[redacted]

Gromov-Wasserstein distances

Second Approach:

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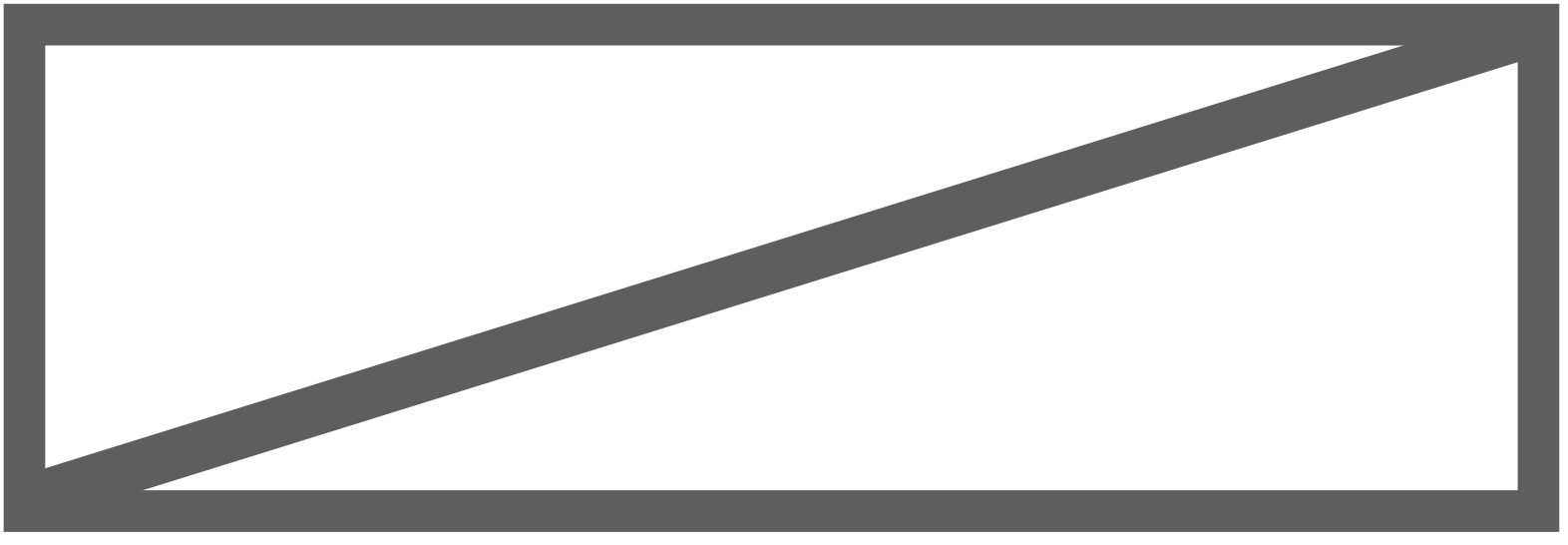
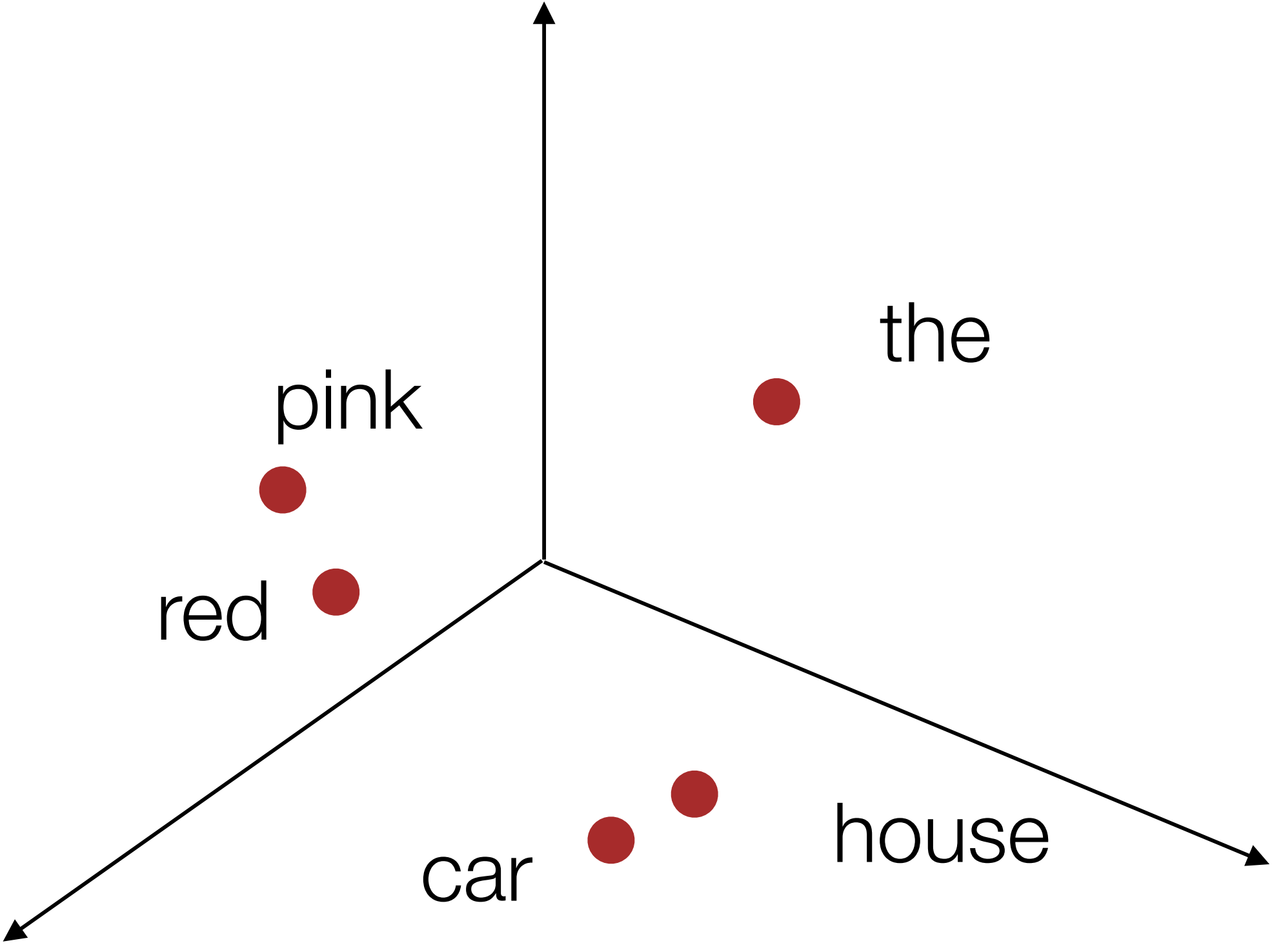
- GW: Generalizes OT to the non-registered case

