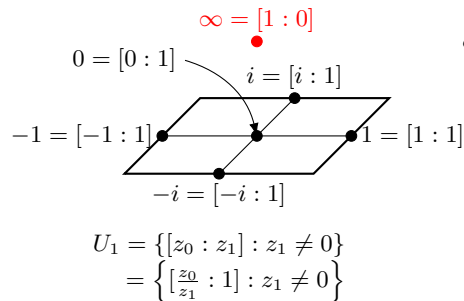
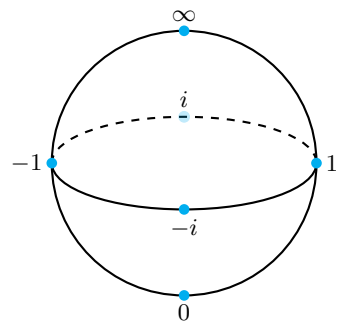
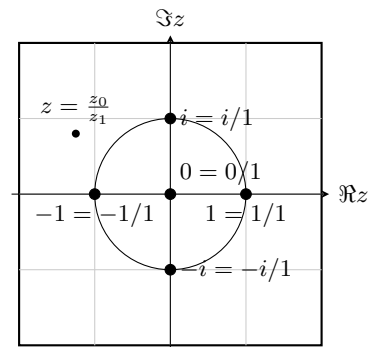


2-dimensional Complex Projective Space $\mathbb{P}(\mathbb{C}^2) = \mathbb{CP}^1$

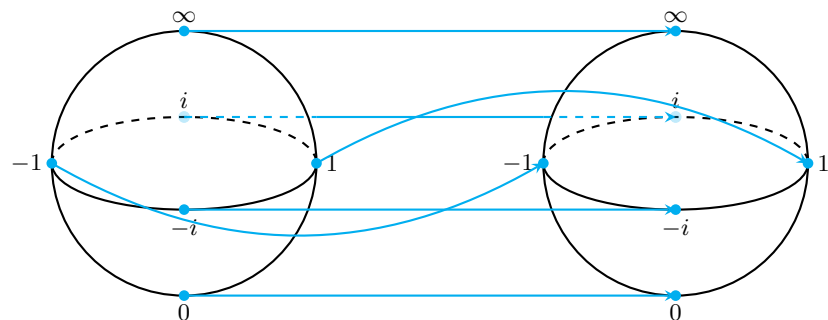


$$\begin{aligned} \phi_1 : U_1 &\rightarrow \mathbb{C} \\ [z_0 : z_1] &\mapsto z := \frac{z_0}{z_1} \\ \phi_1([z_0 : z_1]) &= \phi_1\left(\left[\frac{z_0}{z_1} : 1\right]\right) \\ &= \frac{z_0}{z_1} \end{aligned}$$



“Every meromorphic function on \mathbb{CP}^1 is a rational function in this coordinate z , i.e., $\mathcal{M}(\mathbb{CP}^1) \simeq \mathbb{C}(z)$ ”

$$R(z) = z$$

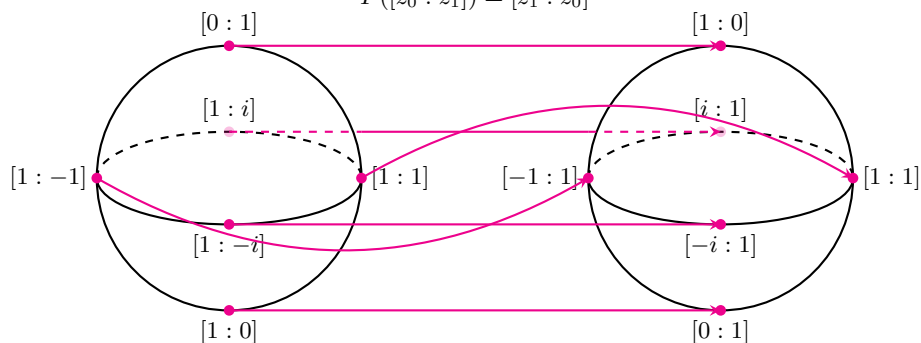


$$R(z) = z = \frac{z}{1} = \frac{P(z)}{Q(z)}$$

$$\frac{P(z_1/z_0)}{Q(z_1/z_0)} = \frac{z_1/z_0}{1} \text{ on } U_0$$

$$\frac{z_0 P(z_1/z_0)}{z_0 Q(z_1/z_0)} = \frac{z_1}{z_0} \text{ on } U_0$$

$$F([z_0 : z_1]) = [z_1 : z_0]$$



$$U_0 = \{[z_0 : z_1] \in \mathbb{CP}^1 : z_0 \neq 0\}$$

$$U_1 = \{[z_0 : z_1] \in \mathbb{CP}^1 : z_1 \neq 0\}$$