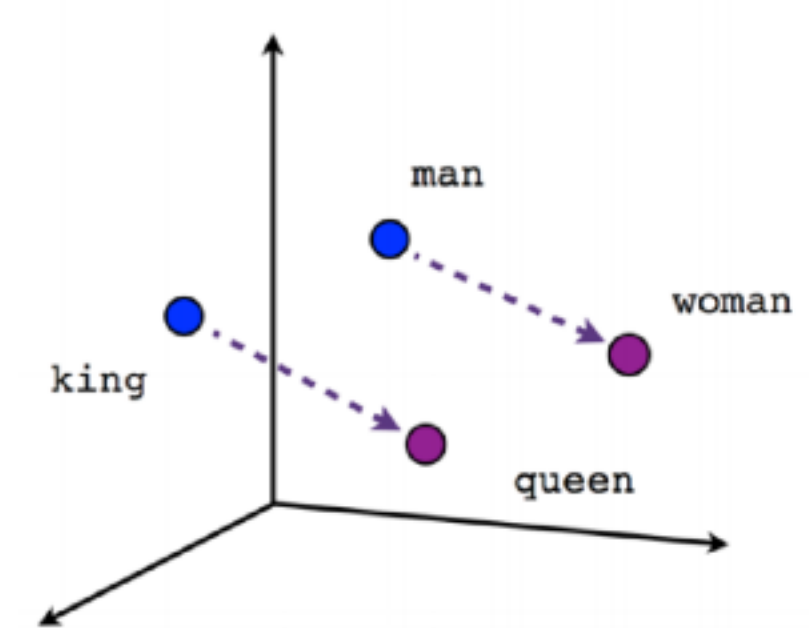


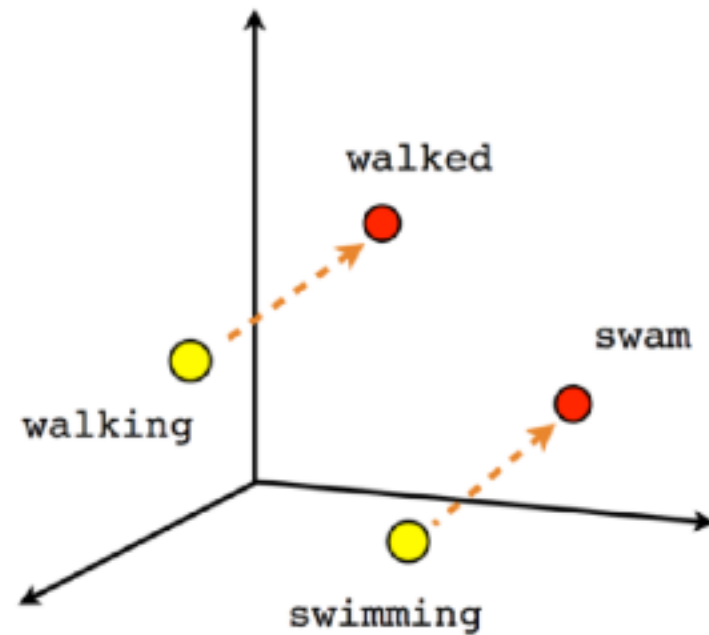


CSAIL

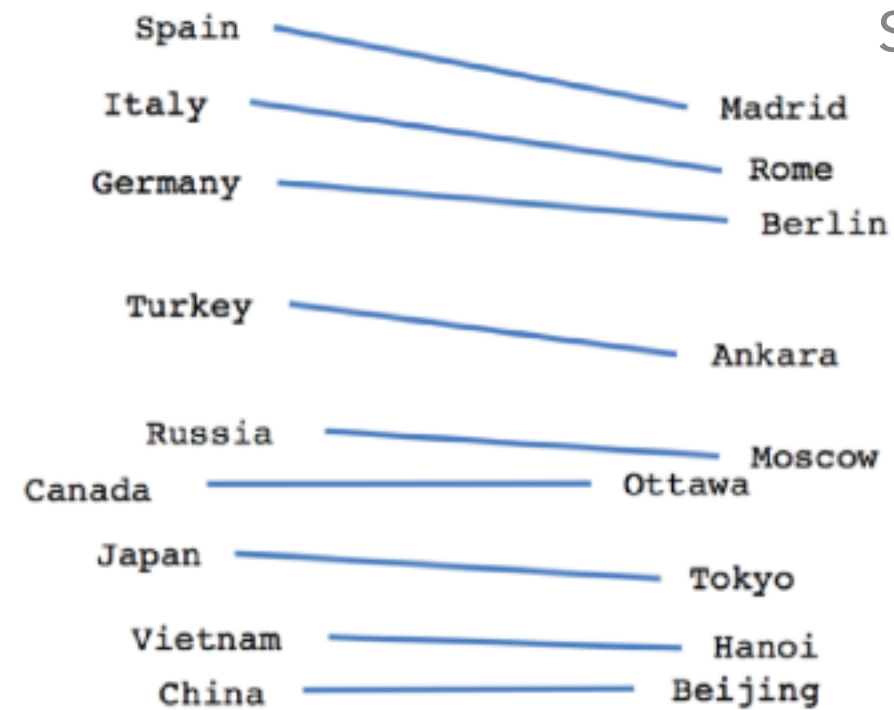




Male-Female



Verb tense



Country-Capital

MOVATION

TRANSLATING MEMBER

▶ Key insight: similar relational properties across languages

▶ **but absolute positions might vary (even for same language & algorithm!)**

▶ Current methods address this by finding global matching between spaces

► Limitations: unstable training, non-monotonic objectives, sensitive to initialization

