

# Propositional Logic, Truth Tables, and Epicurus' Objection to "Dialectic"

Post by "Cassius" of October 6, 2021 at 3:57 PM

In looking up Chrysippus this afternoon I see that there is [material on Wikipedia](#) relevant to this discussion:

## Syllogistic [ edit ]

Chrysippus developed a syllogistic or system of deduction in which he made use of five types of basic arguments or [argument forms](#) called indemonstrable syllogisms, which played the role of axioms, and four [inference rules](#), called *themata* by means of which complex syllogisms could be reduced to these axioms.<sup>[34]</sup> The forms of the five indemonstrables were:<sup>[35]</sup>

Name <sup>[36]</sup>	Description	Example
Modus ponens	If A, then B. A. Therefore, B.	<i>If it is day, it is light. It is day. Therefore, it is light.</i>
Modus tollens	If A, then B. Not B. Therefore, not A.	<i>If it is day, it is light. It is not light. Therefore, it is not day.</i>
Modus ponendo tollens	i Not both A and B. A. Therefore, not B.	<i>It is not both day and night. It is day. Therefore, it is not night.</i>
	ii Either A or B. A. Therefore, not B.	<i>It is either day or night. It is day. Therefore, it is not night.</i>
Modus tollendo ponens	Either A or B. Not A. Therefore, B.	<i>It is either day or night. It is not day. Therefore, it is night.</i>

Of the four inference rules, only two survived. One, the so-called first *thema*, was a rule of antilogism. The other, the third *thema*, was a cut rule by which chain syllogisms could be reduced to simple syllogisms.<sup>[37]</sup> The purpose of Stoic syllogistic was not merely to create a formal system. It was also understood as the study of the operations of reason, the divine reason (*logos*) which governs the [universe](#), of which human beings are a part.<sup>[38]</sup> The goal was to find valid rules of inference and forms of proof to help people find their way in life.<sup>[25]</sup>

## Other logical work [ edit ]

Chrysippus analyzed speech and the handling of names and terms.<sup>[17]</sup> He also devoted much effort in refuting fallacies and paradoxes.<sup>[17]</sup> According to Diogenes Laërtius, Chrysippus wrote twelve works in 23 books on the [Liar paradox](#); seven works in 17 books on [amphiboly](#); and another nine works in 26 books on other conundrums.<sup>[39]</sup> In all, 28 works or 66 books were given over to puzzles or paradoxes.<sup>[39]</sup> Chrysippus is the first Stoic for whom the third of the four [Stoic categories](#), i.e. the category *somehow disposed* is attested.<sup>[40]</sup> In the surviving evidence, Chrysippus frequently makes use of the categories of *substance* and *quality*, but makes little use of the other two Stoic categories (*somehow disposed* and *somehow disposed in relation to something*).<sup>[41]</sup> It is not clear whether the categories had any special significance for Chrysippus, and a clear doctrine of categories may be the work of later Stoics.<sup>[41]</sup>

This below is not immediately relevant, but a good reminder for anyone who isn't aware of it and how it plays into Chryssipus' thinking:

## **On Passions** [ edit ]

*Main article: On Passions*

The Stoics sought to be free of the unruly emotions, which they regarded as being contrary to nature. The passions or emotions (*pathe*) are the disturbing element in right judgment.<sup>[93]</sup> Chrysippus wrote a whole book, *On Passions* (Greek: Περὶ παθῶν), concerning the therapy of the emotions.<sup>[96]</sup> The passions are like diseases which depress and crush the soul, thus he sought to eradicate them (*apatheia*).<sup>[96]</sup> Wrong judgements turn into passions when they gather an impetus of their own, just as, when one has started running, it is difficult to stop.<sup>[97]</sup> One cannot hope to eradicate the emotions when one is in the heat of love or anger; this can only be done when one is calm.<sup>[98]</sup> Therefore, one should prepare in advance, and deal with the emotions in the mind as if they were present.<sup>[99]</sup> By applying reason to emotions such as greed, pride, or lust, one can understand the harm which they cause.<sup>[99]</sup>