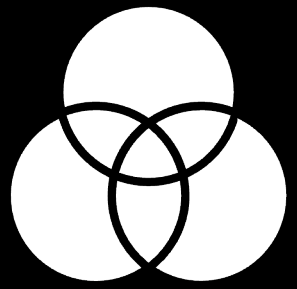
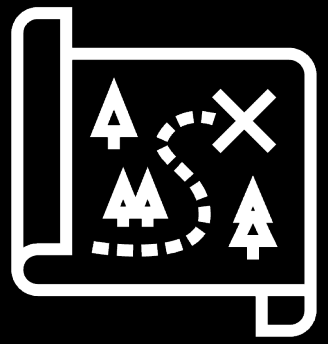
Map models

Week 6 . Deeper dive.

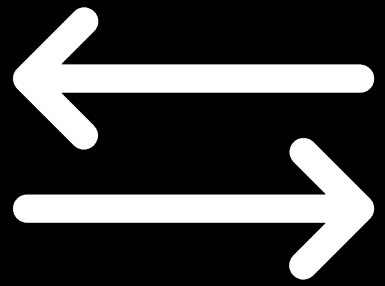
To come:



Venn diagrams



Map models



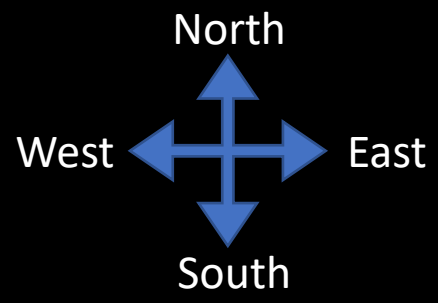
Arrow models

Maps

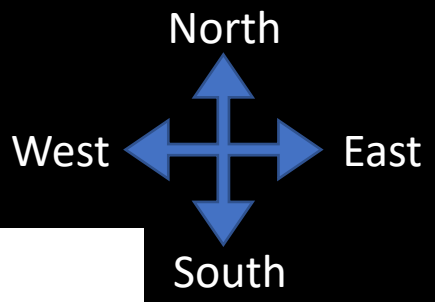
Another type of model is a **map.**

These have a domain of places, e.g. cities.

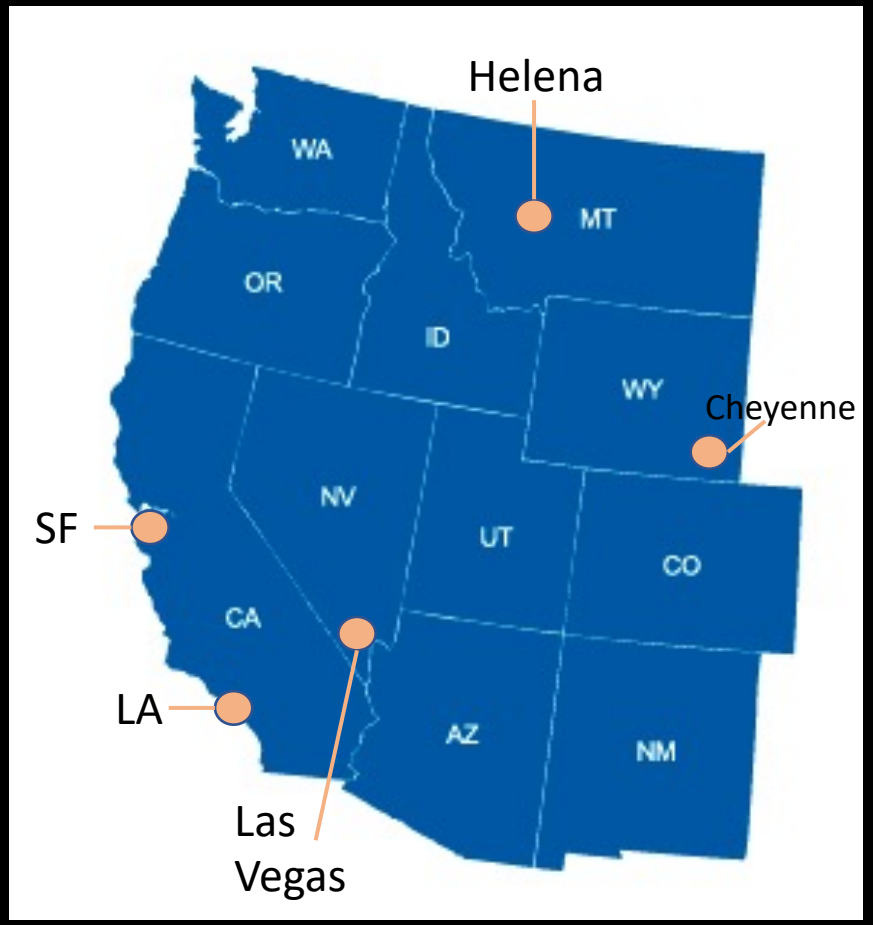
We often have spatial predicates which relate the position of the places, e.g. ‘x is further west than y’ or predicates describing properties like ’x is in California.’



