defined by

$$\beta(t) = (a_2,\ tb_1 + (1-t)b_2).$$

Define $\tilde{\alpha}(t) = (\alpha(t),\ b_1)$

$\Rightarrow$ By combining β and $\tilde{\alpha}$, we have a path from (a_1, b_1) to (a_2, b_2). $\Rightarrow$ This proves the path-connected-ness of $\mathbb{C}^2 - \mathbb{C}$, whose real codimension is 2. For general and detailed explanations, we may refer to Jordan curve theorem .... We don't need those here because we have an idea already."

I want to review (?) Analytic Varieties which keep bothering me a lot. Let's go back to P12.

Analytic Varieties

The main purpose of the result given above is to describe the basic local properties of analytic varieties in $\mathbb{C}^n$. We say a subset V of an open set $U \subset \mathbb{C}^n$ is an analytic variety in U if, for any $p \in U$, there exists a nbd U' of p in U s.t $V \cap U'$ is the common zero locus of a finite collection of holomorphic functions $f_1, f_2, \cdots f_k$ on U'. In particular, V is called an analytic hypersurface if V is locally the zero locus of a single nonzero holomorphic function f.

An analytic variety $V \subset U \subset \mathbb{C}^n$ is said to be irre-