Paul's Mars Hill Arguement.

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Acts 17.

This article shows how to translate Paul's Acts 17 statements into classical logic via symbolic-logic. Then a set of 8 symbols is used to show that these statements form a consistent set of hypotheses.

The simplest symbolic approach is a first-order language with constants and equality =. Paul is considering the set of all Greek god's including the unknown god. Paul argues that the Biblical God is the unknown god. "Now what you worship as something unknown, I am going to proclaim to you." (NIV) This unknown god would be unique due to the singular form. Let G be a constant representing the unknown god. Consider the predicates $P(\_\_) =$ "__ is a known god," $C(\_\_,\_\_) =$ "__ created __." $W(\_\_) =$ "__ in the world", $LE(\_\_) =$ "__ is the Lord of heaven and earth." $H(\_\_) =$ "__ (is) a human being," $LT(\_\_,\_\_) =$ "__ does not live in temples built by __" and a few more.

For classical logic, the following hypotheses are considered. Notice that when an expression is formalized then the statement is independent from the interpretative meanings. Logical deduction and concepts associated with it are independent from specific meanings given to the symbols. However, to justify the intended interpretation, each of the sets or binary relations are identified with an interpretation.

(1) For each x, if P(x) (x is a known god), then $x \neq G$.

Note: In all that follows, the formal symbols have the following informal interpretations. $\forall$ = for each, $\exists$ = there exists, $\wedge$ = and, $\neg$ = not, $\_\_ \to \_\_$ = If__, then __. Further, I have simplified some of the formal expression by removing a few of the parentheses via the notion of strengths of connectives. The expressions are easily translated.

(1a) $\forall x(P(x) \to \neg(x = G))$

(2) There exists an x such that P(x).

(2a) $\exists x(P(x))$.

Then G is characterized. Various translations of the Greek for verse 17:24 have slightly different forms. Let $W' =$ world and $W(\_\_) =$ "__ in the world."

(3) $C(G, W')$.

(4) For each x , if W(x), then C(G,x).

(4a) $\forall x(W(x) \to C(G, x))$.

There exists an x such that W(x).

(4b) $\exists x(W(x))$.

(5) The (unknown) God is Lord of heaven and earth.

(5a) $LE(G)$.

[Note: In what follows, I have not excluded Adam and, if necessary Eve, from the statements that apply the all human beings. If one concludes that Adam or Eve should be excluded, then each statement that excludes Adam or Eve can be written such as in (8), where these individuals are represented by distinct constants A and E. In what follows for a valid model, it is not, as yet, necessary to add E (Eve) to the set H.]

The Living Bible states and most others imply, that

(6) If God is Lord of heaven and earth, then, (it is self-evident that) for each x, if H(x), then LT(G,x).

(6a) $LE(G) \to \forall x(H(x) \to LT(G,x))$.

The good way to express (6) is as an implication. Using one of the two basic rules for deduction (modus ponens or rule of detachment), (5a) and (6a) yields $\forall x(H(x) \to LT(G,x))$. But there appears to be no way to assert that the conditional (6) is true unless there is some self-evident requirement that such a God is somehow too "great" - too "powerful" - to be so confined. If this is not the case, then as some of Paul's audience indicate, (6) is but a declaration characterizing this "foreign god" and is to be accepted. The same must hold for hypotheses such as (5).

(7) One continues to characterize G in this fashion. Let NS(__,__) = "__ is not served by __ hands." (7a) $\forall x(H(x) \to NS(G,x))$.

Let GLBE(__,__) = "__ gives life, breath and everything to __." However, this is unnecessary since it is included in (4).

(8) Let D(__,__) = "__ is a descendent of __." Since Adam is a unique man, then the constant A can be used for him. Then we have that for each x, such that H(x) and x not equal to A, D(x,A). [Note that it is assumed that Eve is the first descendent of Adam since Adam is the first created human being. If one wants to slightly adjust Paul's statement, then all other human beings could be descendents of Adam and Eve.]

(8a) $\forall x((H(x) \land \neg(x = A)) \to D(x,A))$.

Let SK(__,__) = "__ seeks __". This gives

(9) For each x, if H(x), then SK(x,G). [Note: This assumes that Adam seeks God. If Paul is restricting his remark to other individuals not Adam, then (9) would read - For each x, if H(x) and x not = Adam, then SK(x,G). Eve could also be excluded if necessary.]

(9a) $\forall x(H(x) \to SK(x,G))$.

Let B(__,__) be "__ lives and has its being in __."

(10) For each x, if H(x), then B(x,G).

(10a) $\forall x(H(x) \rightarrow B(x, G))$.

Let CG(__, __) = "__ is a child of __.

(11) For each x, if H(x) and B(x,G), then CH(x,G).

(11a) $\forall x((H(x) \wedge B(x, G)) \rightarrow CH(x, G))$.

Let IM(__,__) = "__ is not a being like gold and silver or stone - an image made by __'s design and skill."

(12) If for each x, such that H(x) and CG(x,G), then (it is self-evident that) IM(G,x).

(12a) $\forall x((H(x) \wedge CHGx, G)) \rightarrow IM(G, x)$.

