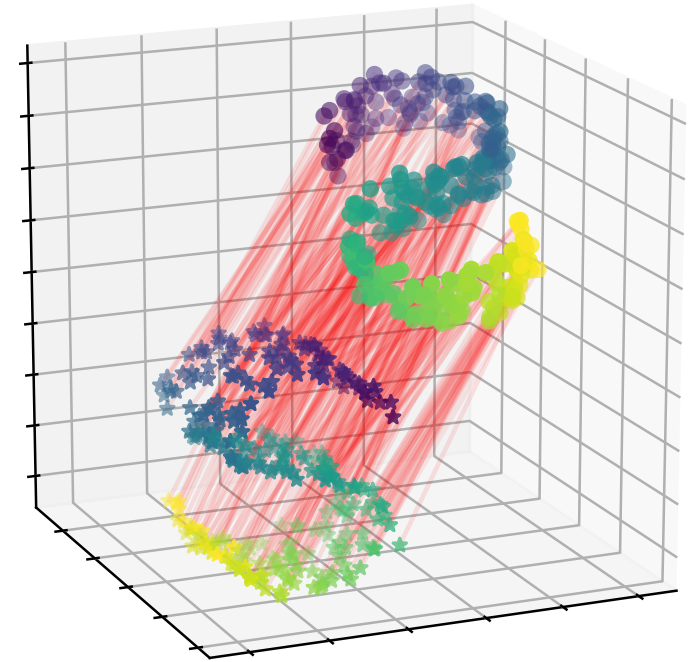
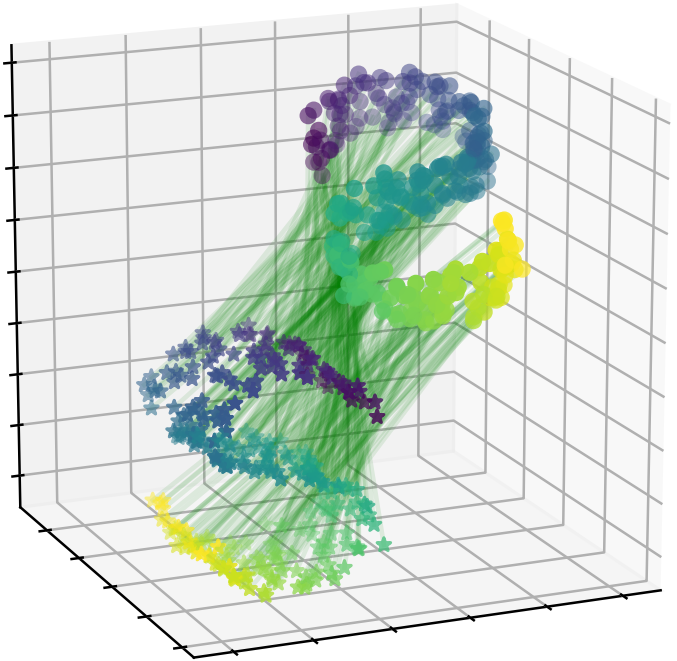
[redacted]

