1138-47-96 **Carl C. Cowen*** (`ccowen@iupui.edu`), IUPUI Dept of Mathematical Sciences, 402 N Blackford St, Indianapolis, IN 46202-3216. *Continuous Semigroups of Composition Operators on Function Spaces on the Disk.* Preliminary report.

An analytic map ϕ of the unit disk into itself defines a composition operator by $C_\phi f = f \circ \phi$. Writing ϕ_n for the n-fold composition of ϕ gives a discrete semigroup of operators $C_{\phi_j} C_{\phi_k} = C_{\phi_{j+k}}$. We consider the possibility of extending this to a continuous semigroup, C_{ϕ_t} for $t \geq 0$.

An old theorem says that if ϕ is an analytic map of the disk into itself with attractive fixed point a in the closed disk and $\phi'(a) \neq 0$, for each z in the disk, there is $\tau(z) \geq 0$ so that $\phi_t(z)$ can be defined for $t > \tau(z)$, so that

$$\{\phi_n(z) : n \geq 0\} \cup \{\phi_t(z) : t > \tau(z)\}$$

is a semigroup. If ϕ maps the disk into itself, $\phi(1) = \phi'(1) = 1$, and the power series for ϕ centered at 0 has only positive coefficients, there is a continuous semigroup $\phi_t(r)$ for $0 \leq r \leq 1$; that is, $\tau(r) = 0$ for $0 \leq r \leq 1$.

We discuss the question of extension to the disk: "If ϕ is a univalent, analytic map of the disk into itself with $\phi(1) = \phi'(1) = 1$, and the power series for ϕ centered at 0 has only positive coefficients, when does there exist a continuous semigroup, $\{C_{\phi_t} : 0 \leq t < \infty\}$?" (Received February 03, 2018)