Abstract: This paper will consider the underlying Stoic logic in Aphthonius' Refutation and Confirmation Stages, in particular under the Heads of Purpose of Clarity and Propriety. An applicable pedagogy for use in teaching the invention of enthymemes will be suggested. The paper will first consider Aphthonius' use of enthymemes in his two models and then suggest an effective method for inventing enthymemes with the use of the five indemonstrables of Stoic logic.

In the second half of the fourth century (Kennedy, p. xii) Aphthonius wrote,

> *Refutation* is the overturning of some given fact. One should use refutation not on things that are perfectly obvious, nor on those that are completely impossible, but on intermediate matters.
>
> Those engaged in refutation must first discredit those who make the assertion, then add an exposition of the matter, and use the following heads: unclarity, implausibility, and in addition impossibility, inconsistency, impropriety; and adduce finally inexpediency.
>
> This preliminary exercise includes within itself the whole force of the art. (Aphthonius)

For the next fifteen hundred years these brief words of instructions and a model exercise (in translation seven hundred words for the refutation and five hundred twenty-three words for the confirmation exercise) were the basis for laying a foundation of compositional argumentation, or the expressing of enthymemes, for generation after generation of students stretching into our own times.

Aphthonius places these cryptic instructions upon a common body of Logical and Rhetorical skills. The five indemonstrables of Stoic logic may have been a part of such a working knowledge that might have served to facilitate the mental process of using the Heads of Purpose. These indemonstrables are as follows (Mates, 2014):

1st indemonstrable p>q; p; therefore q

If it is day, it is light.

It is day.

Therefore, it is light.

2nd indemonstrable p>q; ~q; therefore ~p

If it is day, it is light

Not: it is light.

Therefore not: it is day.

3rd indemonstrable ~(p ^ q); p; therefore ~q

Not both Plato is dead and Plato is alive.

Plato is dead.

There not: Plato is alive.

4th indemonstrable   p⊕q; p; therefore ~q
Either it is day or it is night.

It is day.

Therefore not: it is night

5th indemonstrable P⊕q; ~p; therefore q
Either it is day or it is night

Not: it is day

Therefore it is night.

This paper will not deal with the question how wide spread knowledge of the five

indemonstrables might have been among teachers using Aphthonius' exercises from the fourth

century on. One can certainly use alternative approaches to analyzing the models; either more

complex logical approaches or simpler syntactical rubrics. The focus of this article is in the

pragmatic training of students to internalize the art of Invention through mastery of the Heads

of Purpose. Such training requires a balance between complexity and simplicity. Too complex

and students can become overwhelmed in the detail. Too simple and students can get lost in the chaos.

Catching glimpses of a possible rhetorical foundation shared through a literate culture may help to identify underlying assumptions necessary to a fuller understanding of this text. Further, an understanding of logical structures allows greater success in using Aphthonius' exercises in contemporary classrooms. Not only can the five indemonstrables be used to analyze Aphthonius' Refutation and Confirmation models but they may provide an efficient and effective pedagogy for internalizing the quality of Invention. Such a pedagogy must train students how to move from a particular [Case {Bloomquist qtd in (Porter, pp. 61-96)}] by juxtaposing the particular with a shared general truth or Head of Purpose [Rule] in order to achieve either a refutation or confirmation of the particular [Result]. The inventing of arguments is a function of innate skills but through proper training students can internalize the discrete skills of an art and make them innate.

Before presenting an analysis of the models it may be helpful to briefly touch on the other Progymnasmata authors, Theon, Pseudo-Hermogenes, Nicholas and Libanius. When Theon discusses the refutation and confirmation of Fables he states, "Epicheiremes[1] should be taken from the following topics…" (Kennedy, p. 26)   He then lists eleven topics and goes on to define their parameters. He does not give examples for Fables but I believe it is important to point out that he is expecting that students will discover arguments within these various "places" and that the indemonstrable arguments can be used to discover an epicheirema from the given topoi. Under Narrative Theon adds to the topics

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[1] Cicero, *De Inventione* (Book 1, chapters 24-41) discuss five part Epicheiremes which include, Claim, Reason, Proof of Reason, Embellishment, Restatement of Claim. Cicero observes that any of these five parts may be deleted or expanded as needed.

mentioned for Fable what he calls the "elements" of person, action, place, time, manner, and cause (Kennedy, p. 41). He then does gives an example enthymeme for each element under the topic of the incredible. Each of these enthymemes or arguments can be expressed in the form of an indemonstrable.