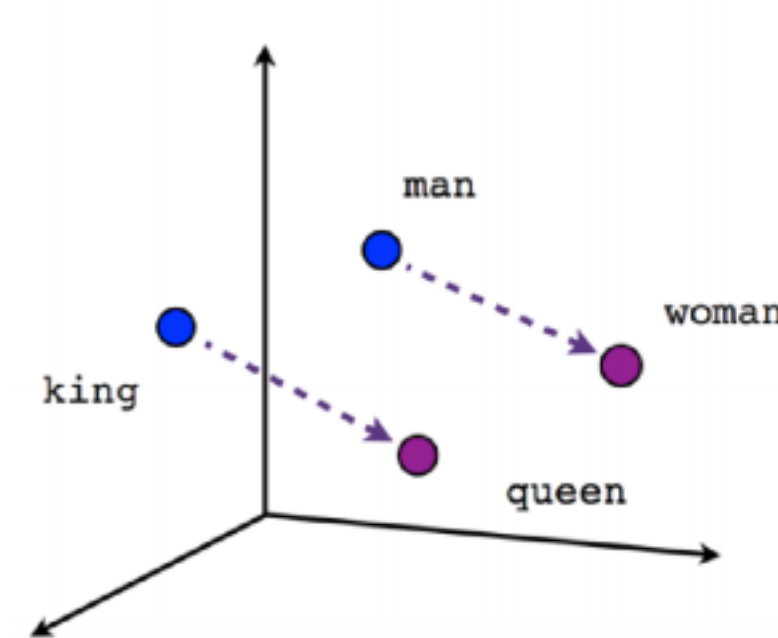
i.e. the two spaces
are *unregistered*

Interpretation as metric
recovery algorithms

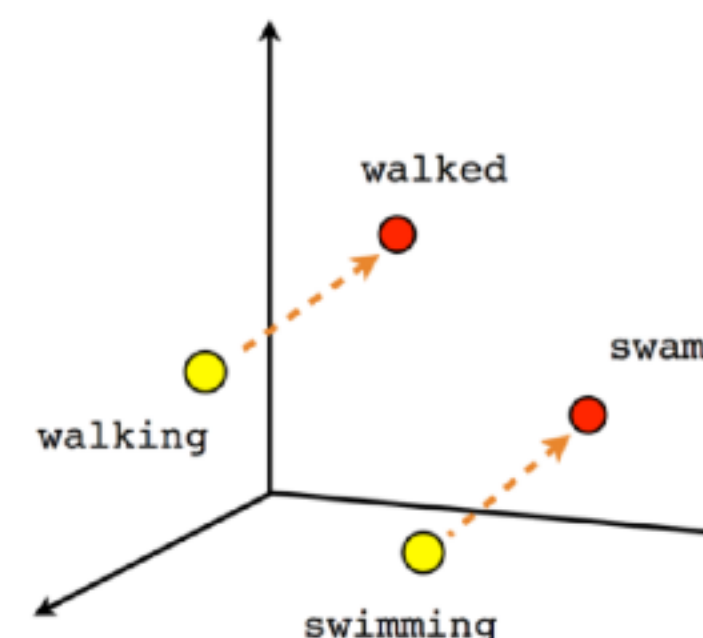
[Hashimoto et al. 2016]

TRANSLATION VIA WORD EMBEDDING ALIGNMENT

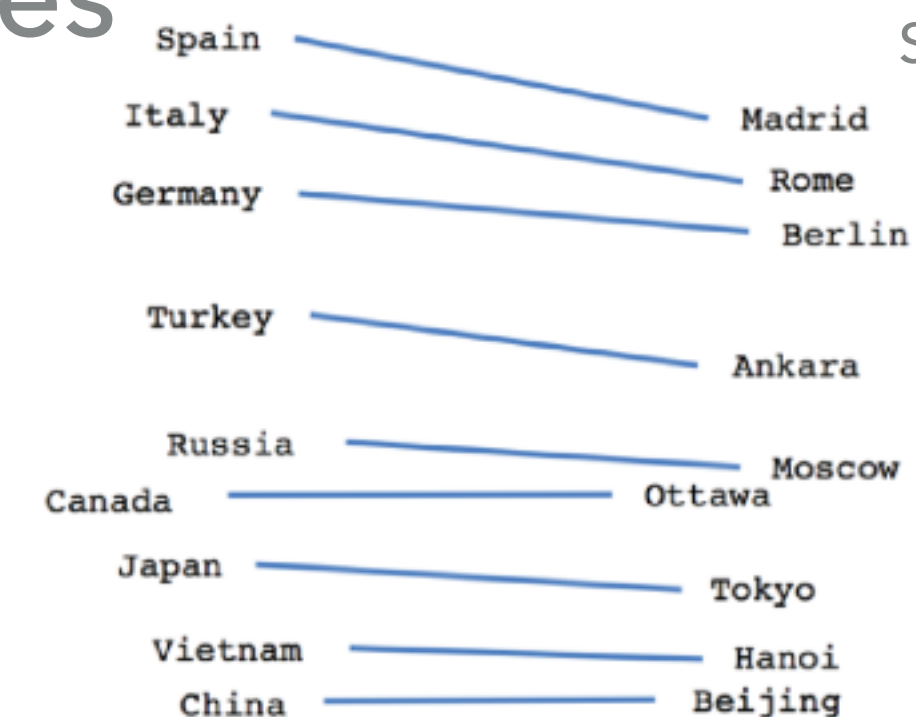
- ▶ Key insight: similar relational properties across languages



Male-Female



Verb tense



Country-Capital

Source: tensorflow.org/tutorials

i.e. the two spaces
are **unregistered**

- ▶ ... but absolute positions might vary (even for same language & algorithm!)
- ▶ Current methods address this by finding global matching between spaces
- ▶ Limitations: unstable training, non-monotonous objectives, sensitive to initialization

OPTIMAL TRANSPORT