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Marshall A. Whittlesey* (mwhittle@csusm.edu), Department of Mathematics, California State University San Marcos, San Marcos, CA 92069. *Extremal problems for analytic discs and analytic balls, and polynomial hulls.*

We will consider an extremal problem for analytic functions on a general domain D in \mathbf{C}^n . If we demand that an analytic function f continuous up to the boundary of D satisfy $f(z) \in S_z$ for a prescribed set S_z , what are the possible values of $f(0)$? What are the extremal values of $f(0)$? We will in particular consider the situation where $f(0)$ could be any value that could be reached by an analytic function defined on an analytic subdisc of D , subject to the same boundary values. That is, suppose there exists an analytic subdisc $R \subset D$ which passes through 0 and has boundary $\partial R \subset \partial D$, ϕ is analytic on R , and $\phi(z) \in S_z$ for all $z \in \partial R$. Does there exist an analytic f with the above constraints such that $f(0) = \phi(0)$? We shall see when this is indeed the case. (Received March 03, 2009)