

## Systems of Sentence Logic with Trans-Atomic Units

RICHARD BUTRICK

Although there are only 16 possible full truth-functional connectives in the two-valued system of sentence logic (*SL*), there are an additional 65 partial connectives which can be introduced into such systems. Partial connectives are connectives which have determinate values for some value assignments to their components but otherwise receive arbitrary value assignments. By repeating each of the four truth-value assignments (TT, TF, FT, FF) a chart layout of the additional connectives can be presented to show a partial layout for partial connectives which are arbitrary in the first case (Chart 1) and in the first and second case (Chart 2).

Chart 1: Partial Connectives Arbitrary in the First (TT) Case Only

Connectives	1	2	3	4	5	6	7	8	
Case 1 TT <u>TT</u>	T	T	T	T	T	T	T	T	Connectives 1-8 may be either T or F in Case 1 (TT).
	F	F	F	F	F	F	F	F	
Case 2 TF <u>TF</u>	T	T	T	F	T	F	F	F	Determinate case. The connectives receive a unique value.
	T	T	T	F	T	F	F	F	
Case 3 FT <u>FT</u>	T	T	F	T	F	T	F	F	Determinate case.
	T	T	F	T	F	T	F	F	
Case 4 FF <u>FF</u>	T	F	T	T	F	F	T	F	Determinate case.
	T	F	T	T	F	F	T	F	

Comment: (Chart 1) There are eight possible connectives which have only one arbitrary case. Since there are four choices for the arbitrary case, there are 32 connectives with one arbitrary case.

*Received April 21, 1982; revised October 29, 1984*