Section I.3

Sunday, 22 August 2021 18:16

<u>Def</u> X top. space, $f : S^{n-1} \to X$ continuous map.
The space obtained by attaching n-cell D^n to X along f
$$X \amalg D^n \big/ x \sim f(x) \ \forall x \in S^{n-1}$$

X, $\mathrm{int}(D^n)$ are subspaces of $X \cup_f D^n$

$D^n \to X \cup_f D^n$ is not necessarily injective

<u>Ex</u>

<u>Def</u> A (finite) cell complex is a space X
$K^0 \subset K^1 \subset \cdots \subset K^n = X$, where

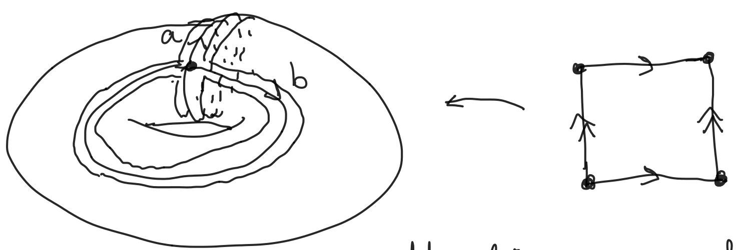
- K^0 is a finite set of points (w/ discrete topology)
- K^i is obtained from K^{i-1} by attaching finitely many i-cells.

<u>Ex</u> A finite graph is precisely a finite cell complex that only has 0- and 1-cells.

(CW complex = cell complex)

<u>Rem</u> $\forall$ simplicial complex is a cell complex

<u>Example</u>



attaching map of 2-cell is $aba^{-1}b^{-1}$