1019-47-119   **Tavan T Trent*** (`ttrent@gp.as.ua.edu`), Dept. of Mathematics, University of Alabama,
                     Tuscaloosa, AL 35487. *A constructive proof of the corona theorem for $H^\infty(D)$.* Preliminary report.

We give a "constructive" proof of the corona theorem for $H^\infty(D)$. That is, given polynomials $\{p_j\}_{j=1}^n$ with $0 < \epsilon^2 \le \sum_{j=1}^n |p_j(z)|^2 \le 1$ for $z \in D$, let $C = \left(\frac{12}{\epsilon^2} \ln \frac{1}{\epsilon^2}\right)$ and let $N = \max\{$ degree $(p_j)\}$. We give an algorithm to find rational functions, $\{r_j\}_{j=1}^n \subset A(\overline{D})$ with order $(r_j) \le N$; so that $\sum_{j=1}^n p_j(z)r_j(z) \equiv 1$ and $\sum_{j=1}^n |r_j(z)|^2 \le C^2$ for $z \in D$. (Received August 10, 2006)