Example of map model



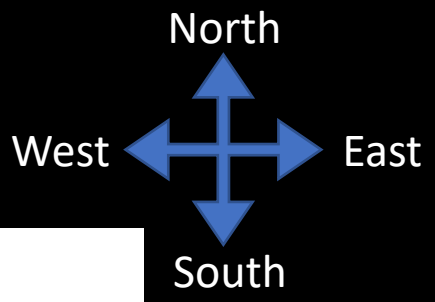
f	SF	Nxy	x is north of y
a	LA	Exy	x is east of y
l	Las Vegas	Sxy	x is south of y
c	Cheyenne	Wxy	x is west of y
h	Helena	Cx	x is in CA



Determine the truth of:

- Nla ✓
- Ca∧ Cf ✓
- Ca ∧ Cc ✗
- Wch ✗

Example of map model



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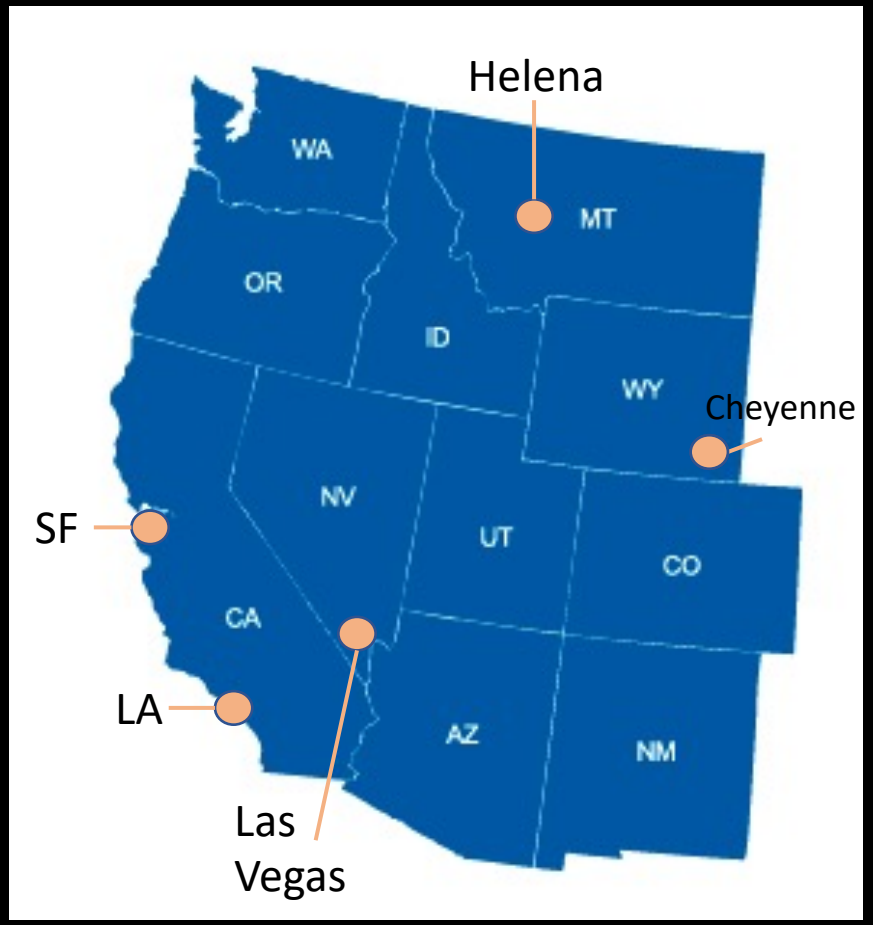

Determine the truth of:

- $(\exists x Nxl \wedge \exists y Syl)$ ✓
- $\forall x(Exh \rightarrow Exa)$ ✓
- $\forall x \forall y((Cx \wedge \neg Cy) \rightarrow Sxy)$ ✗
- $\forall x(Wxh \vee Exl)$ ✓