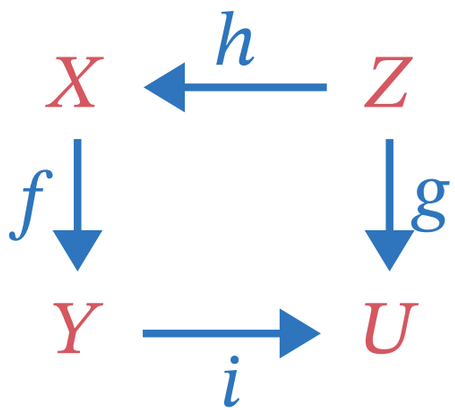
**Definition** (Twisted arrow category)**.** Given a category $\mathbf{C}$, we denote its *twisted arrow category* by $\mathbf{Tw}(\mathbf{C})$. This is a category which is composed of:

1. *Objects:* Arrows (morphisms) in $\mathbf{C}$.
2. *Morphisms:* A morphism between two arrows $f : X \to Y$, $g : Z \to U$ is given by a pair of arrows $\langle h, i \rangle$ such that the following diagram commutes:




3. *Composition:* Composition in $\mathbf{Tw}(\mathbf{C})$ is given by playing commutative squares side by side.