

Algebraic Topology

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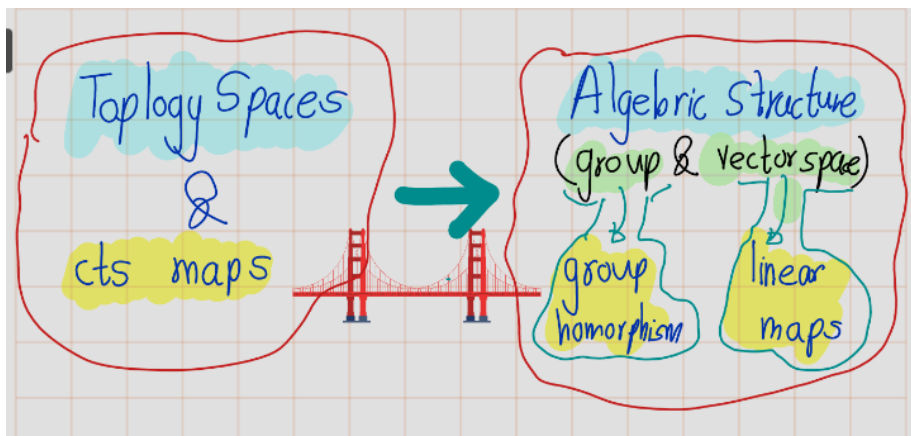
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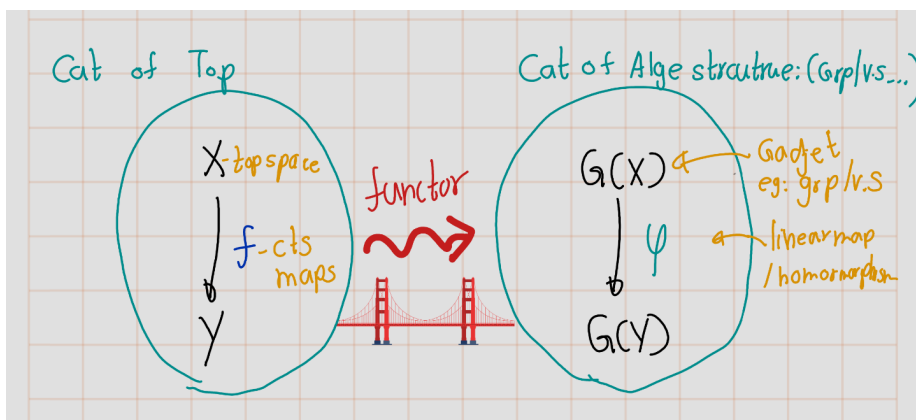
Chapter 1

Introduction

1.0.1 What is Algebraic topology?



Roughly it's about tools/methods connecting **algebra** and **topology**.



The “bridge” is **algebraic topology**.

In order to be useful, the associations

$$X \mapsto G(X) \quad \text{and} \quad f \mapsto \varphi_f$$

ought to satisfy some properties.

Property Mathematical Form

Identity $\text{id}_X : X \rightarrow X \mapsto \text{id}_{G(X)} : G(X) \rightarrow G(X)$

Preservation

Composition If $f : X \rightarrow Y$ and $g : Y \rightarrow Z$, then

Compatibility $(g \circ f) \mapsto \varphi_g \circ \varphi_f : G(Y) \rightarrow G(Z)$

\mapsto

Chapter 2

hj