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Special Classes of Normal Families

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Abstract. Families of normal functions consisting of those meromorphic functions in the unit disc that avoid three fixed continuous functions that also avoid each other are investigated. We show that if the functions avoided are all meromorphic, then the family contains uncountably many functions, and that the only limit functions not in the family are the functions avoided. This is not necessarily the case when the functions avoided are continuous but not all meromorphic; an example is given of three continuous functions that avoid each other for which the family of meromorphic functions avoiding these three functions is empty. This example is a consequence of another example giving a single continuous function that no holomorphic function can avoid. Examples are given to illustrate some other possibilities.

Keywords. Normal family, functions avoid each other, limit function, limit family.

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