Key Takeaways

OT with Invariances

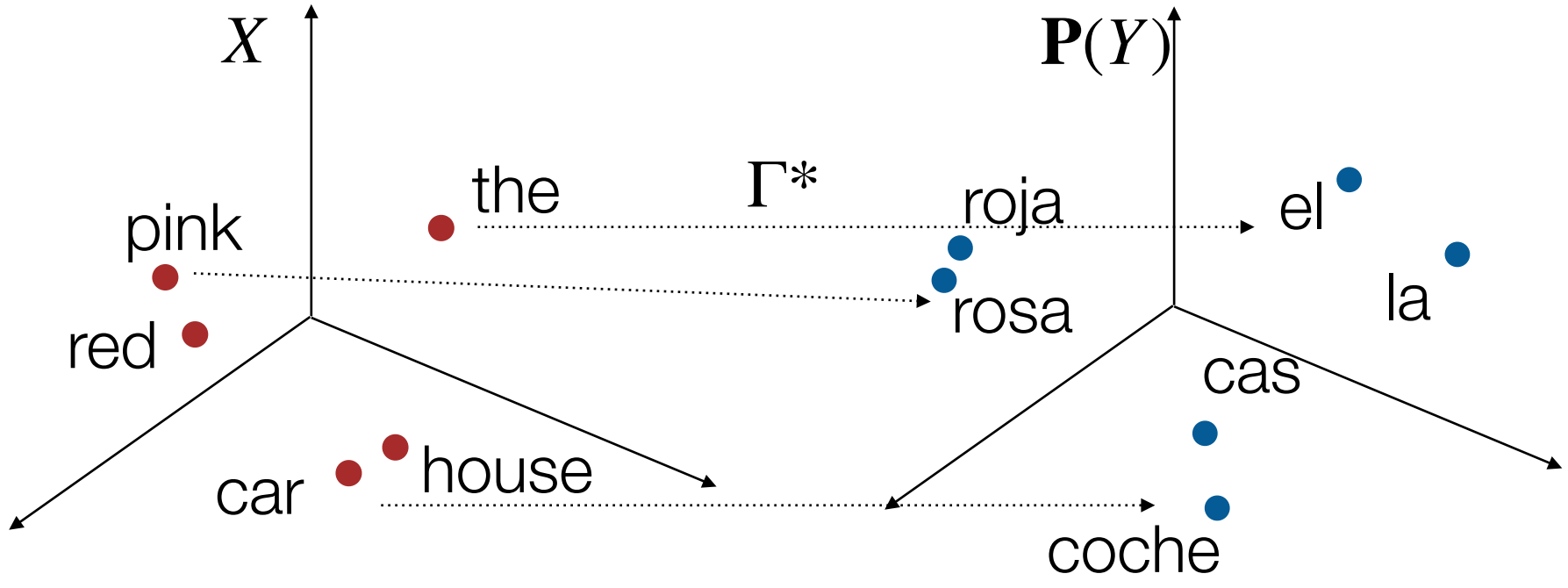
51

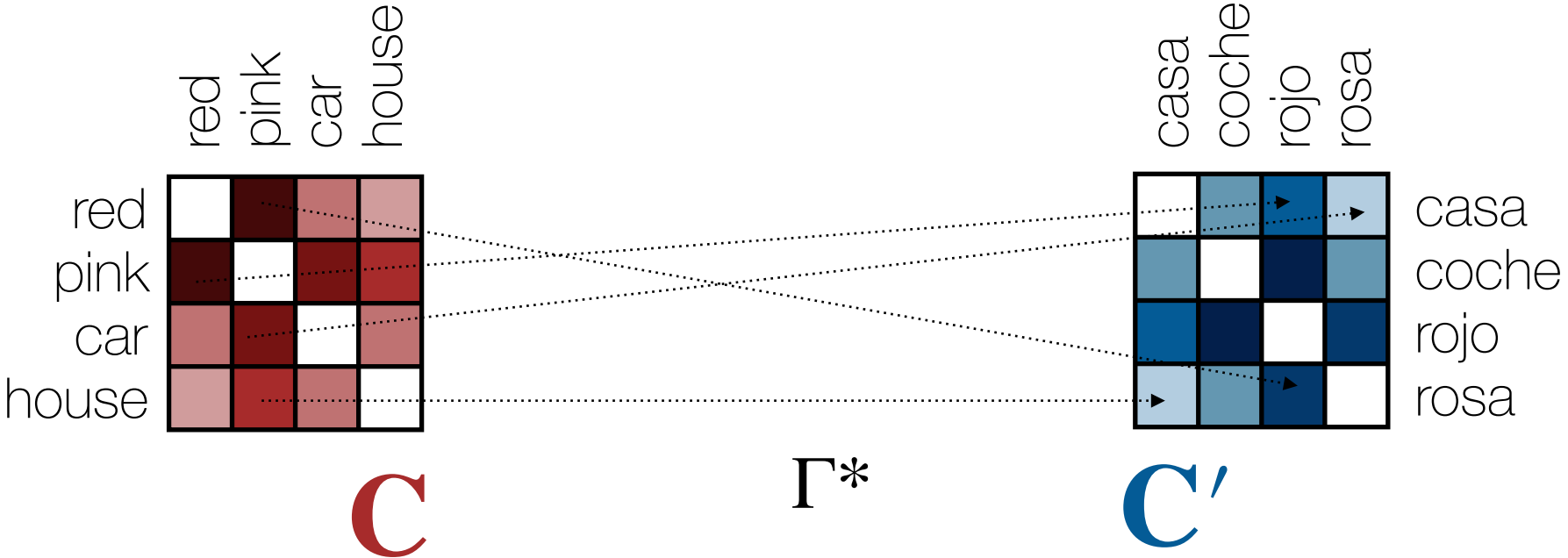




Two OT-based approaches for unsupervised embedding alignment

