
CSAIL

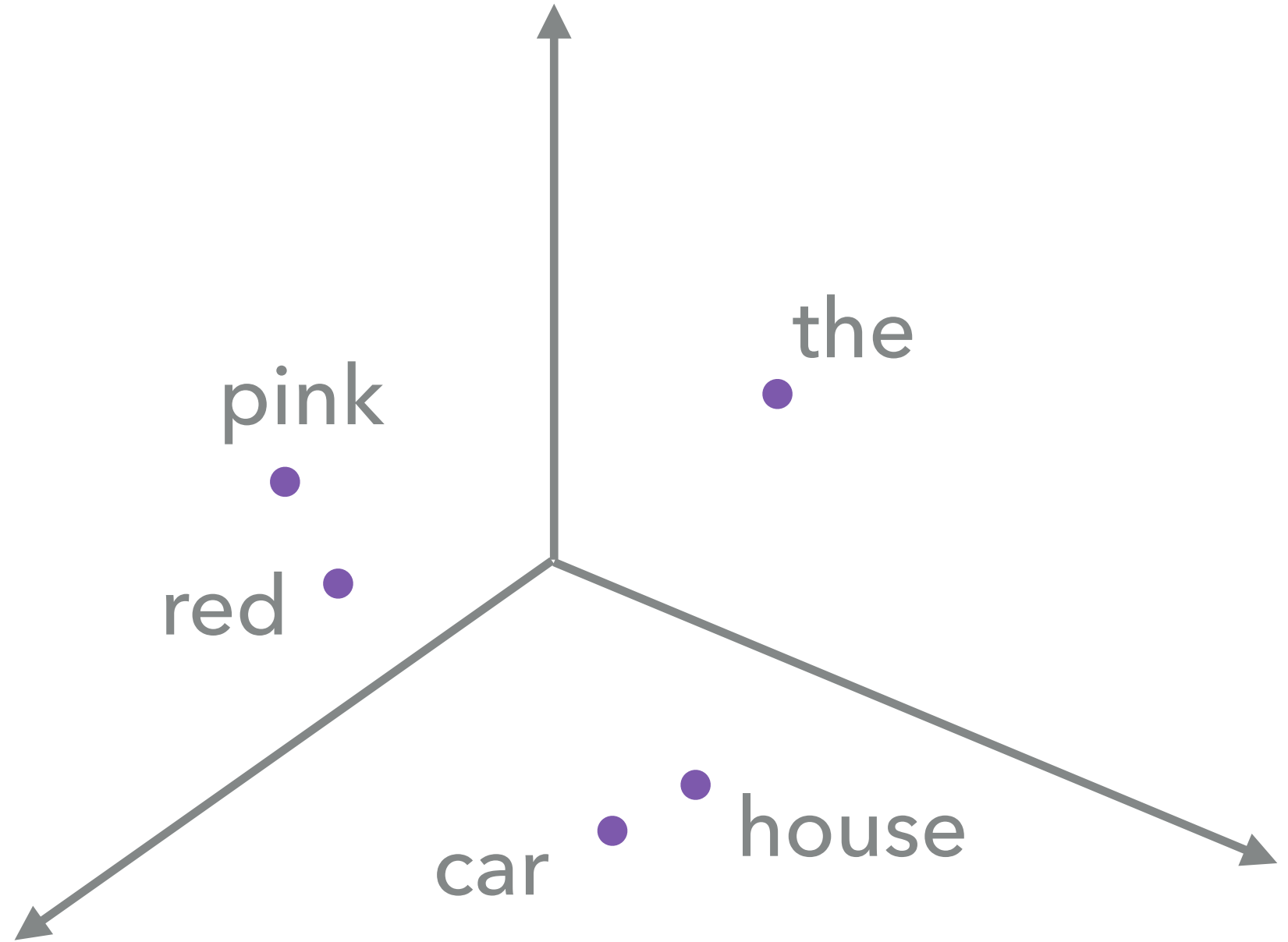
BACKGROUND

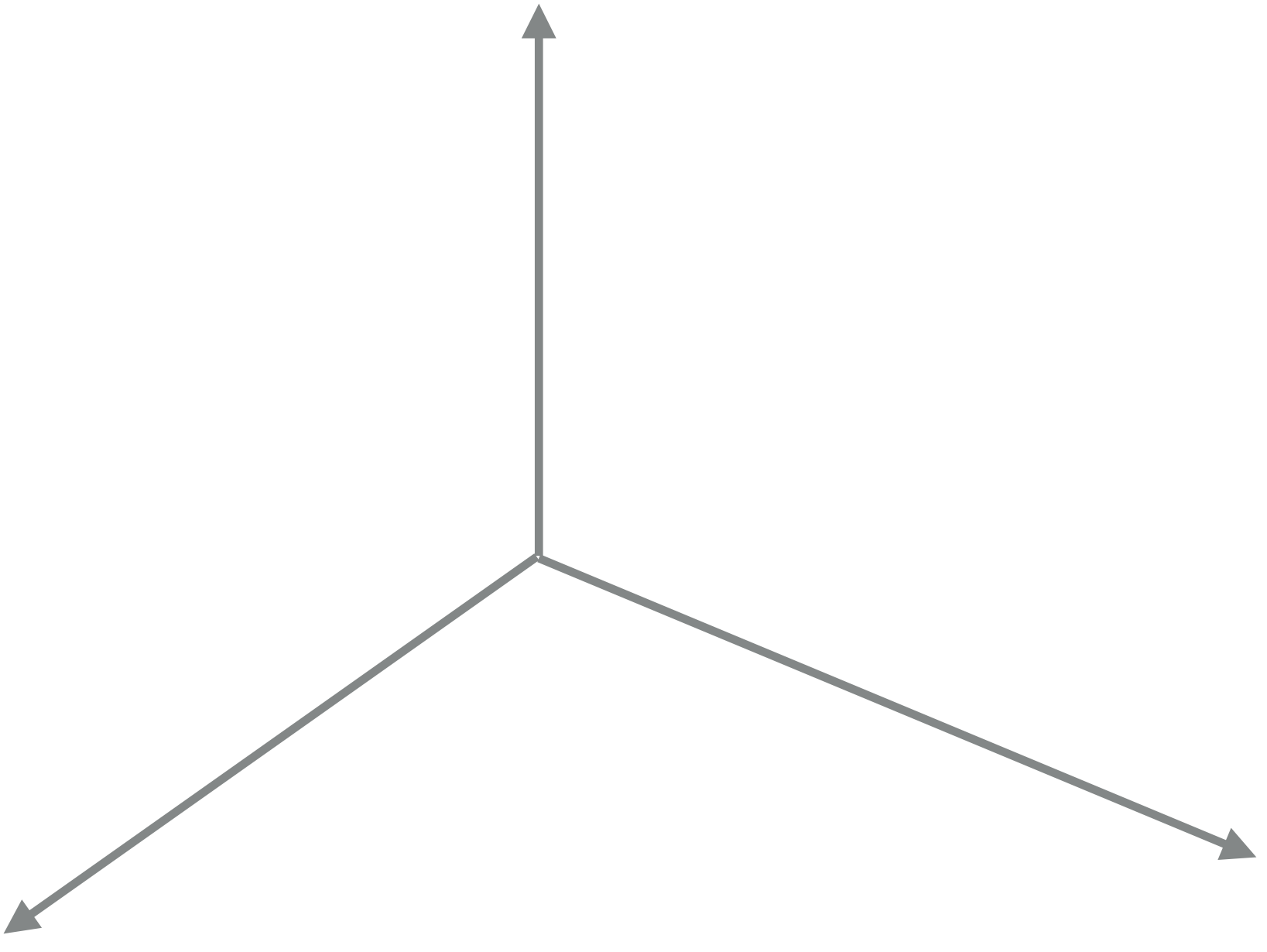
OPTIMAL TRANSPORT BETWEEN WORD EMBEDDINGS

- Treat embeddings as support points of discrete distribution

- But this assumes the two spaces are ***registered*** (~axes are in correspondence)

- Not true in general for word embeddings in different languages!