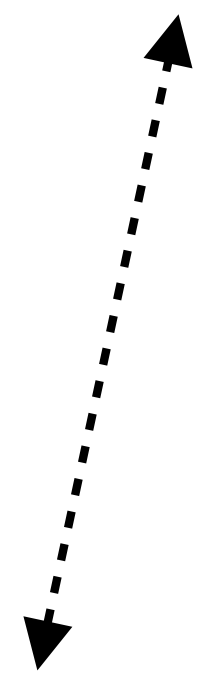
- Main idea: compare relations instead of absolute positions

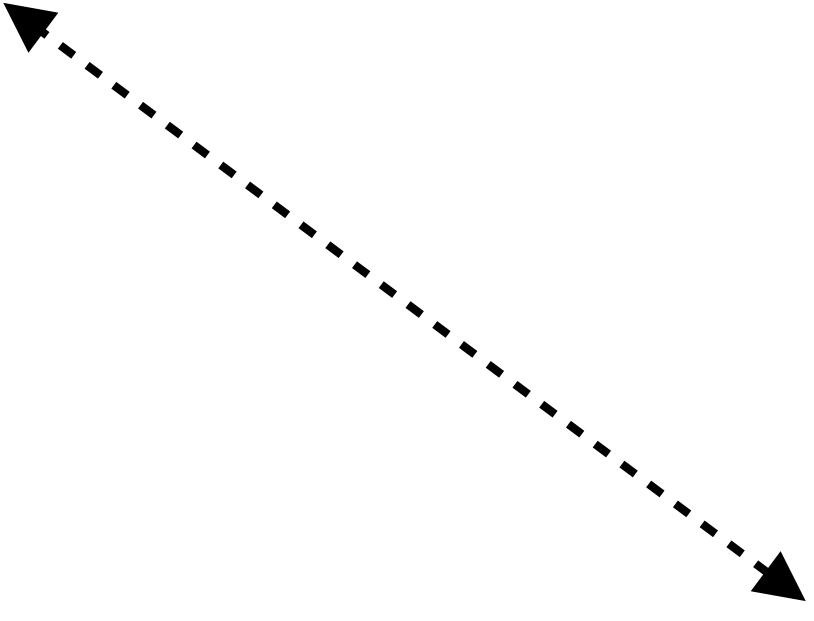
$$d(\mathbf{x}^{(i)}, \mathbf{y}^{(j)})$$

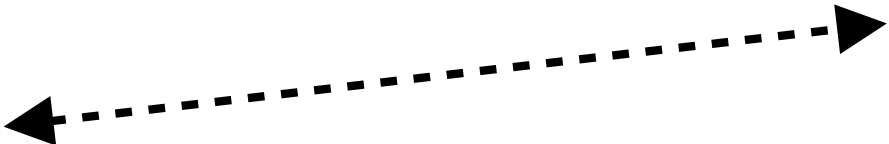


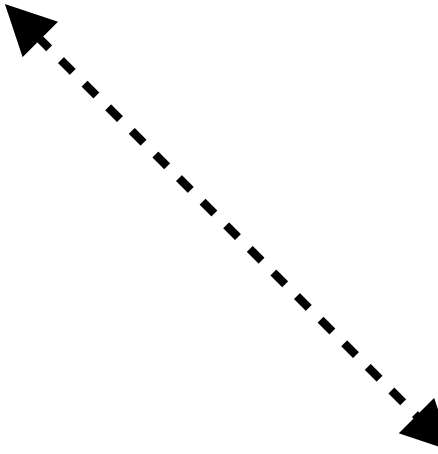
$$\mathrm{GW}(\mathbf{C}, \mathbf{C}', \mathbf{p}, \mathbf{q}) = \min_{\Gamma \in \Pi(\mathbf{a}, \mathbf{b})} \sum_{i,j,k,l} \mathcal{L}(\mathbf{C}_{ik}, \mathbf{C}'_{jl}) \Gamma_{ij} \Gamma_{kl}$$