Simple (but powerful!) invariance modeling via Schatten norms

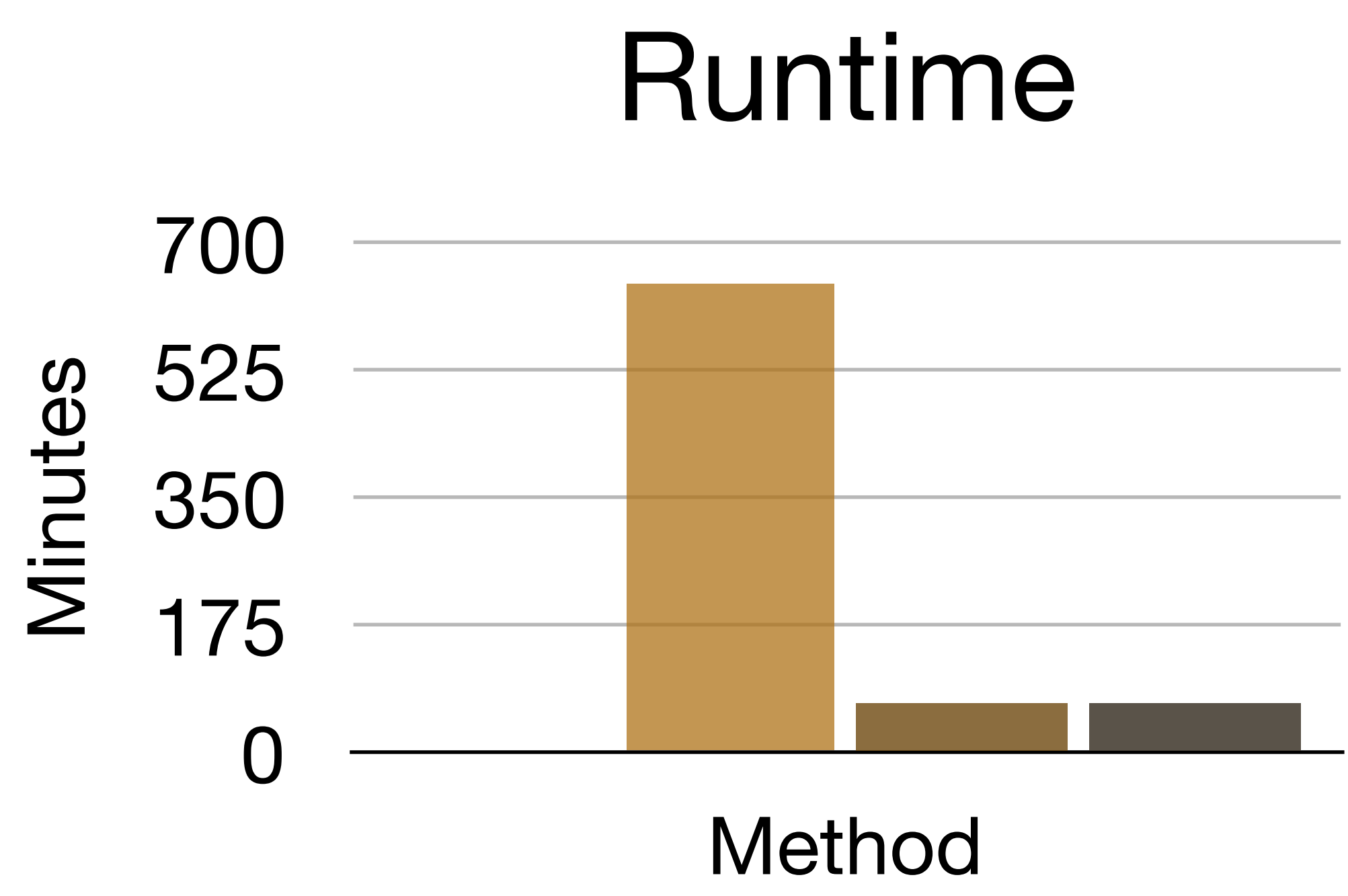

X
P(Y)
Γ*
the
pink
red
roja
rosa
el
la
cas
car
house
coche

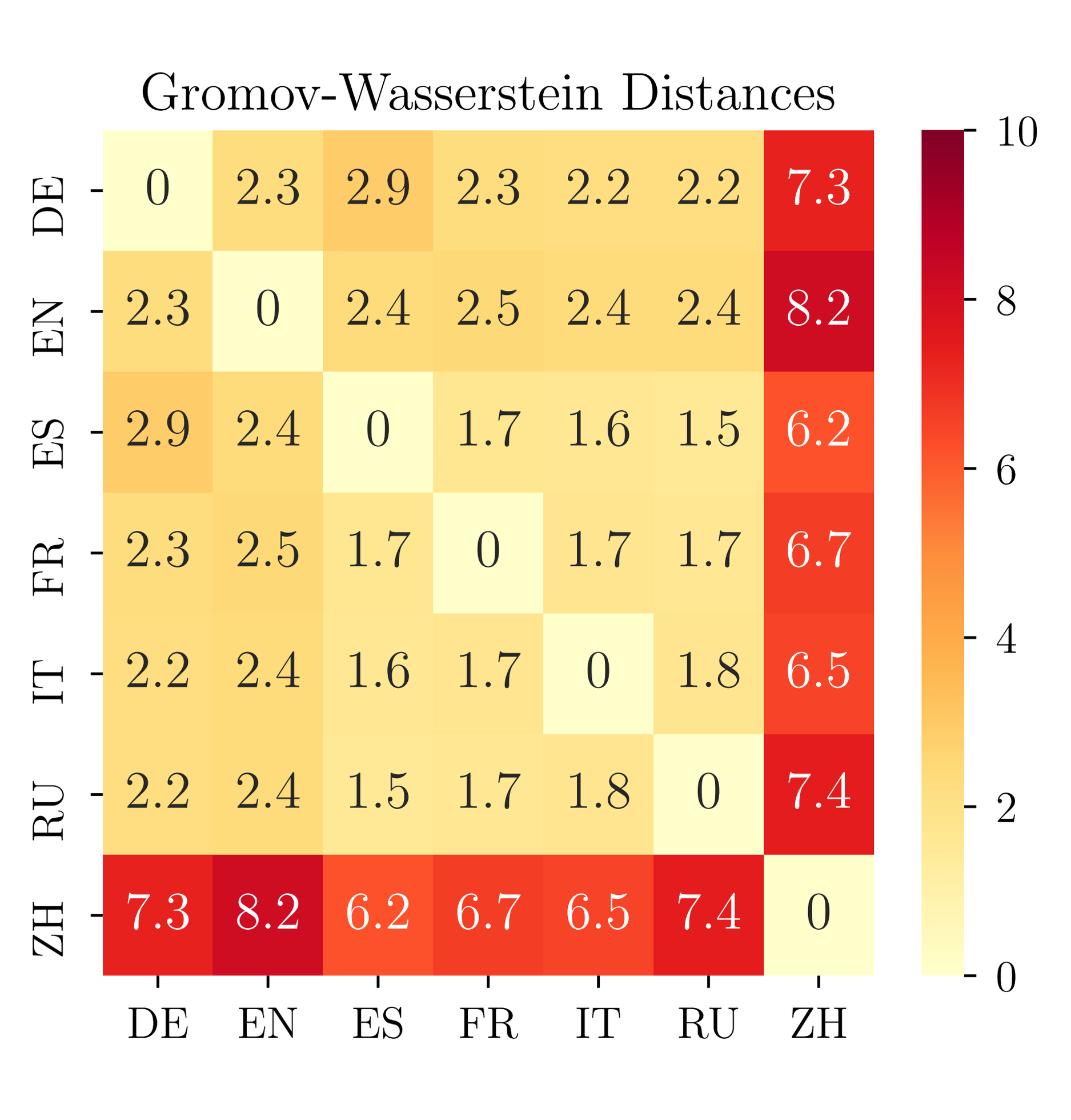

red
pink
car
house
red
pink
car
house
C
Γ*
casa
coche
rojo
rosa
casa
coche
rojo
rosa
C′

Unsupervised word translation: state-of-the-art (but faster and principled!)