Notice that assuming that (10), (11) and (12) hold and R is a human being, then from (10a), B(R,G) is deduced. From (11a), CH(R,G) is deduced. From (12a), IM(G,R) is deduced. Then B(R,G), CH(RG) and IM(G,R) hold in any model for these hypotheses. This is actually what Paul does to obtain IM(RG) with his use of "we" in 17:28-29.

Formally, we have the hypotheses

(1a) $\forall x(P(x) \rightarrow \neg(x = G))$

(2a) $\exists x(P(x))$.

(3) $C(G, W')$

(4a) $\forall x(W(x) \rightarrow C(G, x))$.

(4b) $\exists x(W(x))$.

(5a) $LE(G)$.

(6a) $LE(G) \rightarrow \forall x(H(x) \rightarrow LT(G, x))$.

(7a) $\forall x(H(x) \rightarrow NS(G, x)$.

(8a) $\forall x((H(x) \wedge \neg(x = A)) \rightarrow D(x, A))$.

(9a) $\forall x(H(x) \rightarrow SK(x, G)$.

(10a) $\forall x(H(x) \rightarrow B(x, G))$.

(11a) $\forall x(H(x) \wedge B(x, G) \rightarrow CG(x, G))$.

(12a) $\forall x(H(x) \wedge CG(x, G) \rightarrow IM(G, x)$.

(The number of these hypotheses can be reduced by making some of the formal statements somewhat more complex.)

It is the use of these symbolic forms that shows that logical patterns are independent from assigning specific meanings to the symbols. Any appropriate meanings for these predicates can be employed even those that, from other

considerations, are accepted as absurd and, from what follows, any logical arguments remain valid.

It is not difficult to construct a model for these 12 formal statements. Many of these predicates do not include the requirement that the appropriate modeled relations be disjoint. But it is self-evident that the sets that correspond to $P,\ H$ are disjoint. Moreover, it is useful to consider other binary predicates as corresponding to distinct objects although, unless stated or implied, this is not a modeling requirement.

Let the domain $\mathcal{D} = \{a, b, c, d, e, W', G, A\}$.

Let $(i) = P = \{a\}$, $(ii)H \ = \{b, A\} = W$, $(iii)\ LE = \{G\}$. [Note: As mentioned above, if one adjusts Paul's statement slightly, then Eve would be included in H as a constant.]

The subsets of $\mathcal{D}$, (i) satisfies (1a) and (2a) and (ii) satisfies (4b) and (iii) satisfies (5a).

Let $(iv)\ C = \{(G, b), (G, A), (G, W')\}$. [Note: When Paul states that God made everything in the world, does this include all the things that man has made such as the images and temples? I don't think that Paul would contend that God "made" these although God would necessarily sustain them.] So, that distinctly different "meanings" be accorded the NS, IM and LT, let $(v) \ = NS = \{(G, b), (G, A), (G, c)\}$ and $(vi) = IM = \{(G, b), (G, A), (G, d)\}$ and $(vii) \ = LT = \{(G, b), (G, A), (G, e)\}$.

The sets (ii), (iv) satisfy (4a); (iv) satisfies (3); (iii) satisfies (5a); (ii), (iii), (vii) satisfy (6a); (ii), (v) satisfy (7a).

Let $(viii) = D = \{(b, A)\}$.

Then (ii), $(viii)$ satisfy (8a).

Let $(ix) \ = SK = \{(b, G), (A, G)\}$, $(x) \ = B = \{(b, G), (A, G), (c, G)\}$ and $(xi) \ = CG = \{(b, G), (A, G), (d, G)\}$.

The sets (ii), (ix) satisfy (9a) (Assuming that Adam seeks God in sense of Paul's statement. If not, then this can be modified with $\neg(x = A)$.); (ii), (x) satisfy (10a); (ii), (x), (xi) satisfy (11a); (ii), (vi), (xi) satisfy (12a).

In what follows, the 12 hypotheses are list along with the sets that model each predicate.

(1a) $\forall x(P(x)(i) \to \neg(x = G))$

(2a) $\exists x(P(x)(i))$.

(3) $C(G, W')(iv)$

(4a) $\forall x(W(x)(ii) \to C(G, x)(iv))$.

(4b) $\exists x(W(x)(ii))$.

(5a) $LE(G)(iii)$.

(6a) $LE(G)(iii) \to \forall x(H(x)(ii) \to LT(G,x)(vii))$.

(7a) $\forall x(H(x)(ii) \to NS(G,x))(v)$.

(8a) $\forall x((H(x)(ii) \wedge \neg(x = A)) \to D(x,A)(viii))$.

(9a) $\forall x(H(x)(ii) \to SK(x,G)(ix)$.

(10a) $\forall x(H(x)(ii) \to B(x,G)(x))$.

(11a) $\forall x(H(x)(ii) \wedge B(x,G)((x) \to CG(x,G)(xi))$.

(12a) $\forall x(H(x)(ii) \wedge CG(x,G)(xi) \to IM(G,x)(vi))$.

Using the model theory result that a set of such hypotheses is consistent if and only if it has a model, then this set of twelve hypotheses forms a consistent set. Hence, no common-logic contradictions can arise from using these hypotheses and properly argued deductions also hold in any model for the hypotheses. The model allows for additional hypotheses such as "There exists human beings that are different than Adam."