

## NOTE ON THE SINGULARITIES OF S5

JOHN THOMAS CANTY and THOMAS W. SCHARLE

Let  $Qp = CCMppLp$  (or  $= CCMNpNpLNp$ ). From [1] it is known that the number of singular functors of S5 is sixteen. It may be easily seen that  $XpQp = YpQp$  where  $X$  and  $Y$  are arbitrary non-modal binary functors implies that  $Xpq = Ypq$ . Hence as  $Xpq$  ranges over the sixteen non-modal binaries,  $XpQp$  ranges over the sixteen modal singularities of S5. Thus the above functors yield normal forms for all formulas in one variable, and no other choice of  $Q$  will serve this purpose.

It remains an open question as to whether a simple representation of the above kind exists for formulas of S5 with more than one variable.

## REFERENCE

- [1] R. Carnap, Modalities and quantification, *The Journal of Symbolic Logic*, vol. 11 (1946), pp. 33-64.

*Seminar in Symbolic Logic*  
*University of Notre Dame*  
*Notre Dame, Indiana*

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