1. Invariant OT

2. Gromov-Wasserstein

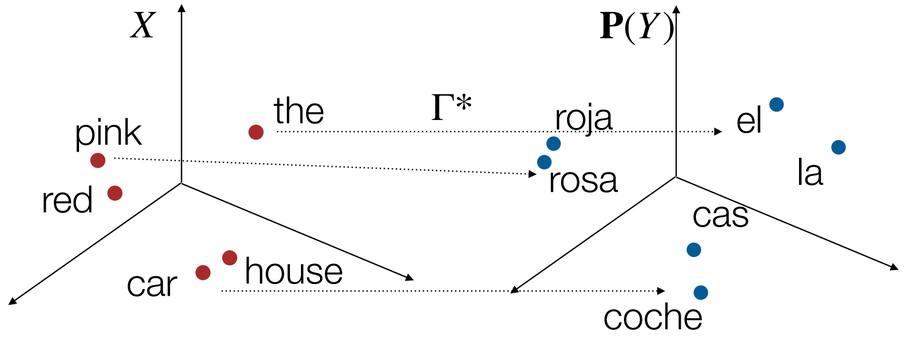

Runtime
700
525
350
175
0
Minutes
Method


Gromov-Wasserstein Distances
DE
EN
ES
FR
IT
RU
ZH
0 2.3 2.9 2.3 2.2 2.2 7.3
2.3 0 2.4 2.5 2.4 2.4 8.2
2.9 2.4 0 1.7 1.6 1.5 6.2
2.3 2.5 1.7 0 1.7 1.7 6.7
2.2 2.4 1.6 1.7 0 1.8 6.5
2.2 2.4 1.5 1.7 1.8 0 7.4
7.3 8.2 6.2 6.7 6.5 7.4 0
DE
EN
ES
FR
IT
RU
ZH
10
8
6
4
2
0

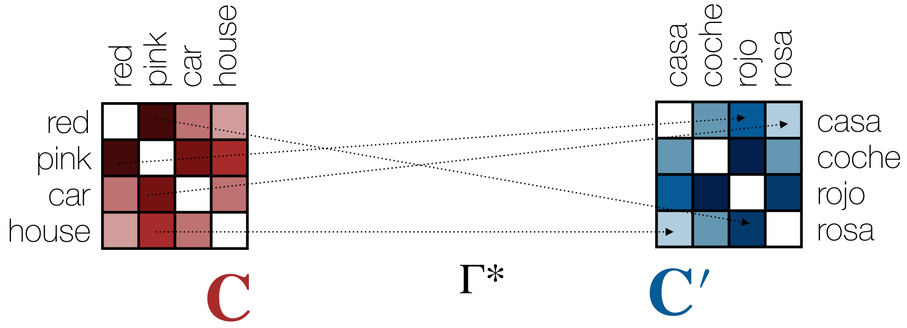
OT with Invariances
Key Takeaways

Two OT-based approaches for unsupervised embedding alignment

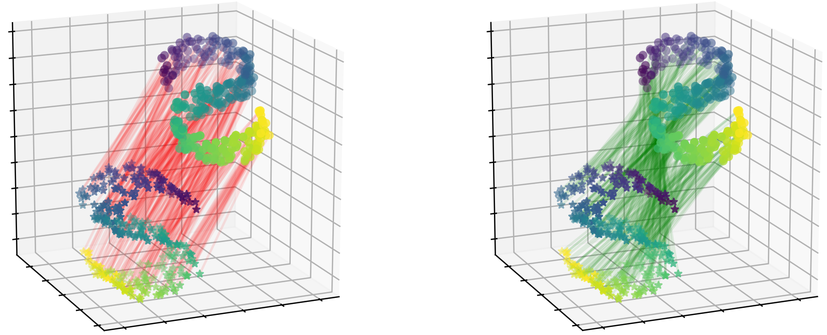
1. Invariant OT



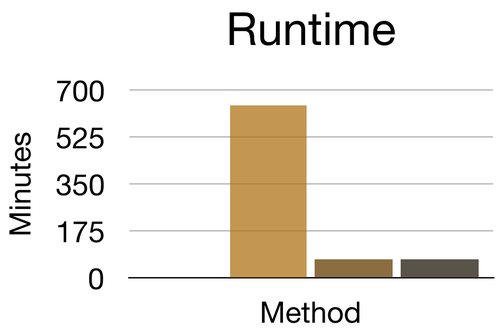
2. Gromov-Wasserstein

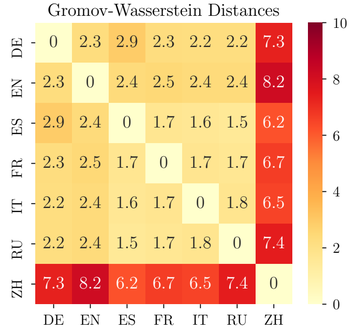


Simple (but powerful!) invariance modeling via Schatten norms



Unsupervised word translation: state-of-the-art (but faster and principled!)





Part III:
OT over Hyperbolic Spaces

Based on: AM, Mroueh, Jaakkola. "*Unsupervised Hierarchy Matching with Optimal Transport over Hyperbolic spaces*", In submission.