc., 2006), 107-122.

¹⁴ Felix Montemayor, *Harmony of Logic* (Manila: National Bookstore, 1983), 72-84.

¹⁵ Rene Calandria, *The Art of Logic: Postscript to Classical and Symbolic Logic* (Quezon City: Grandwater Publications and Research Corporation, 1997), 81-95.

¹⁶ Jose Joven, *Teaching and Learning Logic* (Manila: Rex Bookstore, 2006), 127-131.

¹⁷ Calandria, *The Art of Logic*, 83.

¹⁸ Venancio Ardales, *Logic Made Easy* (Iloilo City: Concerns, Inc., 1996), 82-90.

¹⁹ Corazon Cruz, *Introduction to Logic*, 4th ed. (Manila: National Bookstore, 1995), 239-250.

²⁰ Christopher Ryan Maboloc and Edgar Pascua II, *Elements of Logic: An Integrative Approach*, rev. ed. (Manila: Rex Bookstore, 2012), 69-84.

²¹ Arnel Malitao, *Essential Logic* (Manila: National Bookstore, 2003), 104-118.

²² *Ibid.*, 118.

²³ Cruz, *Introduction to Logic*, 250.

| Cruz's General Rules of the Categorical Syllogism | Malitao's Ten Rules of Categorical Syllogism |
|---|--|
| <ol style="list-style-type: none"> 1. There must be only three terms in the syllogism; the major term, the minor term, and the middle term. 2. The three major terms should be arranged in the following manner: the major term is the predicate of the conclusion and is found in the major premise; the minor term is the subject of the conclusion and is found in the minor premise; and the middle term is found in the two premises but not in the conclusion. 3. The major and minor terms should be universal in the conclusion only if they are universal in the premises. 4. The middle term must be universal at least once. 5. If the two premises are affirmative, the conclusion must be affirmative. 6. If one premise is negative and the other is affirmative, the conclusion must be negative. 7. The conclusion is invalid whenever the premises are both negative and not equivalently affirmative. 8. One premise at least must be universal 9. If one premise is particular, the conclusion must be particular. 10. The subject of the conclusion must be found in the minor premise. | <ol style="list-style-type: none"> 1. A syllogism must contain the major, the minor, and the middle term. 2. The middle term should not appear in the conclusion. 3. The quantities of both the major and the minor terms should not be extended in the conclusion if they are particular in the premises. 4. The quantity of the middle term must be universal at least once. 5. The conclusion must be affirmative if both premises are affirmative. 6. The conclusion must be negative if one of the premises is negative. 7. The two premises must not be both negative or <i>not equivalently affirmative</i>. (emphasis mine) 8. One premise must be universal. 9. The conclusion should be particular if one premise is particular. 10. The subject term in the premise must be asserted in the conclusion. |

Malitao's rule # 7—"The two premises must not be both negative or not equivalently affirmative"—may have been a case of oversight.²⁴ To say "not equivalently affirmative" implies "to be both negative," which is what exactly this rule prohibits. The rule should have been rendered "or not equivalently negative."

| Jayme's Rules for a Valid Categorical Syllogism |
|---|
| <ol style="list-style-type: none"> 1. There must be three and only three terms—the major, minor, and middle terms. 2. The middle term does not occur in the conclusion. |

²⁴ Malitao, *Essential Logic*, 114.

3. The major or minor term may not be universal (distributed) in the conclusion if it is only particular (undistributed) in the premises.
4. The middle term must be used as a universal (distributed) term at least once.
5. Two negative premises yield no valid conclusion.
6. If both premises are affirmative, then the conclusion must be affirmative.
7. If one premise is negative premise, the conclusion must be negative.
8. If one premise is particular, the conclusion must be particular.
9. From two particular premises no valid conclusion can be drawn.

Meer et al.,²⁵ Jayme,²⁶ and Ceniza²⁷ limit the rules of categorical syllogism to nine. The three show no difference in the rules involved except in the sequence. With very few exceptions, these rules are typically included in all 20 textbooks. Jayme's *Rules for a Valid Categorical Syllogism* typifies those of Meer et al. and Ceniza.

