

## THE UNBOUNDED COMMUTANT OF AN OPERATOR OF CLASS $C_0$

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*Abstract.* We describe the closed, densely defined linear transformations commuting with a given operator  $T$  of class  $C_0$  in terms of bounded operators in  $\{T\}'$ . Our results extend those of Sarason for operators with defect index 1, and Martin in the case of an arbitrary finite defect index.

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### REFERENCES

- [1] H. BERCOVICI, *Operator theory and arithmetic in  $H^\infty$* , American Mathematical Society, Providence, RI, 1988.
- [2] H. BERCOVICI, R. G. DOUGLAS, C. FOIAS, AND C. PEARCY, *Confluent operator algebras and the closability property*, preprint, arXiv:0908.0729.
- [3] H. BERCOVICI, C. FOIAS AND B. SZ.-NAGY, *Reflexive and hyper-reflexive operators of class  $C_0$* , Acta Sci. Math. (Szeged), **43** (1981), 5–13.
- [4] R. T. W. MARTIN, *Characterization of the unbounded bicommutant of  $C_0(N)$  contractions*, Operators and Matrices, **3** (2009), 589–598.
- [5] D. SARASON, *Generalized interpolation in  $H^\infty$* , Trans. Amer. Math. Soc., **127** (1967), 768–770.
- [6] D. SARASON, *Unbounded operators commuting with restricted backwards shifts*, Oper. Matrices, **2** (2008), 583–601.
- [7] B. SZ.-NAGY AND C. FOIAS, *Harmonic analysis of operators on Hilbert space*, North-Holland, Amsterdam, 1970.