Let U be the open set $\{(z_1, z_2) \in \mathbb{C}^2 : 0 < \operatorname{Re} z_1 < 1$, $0 < \operatorname{Re} z_2 < 1$, $0 < \operatorname{Im} z_1 < 1$ & $0 < \operatorname{Im} z_2 < 1\}$.

$$\Rightarrow \begin{array}{ccc} \phi^{-1}(U') & \xrightarrow{\varphi_{U'}} & U' \times \mathbb{C}/\mathbb{Z}^2 \\ \Downarrow & & \\ g\Gamma & \longmapsto & ([(a,c)],\ [b]) \end{array}$$

$\pi(U) = U'$

$\pi : \mathbb{C}^2 \to \mathbb{C}^2/\mathbb{Z}^4$

where $g = \begin{pmatrix} 1 & a & b \\ 0 & 1 & c \\ 0 & 0 & 1 \end{pmatrix}$ $\quad 0 \le \operatorname{Re} a, \operatorname{Re} c < 1$, $0 \le \operatorname{Im} a, \operatorname{Im} c < 1$

Let V be the open set $\{(z_1, z_2) \in \mathbb{C}^2 : \frac{1}{2} < \operatorname{Re} z_1 < 1+\frac{1}{2}$, $0 < \operatorname{Re} z_2 < 1$, $0 < \operatorname{Im} z_1 < 1$ & $0 < \operatorname{Im} z_2 < 1\}$.

$$\Rightarrow \begin{array}{ccc} \phi^{-1}(V') & \xrightarrow{\varphi_{V'}} & V' \times \mathbb{C}/\mathbb{Z}^2 \\ \Downarrow & & \\ g\Gamma & \longmapsto & ([(a,c)],\ [b]) \end{array}$$

$V' = \pi(V)$

$$\begin{array}{ccccc} U'\cap V' \times \mathbb{C}/\mathbb{Z}^2 & \longleftarrow & U'\cap V' & \longrightarrow & U'\cap V' \times \mathbb{C}/\mathbb{Z}^2 \\ & & \Downarrow & & \\ ([(a,c)], [b]) & \longleftarrow & g\Gamma & \longrightarrow & ([(a,c)],\ [b]) \\ \Vert & & \Vert & & \\ [b+\theta] & & & & \end{array}$$

$\begin{pmatrix} 1 & a & b \\ 0 & 1 & c \\ 0 & 0 & 1 \end{pmatrix}\Gamma$, $\quad 0 \le \operatorname{Re} a, \operatorname{Re} c < 1$, $0 \le \operatorname{Im} a, \operatorname{Im} c < 1$

$$\begin{pmatrix} 1 & a & b \\ 0 & 1 & c \\ 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} 1 & 1 & \theta \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} = \begin{pmatrix} 1 & 1+a & \theta + b \\ 0 & 1 & c \\ 0 & 0 & 1 \end{pmatrix}$$

$\boxed{\Rightarrow G/\Gamma \cong \mathbb{C}^2/\mathbb{Z}^4 \times \mathbb{C}/\mathbb{Z}^2.\ \text{holomorphic clearly}\ \text{Wrong}}$ see p432