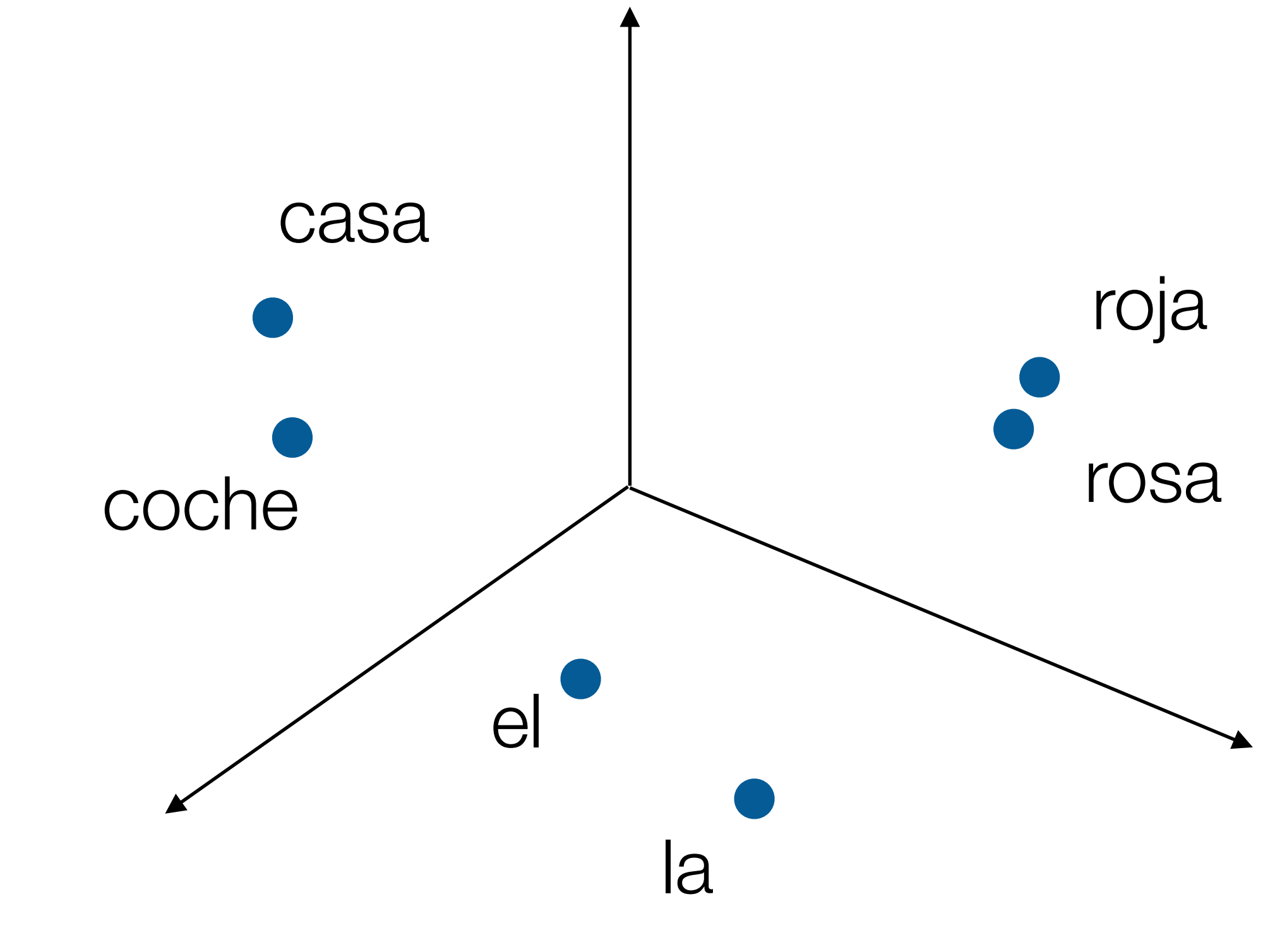

the
pink
red
car
house

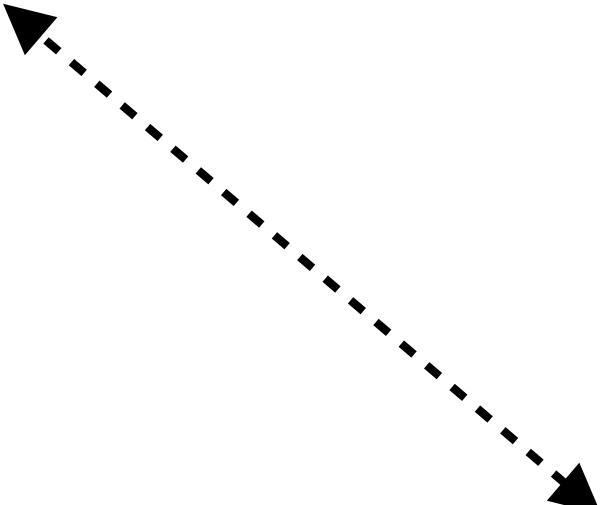


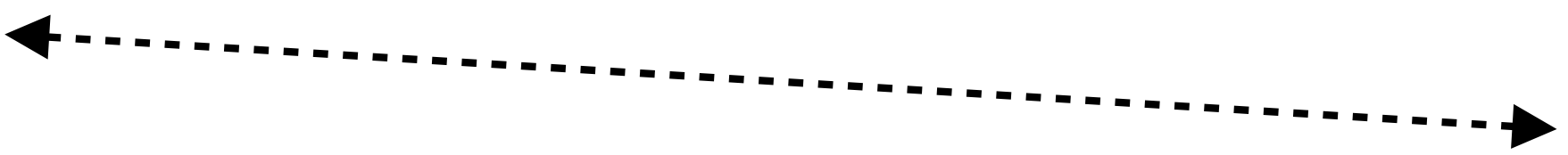


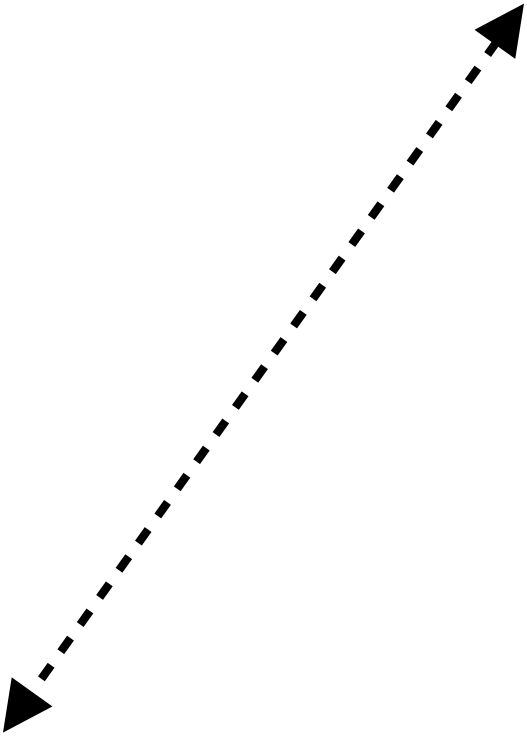