For example, from Person, Theon argues that "it is incredible that a mother would harm her children." (Kennedy, p. 41)

This enthymeme (Rule is suppressed) could be analyzed using Mode 2 [p>q, ~q, therefore ~p] as follows:

Rule from Person: Mothers (p) protect their children (q).

Case: Medea (p) cuts the throats of her children ~(q).

Result: It is incredible that a mother would harm her children ~(p).

In each of the six elements Theon uses arguments of 2 or 3 parts that may be analyzed by the indemonstrables.

In the *Preliminary Exercises* attributed to Hermogenes the refutation and confirmation exercises are extremely concise. The exercises state the six heads, followed by a single statement of conclusion or Result. Each could again be constructed using Stoic logic.

Nicholas and Libanius provides the least instruction around the teaching of argumentation, limiting himself to a broader discussion of the division and use of refutation and confirmation, and so does not help us here.

Turning to Aphthonius, the analysis of the two models for Refutation and Confirmation included two steps. The first was to examine each argument using the framework of Rule/Case/Result. We used these expression rather than Major Premise, Minor Premise, and Conclusion because they are more intuitive and less intimidating for 7th and 8th graders. Aphthonius' arguments with only one or two possibly exceptions, in which he appears to elaborate through paraphrase, may be expressed as Rule/Case/Result. In some of his arguments one or more elements are suppressed while in others all three elements are expressed.

The second step was to determine if each argument could be expressed as one of the five indemonstrables.

My analysis of the refutation model found a total of 13 arguments; 6 of the 2nd mode, 6 of the 3rd mode, and 1 of the 4th mode. The confirmation model contains 11 arguments; 9 of the 1st, 1 of the 2nd, and one of the 5th. The predominance of the second and third modes for refutation align with the purpose of the exercise which is to deny a particular. The reason for the paucity of the fourth and fifth modes in the models remains a question for further study. The predominance of the 1st mode in confirmation makes sense as one is asserting a particular which is the end of confirmation although denying a particular is used twice in the model.

This presentation will limit its analysis to the Heads of Purpose of Unclarity/Clarity and Impropriety/Propriety in the Refutation and Confirmation models. The indemonstrables will be referred to as "modes" going forward.

His Refutation model begins with a discredit and then a brief exposition of the story.

Refutation: the story of Daphne is improbable

It is pointless to contradict the poets, but they themselves provoke us to contradict them by first inventing such stories about the gods. Is it not absurd that they should have had no respect for the gods, while we have respect for the poets? For my part, I am pained when any of the gods is treated with contempt, but especially Apollo, whom they themselves have made the patron of their own art; for such are the tales they have told about Apollo's Daphne.

Daphne, they say, was the offspring of Earth and Ladon, and excelling others in beauty she made the Pythian her lover. Loving her, he pursued her; pursuing her, he did not catch her, but Earth received her daughter and gave forth a flower bearing the same name as the maiden. He crowned himself with her in her new form, and the plant is displayed as a crown at the Pythian tripod because of his desire for the mortal maiden, and the shoot is made a token of his art. Such are the tales they tell; it is easy to put them to the test as follows. (Aphthonius)

He then begins with the head of **Unclarity** which includes four enthymemes.

Daphne was the offspring of Earth and Ladon: what proof does she have of her birth? She was human; theirs is a different nature. How did Ladon have intercourse with Earth? Flooding her with his waters? Then all rivers can be called Earth's husbands, since all flood her. And if a human came forth from a river, then a river can come from humans; for descendants disclose their ancestry. What do they call a marriage of river and earth? A wedding is for sentient beings, of whom the earth is not one. So either Daphne must be classed among streams or Ladon must be reckoned a man. (Aphthonius)

1. *Daphne was the offspring of Earth and Ladon: what proof does she have of her birth? She was human(p); theirs is a different nature(q).*

Rule: Children (p) have the same nature as their parents (q) (suppressed)

Case: She was human, theirs is a different nature. ~(q)

