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TERMINAL FUNCTORS PERMISSIBLE WITH SYLLOGISTIC

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(Notes of a paper delivered in July 1957, on the possibilities of enriching syllogistic as axiomatised, e.g. in Łukasiewicz's *Aristotle's Syllogistic*, with complex terms, with appropriate axioms).

I. General conclusions *

(i) The *logical product* of a pair of terms, *kab*, does not lend itself for use in this way, since one would expect it to have $\vdash Akaba$ and $\vdash Akabb$, which would yield $\vdash Iab$ by Darapti, making all *I* propositions true.

(ii) Similarly with the *null term* $\wedge$; one would expect this to have $\vdash A \wedge a$, but $\vdash A \wedge a$ and $\vdash A \wedge b$ (obtained from $\vdash A \wedge a$ by substitution) would yield *Iab*, again by Darapti.

(iii) *Disjunction* and *implication* are possible, so long as they are not combined with negation (when of course conjunction and the null term would be definable).

(iv) The *modal* λ and μ ("necessarily", "possibly") seem alone to combine with negation, *n*.

II. Postulates for non-modal terminal functors

(i) If we take the syllogistic *E* as undefined (defining *Aab* as *Eanb* and *I* as *NE*), syllogistic with terminal negation may be axiomatised by 1. *Eana*, 2. *NEaa* and 3. Camenes.

(ii) For terminal disjunction, *v*, we may subjoin to ordinary syllogistic (without *n*) first of all the four axioms

1. *Aavab*	3. *CAacCAbcAvabc*
2. *Abvab*	4. *CEacCEbcEvabc*

Where *t* and *s* are terms, we write $t = s$ where we have both $\vdash Ats$ and $\vdash Ast$; and where *p* and *q* are propositions, we write $p = q$ where we have both $\vdash Cpq$ and $\vdash Cqp$. The above for *v* will give $vaa = a$, $Avabc = KAacAbc$, and $Evabc = KEacEbc = Ecvab$. The addition of

*See Historical Note by A. N. Prior added to this paper.

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