Fronda²⁸ and Tan²⁹ appropriate six rules to evaluate the validity of a categorical syllogism. Fronda's first three rules include: (1) three-term requirement, (2) distribution of the middle term, and (3) distribution of the major and minor terms. His exposition on the fourth, fifth, and sixth rules is rather sketchy as he only presents arguments that he says violate those rules without specifying in detail what these rules are. Tan's (2003) six rules consist of (1) three-term requirement, (2) middle term distribution, (3) distribution of the major and minor terms in the premises and the conclusion, (4) prohibition of two negative premises, (5) negative conclusion from negative premise, and (6) universal conclusion from universal premises.

Tabotabo et al.³⁰ provide for seven rules, which comprise the following: (1) three-terms rule (2) univocal use of each term, (3) middle term not appearing in the conclusion, (4) distribution of the middle term, (5) prohibition of two negative premises, (6) prohibition of two particular premises, and (7) non-extension of major and minor terms in the conclusion. From the selection, Martinez³¹ stipulates the least number of rules—only three. The three include (1) distribution of the middle term, (2) non-extension

²⁵ Thelma Q. Meer, Lou S. Hualda, and Lamberto M. Bamba, *Basics of Logic* (Manila: Trinitas Publishing, 2004), 101-105.

²⁶ Virginia Jayme, *Introduction to Logic* (Cebu: ABC Publications, 2002), 97-104.

²⁷ Claro Ceniza, *Elementary Logic*, 3rd ed. (Manila: De La Salle University Press, 1994), 145-171.

²⁸ Earl Stanley Fronda, *Reason for the Reasonable: An Introduction to Logic and Critical Thinking* (Manila: Rex Bookstore, 2005), 39-46.

²⁹ Armando Tan, *A First Course: Logic* (Dumaguete City: Siliman University Press, 2003), 119-145.

³⁰ Claudio Tabotabo et al, *Introduction to Logic: A Modular Approach* (Quezon City: C & E Publishing, 2008), 90-101. Claudio Tabotabo, Ronan Estoque, and Ronald Corpuz, *Introduction to Logic: A Modular Approach* (Quezon City: C & E Publishing, 2008), 90-101.

³¹ Salvador Martinez, *Logic: A Textbook in Deductive Reasoning*, 2nd ed. (Quezon City: Phoenix Publishing House, 1980), 147-153.

of the major and minor terms in the conclusion, and (3) coherence of the quality (negative) of conclusion with the quality (negative) of the premise. It would be impossible to determine the validity of a categorical syllogism using Martinez's rules alone.

The Problem

The review of selected logic textbooks shows marked disparities and differences among the authors in terms of the number of rules governing valid categorical syllogisms as well as the assignment of rule numbers to rule statements. The crux of the matter is not about some authors having less than enough number of rules, or others having just enough, or still others having more. From the viewpoint of logic, the evident variance and disparities in the presentation are hardly an issue. The rules of validity are not sacrificed. However, from the pedagogical vantage point, the discrepancies pose adverse effects particularly on the part of the learners. This state of affairs not only leads to unnecessary confusion and difficulty but also potentially stifles the learner's ability and opportunity for effective and independent learning.

In a logic class where the professor and students take recourse to different logic textbooks (diversified sources of learning), the professor spends more time and effort trying to reconcile and resolve the aforementioned disparities and the students experience needless confusion and difficulty. The possible effect will be inactive or passive learning as the students tend to rely on the professor's presentation or adopt the professor's text, thereby precluding diverse opportunities and sources of learning.

To address this problem, this paper offers an alternative pedagogical approach to the teaching and learning of the rules of categorical syllogism.

Abbreviations-based Approach to Categorical Syllogism

This approach utilizes specialized abbreviations in the teaching and learning of the rules governing valid categorical syllogisms. As such, the requirement for numerical order and corresponding rule statements is eliminated. To construct these abbreviations, it is first necessary to lay down the rules for categorical syllogism.