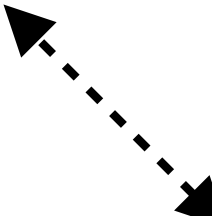


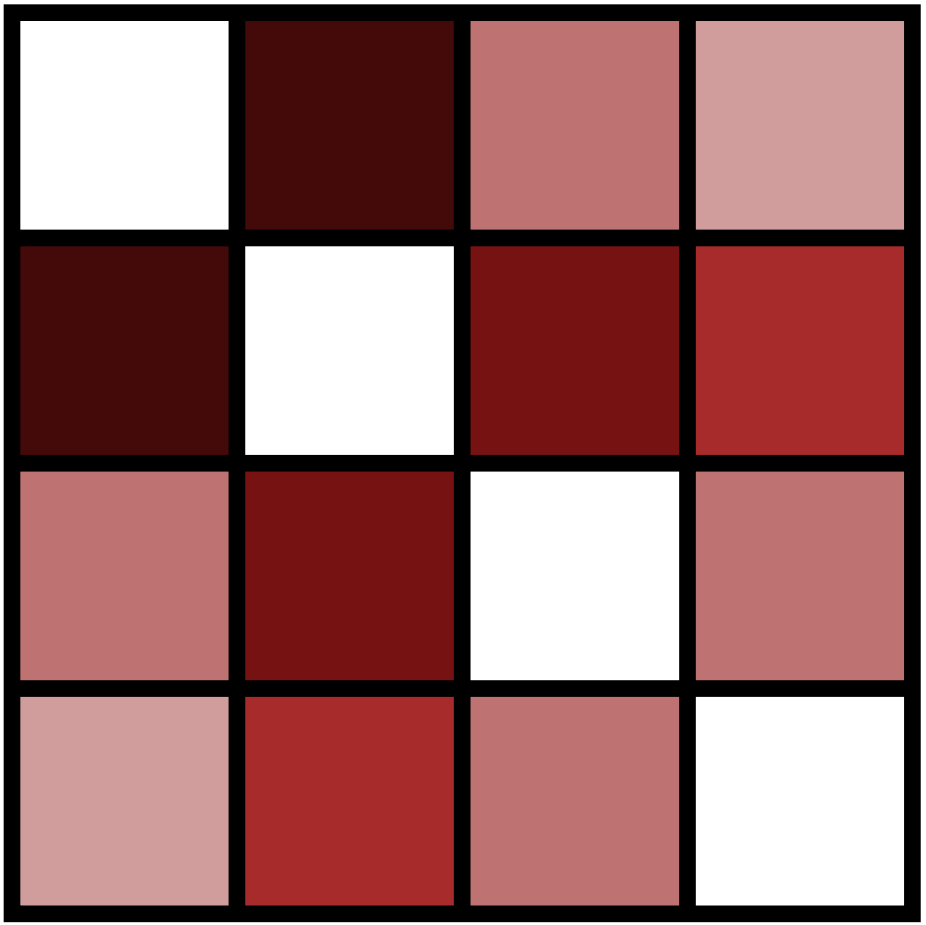

casa
roja
coche
rosa
el
la

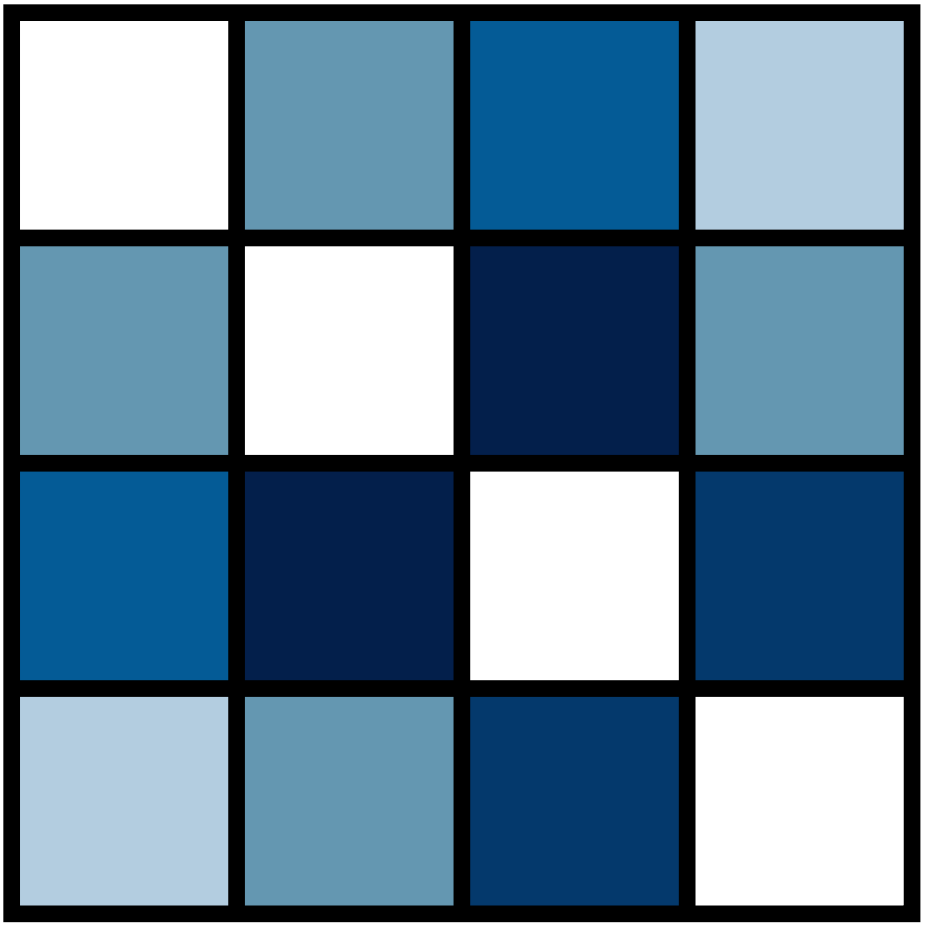












= cost of transporting one unit of mass

from $\mathbf{x}^{(i)}$ to $\mathbf{y}^{(j)}$ **and** from $\mathbf{x}^{(k)}$ to $\mathbf{y}^{(l)}$

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