Refutation of the Euathlus paradox: neither pay

Using the Meth8/VŁ4 logic model checker for judicial decision

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To refute the Euathlus paradox where *neither* pay, we evaluate this paper:


using en.wikipedia.org/wiki/Paradox_of_the_Court .

We assume the apparatus and method of the modal model logic checker named Meth8/VŁ4, with the designated *proof* value of $\top$, and use four variables.

LET $p, q, r, s$: pupil Euathlus; instructor Protagoras; court judgment; tuition payment

"The famous sophist Protagoras took on a pupil, Euathlus, on the understanding that the student will pay Protagoras for his instruction after he wins his first court case." (1.1)

$$(q\&p) > ((p\&r) > (p > (q\&s))) ; \text{T T T T F T F T T T T T T T T T}$$ (1.2)

Eq. 1.2 as rendered is *not* tautologous, but nearly so with one value $F$ of 16 diverging from the tautology of all $T$’s.

**Remark 1.** The instructor's assumption is that the pupil will win the necessity of his first court case, but no contingency is made for the event that the pupil possibly does not continue onto perform in any court. For example, there is no contingency for if the pupil became a lawyer but acted as a solicitor and not a barrister, then the litigious status of the pupil could never be tested before a court.

**Remark 2.** The rule of law in the West is that when an experienced lawyer as contractor, Protagoras, frames an agreement with a lesser experienced non-lawyer as contractee, Euathlus, then the contractor is held to a higher level of performance and closer reading of the agreement than is the contractee.

**Remark 3.** On the basis of no contingency arrangement for the contractee not to perform, the court would hold for a defective contract and disallow any claim by Protagoras. Should Euathlus counter-claim for lawyer's fees, the court would probably grant that motion on the basis of a frivolous lawsuit claim by Protagoras in the first place. In other words, Protagoras would lose in either scenario, that is, not obtain relief for instructing the pupil, and liable for the pupil's legal expenses in that event.

"After instruction, Euathlus decided not to enter the profession of law, (2.1.1)

and [then] Protagoras decided to sue Euathlus for the amount owed." (2.2.1)

$$(q\&p) > ((p\&r) > (p > (q\&s))) > (~ (p\&r) > ~ (p > (q\&s))) ; \text{F T F T F T F F F T F F T F T}$$ (2.1.2)
Eqs. 2.2.1 and 2.2.2 are not tautologous, therefore that chain of events is suspicious.

Remark 4. The metaphysical question of "Was Euathlus morally wrong in not paying Protagoras for services rendered, regardless of outcome" can now be cast onto a physicalistic basis in this way. The proof tables for performance by Protagoras in Eq. 1.2 and for non-performance by Euathlus in Eq. 2.1.2 are contrasted:

\[
((q\&p) > ((p\&r) > (p > (q\&s)))) > (p > (q\&s))) > (q\&r) > (p > (q\&s))) ;
\]

\[
TTTT \ TTT \ TTT \ TTTT \ TTT \ TTT \ TTTT \ (1.2)
\]

\[
(((q\&p) > ((p\&r) > (p > (q\&s)))) > (p > (q\&s))) > (q\&r) > (p > (q\&s))) ;
\]

\[
TTTF \ FTTF \ FTFF \ FTFF \ (2.1.2)
\]

Eq. 2.1.2 diverges more from tautology than does Eq. 1.2. This means a physicalistic basis if mapped for moral theology as a recent advance. In other words, Euathlus failed to do the right thing by withholding payment in any event, so as not to violate the intended spirit of the albeit defective contract.

"Protagoras argued that if he won the case he would be paid his money."
[In other words, if Eq. 2.2.1, then the Protagoras lawsuit obtains payment.] (3.1.1)

\[
(((q\&p) > ((p\&r) > (p > (q\&s)))) > (p > (q\&s))) > (q\&r) > (p > (q\&s))) ;
\]

\[
TTTT \ TTTF \ TTTT \ TTTT \ (3.1.2)
\]

"If Euathlus won the case, Protagoras would still be paid according to the original contract, because Euathlus would have won his first first case."
[In other words, if not Eq. 3.1 then 1.1.] (3.2.1)

\[
~(((q\&p) > ((p\&r) > (p > (q\&s)))) > (p > (q\&s))) > (q\&r) > (p > (q\&s))) ;
\]

\[
TTTT \ TTTT \ TTTT \ TTTT \ (3.2.2)
\]

Eqs. 3.1.2 and 3.2.2 are not equivalent and not tautologous

"Euathlus, however, claimed that if he won, then by the court's decision he would not have to pay Protagoras."
[In other words, if not Eq. 3.1.1 or not 3.2.1, then not 1.1.] (4.1.1)

\[
~(((q\&p) > ((p\&r) > (p > (q\&s)))) > (p > (q\&s))) > (q\&r) > (p > (q\&s))) +
\]

\[
~(((q\&p) > ((p\&r) > (p > (q\&s)))) > (p > (q\&s))) > (q\&r) > (p > (q\&s))) >
\]

\[
~((q\&p) > ((p\&r) > (p > (q\&s)))) ;
\]

\[
TTTT \ TTTT \ TTTT \ TTTT \ (4.1.2)
\]

"If, on the other hand, Protagoras won, then Euathlus would still not have won a case and would therefore not be obliged to pay."
[In other words, if Eq. 3.2.1 or 3.2.2, then not 3.1] (4.2.1)
Eqs. 4.1.2 and 4.2.2 are not equivalent and not tautologous. In fact 4.2.2 is nearly contradictory. This means regardless of who wins the lawsuit of Protagoras, Euathlus does not pay. Hence the Euathlus paradox is refuted and resolved by default in favor of Euathlus.