As can be gleaned from the review of the selections above, authors generally leave out or lump together distinct rules into one rule statement. Taking into considerations those rules that are left out and those that are lumped together in a single rule statement, a summary of rules for valid categorical syllogisms is thus derived:

- Three-term rule
- Non-appearance of the middle term in the conclusion
- Distribution of the middle term
- Non-extension of the major term in the conclusion
- Non-extension of the minor term in the conclusion
- Affirmative conclusion if premises are affirmative
- No two negative premises
- No two particular premises
- Negative premise yields negative conclusion
- Particular premise yields particular conclusion

Based on the summary of rules, specialized abbreviations are devised. For this purpose, an abbreviation may be an acronym or an initial. Each rule is assigned an acronym or initial. The acronyms or initials are creatively crafted such that they are immediately related to the rule statement. Each acronym or initial is then given a definition or meaning, which is subsequently linked to the full statement of the rule as shown in Table 2. The first column consists of acronyms and initials; the second column stipulates the meaning or definition of each acronym or initial; and the third column reflects the full statement of the rule.

| Acronyms/ Initials | Definition/ Meaning | Rule Statements |
|-------------------------------|--|--|
| TTT | Three and only Three Terms | There must be three and only three terms—the major, middle, and minor terms—in a categorical syllogism, each of which is used twice in exactly the same sense in different statements. |
| NMC | No Middle Term (M) in the Conclusion | The middle term (M) appears once in each premise and must not appear in the conclusion. |
| DEP | Do not Extend the Major Term (P) | The major term (P) must not be distributed (extended) in the conclusion if it is undistributed in the premise. |
| DES | Do not Extend the Minor Term (S) | The minor term (S) must not be distributed (extended) in the conclusion if it is undistributed in the premise. |
| MDO | Middle Term (M) Distributed at least Once | The middle term (M) must be distributed at least once. |
| APAC | Affirmative Premises, Affirmative Conclusion | If both premises are affirmative, the conclusion must also be affirmative. |

| | | |
|-------------|---|--|
| NTNP | No Two Negative Premises | Two negative premises yield no valid conclusion; at least one premise must be affirmative. |
| NPNC | Negative Premise, Negative Conclusion | If either premise is negative, the conclusion must likewise be negative. |
| PPPC | Particular Premise, Particular Conclusion | If either premise is particular, the conclusion must likewise be particular. |
| NTPP | No Two Particular Premises | Two particular premises yield no valid conclusion; at least one premise must be universal. |

Table 2: Acronyms/initials, definition/meaning and rule statements of a categorical syllogism

The order by which the rules are presented is arbitrary. This system does not require any specific numerical sequence nor does it need a rule number and rule statement correspondence. The use of acronyms and initials is pragmatic and efficient so that it greatly reduces the time, space, and effort required in teaching and learning. Thus, instead of stating rule # 5 “The middle terms must be distributed at least once,” all the professor and the learner need is to refer to **MDO** which stands for “Middle term **M** Distributed at least **O**nce.” Moreover, in terms of committing the rules to memory, the learner need not memorize the rule numbers and their corresponding rule statements. Instead, he/she needs only to memorize ten acronyms or initials which already contain ideas of the rules in them.

This approach makes teaching and learning categorical syllogisms simple, fast, and easy. Moreover, this approach serves as a platform that renders all the disparities in the aforementioned logic textbooks intelligible. With minimal time and effort, the students are able to master the rules faster and easier. If students engage this approach first, they are expected to comprehend varied presentations of the rules of categorical syllogisms without unnecessary difficulty and confusion. Students who use different logic textbooks can easily relate to the abbreviations and find a new and pragmatic way of learning.

