906

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"The Contradiction"

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The axiom of reducibility is:-

$$\vdash :. (\exists f) : \chi x . \equiv_x . f!x ,$$

where $\chi$ is any function & $f!$ is a matrix.

Let $\psi!\hat{p}$ be any matrix of any given type, which takes first-order prop: as arguments.

Let $F(\hat{\psi})$ be a function, which takes for arguments matrices of the type of $\psi!\hat{p}$, and of which the value for argument $\psi$ is given by:-

$$F(\psi!\hat{p}) . = . (\exists p) . \psi!p$$

Substitute $F$ for $\chi$ & $\psi$ for $x$ in the axiom of reducibility;

then, $$\vdash :. (\exists f) : F(\psi!\hat{p}) . \equiv_{\psi} . f!\psi!\hat{p} .$$

Write $F_1$ for ~~any~~ some one of ~~f~~ the matrices $f!$, so that:-

$$\vdash : F(\psi!\hat{p}) . \equiv_{\psi} . F_1!\psi!\hat{p} \qquad \text{(i)}.$$

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~~[illegible]~~

Write:- $\chi!p . = .$ 'I affirm $p$' [that is, $\chi!p =$ 'I am affirming $p$']

where 'affirm' is used in the sense appropriate to first order prop:

Write ~~[illegible]~~:- $\psi!p . =: \chi!p . \sim p$

~~It follows from~~

Write:- $P . = . F_1!\psi!\hat{p}$, where $F_1$ is the function occurring in (i).

It follows from (i) & the definition of $F$, that:-

$$\vdash :. P . \equiv : (\exists p) : \chi!p . \sim p \qquad \text{(ii)}.$$

Further, since $F_1$ & $\psi$ are both matrices, $P$ is a first order proposition.

Now consider the man who affirms P;
~~ie~~ that is, suppose we are given:-

$$\vdash : \chi ! P . \qquad \text{(iii)}$$

Then it is easy to see that:- ~~if this taken~~

$$\vdash : P . \equiv . \sim P . \qquad \text{(iv)}$$

A proof of (iv) can be given as follows ~~ax~~

We assume that:-

$$\vdash :. (p, q) :. \chi ! p . \chi ! q : \supset . p = q . \qquad \text{(v)}$$

We have:-

$$\vdash :. \sim[(\exists p) : \chi ! p . \sim p] : \supset : (p) . \chi ! p \supset p :$$
$$\supset : \chi ! P \supset P :$$
$$[\text{iii}] \quad \supset P \qquad \text{(vi)}$$

Further:-

$$\vdash . (\text{iii}) . \supset \vdash :. P \supset : \chi ! P . \supset . P :$$
$$[\text{v}] \quad \supset : (p) . \chi ! p \supset p :$$
$$\supset \sim[(\exists p) : \chi ! p . \sim p] : \qquad \text{(vii)}$$

Finally:-

$$\vdash (\text{vi})(\text{vii}) . \supset \vdash : P . \equiv : \sim[(\exists p) : \chi ! p . \sim p] :$$
$$[\text{ii}] \quad \equiv . \sim P .$$

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13 30
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