the
pink
red
car
house

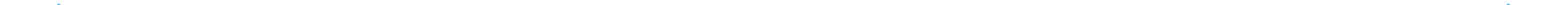



el
la

rosa

roja

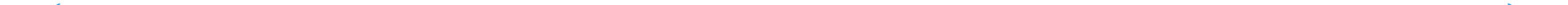

casa
coche



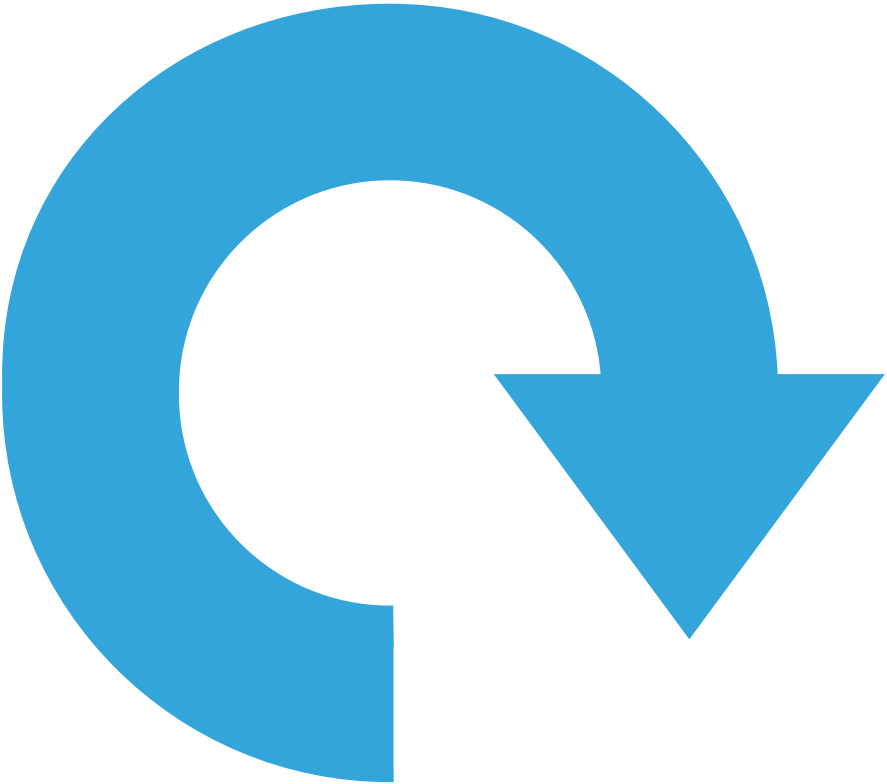
$$c(w_i^{EN}, w_j^{ES}) = d(\mathbf{v}^{EN}(w_i), \mathbf{v}^{ES}(w_j))$$

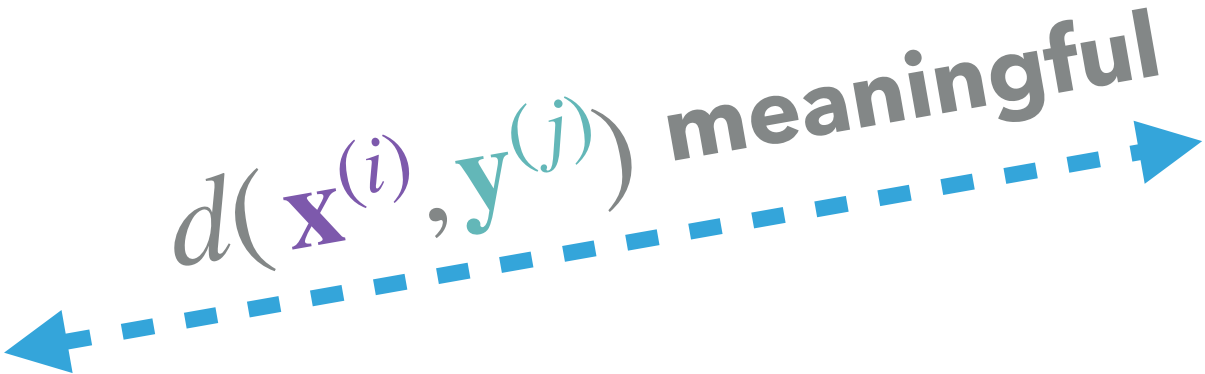
[Kusner et al. 2015]

e.g. WMD [Kusner et al., 2015]



[Kusner et al. 2015; Zhang et al . 2017]




$d(\mathbf{x}^{(i)}, \mathbf{y}^{(j)})$ meaningful

(identical under word

embedding objective)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