Result: Daphne was not the offspring of Earth and Laden. ~(p)

Logic: 2nd **p>q; ~q; therefore ~p;**

2. *How did Ladon have intercourse with Earth? Flooding her with his waters? Then all rivers can be called Earth's husbands, since all flood her.*

Counter: *How did Ladon have intercourse with Earth? Flooding her with his waters?*

Clarity Rule: Wives do not have many husbands (p) and one husbands (q). [suppressed]

Case: All rivers are Earth's husbands through flooding. (p)

Result: Ladon is not Earth's husband through flooding. ~(q) [Suppressed]

Logic: 3rd **~(p^q), p; ~q**

3. And if a human came forth from a river, then a river can come from humans; for descendants disclose their ancestry.

Clarity Rule—descendants (p) disclose their ancestry (q)

Case—if a human came forth from a river (p) then a river can come from humans (q).

Result—Rivers do not come from humans (~q) therefore Daphne does not come from Ladon (~p) Repressed

Logic: Rule 2nd **p>q; ~q; therefore ~p;**

4. *What do they call a marriage of river and earth? A wedding is for sentient beings, of whom the earth is not one.*

Clarity Rule--*A wedding (p) is for sentient beings (q)*

Case-- *of whom the earth is not one ~(q)*

Result— No marriage between river and earth (~p). (As interrogative)

Logic: Rule 2nd **p>q; ~q; therefore ~p;**

[Conclusive dilemma summary]

So either Daphne must be classed among streams or Ladon must be reckoned a man. [Neither of which is true from the narrative]

Confirmation--Clarity

Daphne, he says, was the offspring of Earth and Ladon. What, in heaven's name, is incredible in this? Are not water and earth the origin of all things? Are not the elements the seed of life?

Then if everything which exists comes of earth and water, Daphne confirms the common stock of all, being the offspring of Earth and Ladon. (Aphthonius)

Clarity Rule: water and earth are the origin of all things (p). (**Paraphrase)** The elements are the seed of life. (p) Then everything which exists comes of earth and water. (q)

Case: Daphne was the offspring of Earth and Ladon. (p) [i.e., Earth and Ladon produced Daphne (p)].

 Result: Daphne confirms the common stock of all. (q)

Logic: **1ˢᵗ indemonstrable p>q; p; therefore q**

Impropriety

Why did Earth act in conflict with her own deeds? She displeased the Pythian by saving her daughter; did she then try to please him by bringing her back? She should not have tried to please if she wanted to displease. (Aphthonius)

Rule: Integrity does not allow one to both please and displease.

Case: She displeased the Pythian by saving her daughter and tried to please him by bringing her back;

Result: Earth acted in conflict with her own deeds. She should not have tried to please if she wanted to displease.

Logic: [**3ʳᵈ indemonstrable ~(p ^ q); p; therefore ~q**] Not both displease and please.

Propriety

When the girl fled, her mother received her. For this is the nature of all mortal creatures: whence they come forth, thither they hasten to return. Wherefore Daphne goes to Earth, having come forth from the earth. (Aphthonius)

Rule: For this is the nature of all mortal creatures: whence they come forth, thither they hasten to return.

Case: When the girl fled, her mother received her.

Result: Wherefore Daphne goes to Earth, having come forth from the earth.

Logic: **1ˢᵗ indemonstrable p>q; p; therefore q**

This article suggests that there is a common body of Logical and Rhetorical skills upon which Aphthonius places the cryptic instructions of his progymnasmata exercises. The five indemonstrables of Stoic logic may have been a part of such a working knowledge, common among teachers using Aphthonius. The attractiveness of the indemonstrables lay in providing a logic structure that is easy to use as one masters or internalizes the difficult skills of Invention through mastery of the Heads of Purpose. Aphthonius' explicit instructions for his exercises are notoriously cryptic. Catching a glimpse of what may have been shared rhetorical assumptions may lead to a fuller understanding and use of Aphthonius' exercises in contemporary classrooms. Certainly the indemonstrables provide a more efficient and effective pedagogy for internalizing the quality of Invention being taught in the Refutation and Confirmation stages. The success we have had over the last fifteen years using Aphthonius in contemporary elementary and secondary classrooms demonstrates changing contemporary assumptions about language can have positive effects.

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