A sample learning assessment practice on categorical syllogisms is presented in Table 3. This exercise calls for an application of the abbreviations-based approach. This is to show that the approach makes learning simple, fast, and easy.

| DIRECTIONS: Evaluate each of the following arguments. Write "V" if the argument is valid; if the argument is invalid, write "I" and indicate the abbreviation of each rule violated. | | |
|---|-------------------------|--|
| CATEGORICAL SYLLOGISMS | Valid or Invalid | RULES VIOLATED [TTT, NMC, DEP, DES, MDO, APAC, NTNP, NPNC, PPPC, NTPP] |
| 1. Animals are mammals. Horses are mammals. Therefore, horses are animals. | Invalid | MDO, PPPC |
| 2. Butterflies are trees. Stones are butterflies. Therefore, stones are trees. | Valid | |
| 3. Filipinos are not friendly. Italians are not friendly. Therefore, Italians are not Filipinos. | Invalid | DEP, DES, NTNP, NTPP, PPPC |
| 4. No thieves are honest. Some professionals are honest. So, some professionals are not thieves. | Valid | |
| 5. Some celebrities are athletes. All NBA players are athletes. Therefore, all NBA players are celebrities. | Invalid | MDO, PPPC |

Table 3: Learning Assessment on Categorical Syllogism

Syllogism # 1. The statement "Animals are mammals" does not have a subject term quantifier but analysis shows that the statement is particular (I) since only some but not all animals are mammals. Since this premise is particular, the PPPC (Particular Premise, Particular Conclusion) rule applies. Since the conclusion is a universal statement, the PPPC rule is violated. Moreover, the middle term "mammals" is undistributed in both premises, hence, a violation of MDO (Middle term Distributed at least Once). Ergo, the argument is invalid.

Syllogism # 2. The premise "Butterflies are trees" does not have a subject term quantifier, but it is obvious that it is a universal affirmative (A). It is false to say that all butterflies are trees. In fact, all butterflies are not trees. Hence, the subject term must be taken as a universal since it includes the entire class of butterflies. The same analysis applies to the statements "Stones are butterflies" and "Therefore, stones are trees." The mood and figure of the argument is AAA1 and it is a valid form of argument.

Syllogism # 3. The quantity of the term "Filipinos" in the premise is particular because it is logical to presume that only some Filipinos are not friendly. To view it as a universal is logically difficult since it demands proof that all Filipinos are not friendly. However, the quantity of the term

“Filipinos” in the conclusion is universal by virtue of a negative quality of the copula. Thus, the **DEP** (Do not Extend the Major Term “P”) rule is violated. The same case applies to the quantity of the minor term “Italians.” So, the **DES** (Do not Extend the Minor Term “S”) rule is also violated. Moreover, both premises are negative and particular so that the **NTNP** (No Two Negative Premises) and **NTPP** (No Two Particular Premises) rules are also violated. Lastly, since the conclusion is a universal statement, the **PPPC** (Particular Premise, Particular Conclusion) rule is likewise violated. Hence, the argument is flawed.

Syllogism # 4. The syllogistic form is (EIO2). This is a valid argument.

Syllogism # 5. The middle term “athletes” is undistributed in both premises and thus violates the **MDO** rule. Also, since one of the premises is particular, the conclusion, which is a universal, violates the **PPPC** rule.

As shown above, the use of acronyms or initials, wherein meanings directly denote the essence of the rules, is an efficient and effective way of evaluating categorical syllogisms. Moreover, the differences in presentation of the rules of categorical syllogisms by different authors are reconciled, thus, effectively dispelling unnecessary confusion and difficulty.

Conclusion

The selection of logic textbooks shows evident discrepancies and disparities in the stipulation of the number of rules as well as in the assignment of rule numbers to corresponding rule statements. This situation creates adverse pedagogical effects in both teaching and learning the rules for valid categorical syllogism. Moreover, this problem stifles the students’ ability and opportunity for effective and independent learning using diversified learning resources. With the adoption of the abbreviations-based approach, the need for rule numbers and corresponding rule statements is eliminated. Moreover, the approach not only significantly reduces the time, space, and effort requirements in teaching and learning the rules governing valid categorical syllogism, but also serves as a platform whereby the aforementioned inconsistencies are resolved and rendered intelligible. Hence, the abbreviations-based approach is pragmatic, efficient, and effective.

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