[redacted]

Key Takeaways

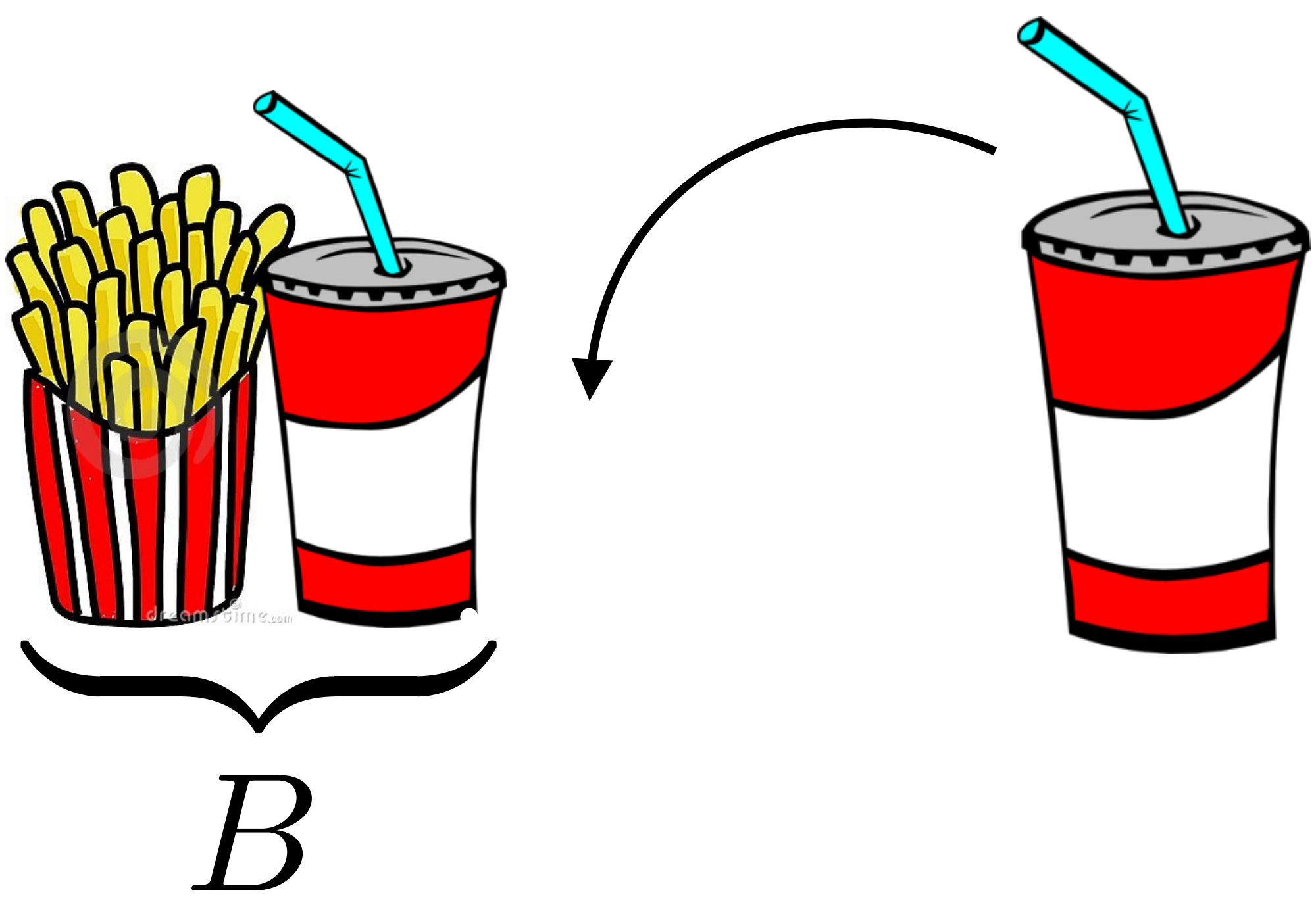
Structured OT

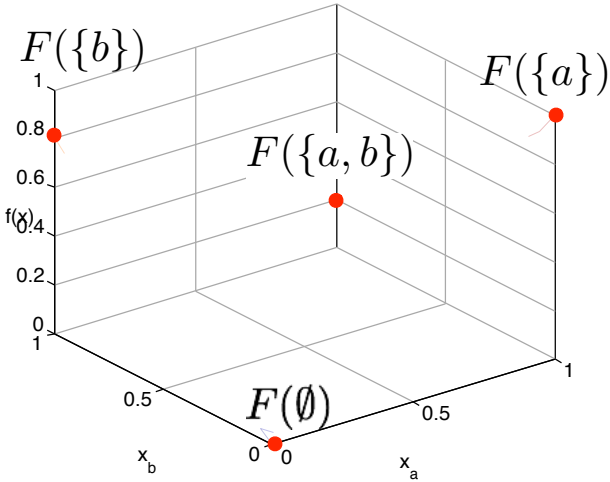
31

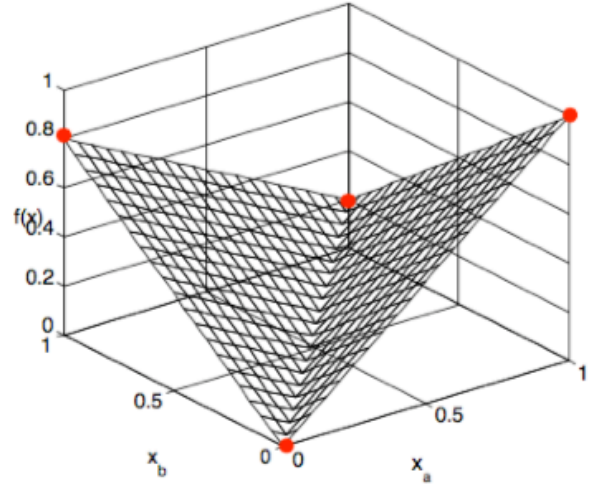
Structured costs via submodularity

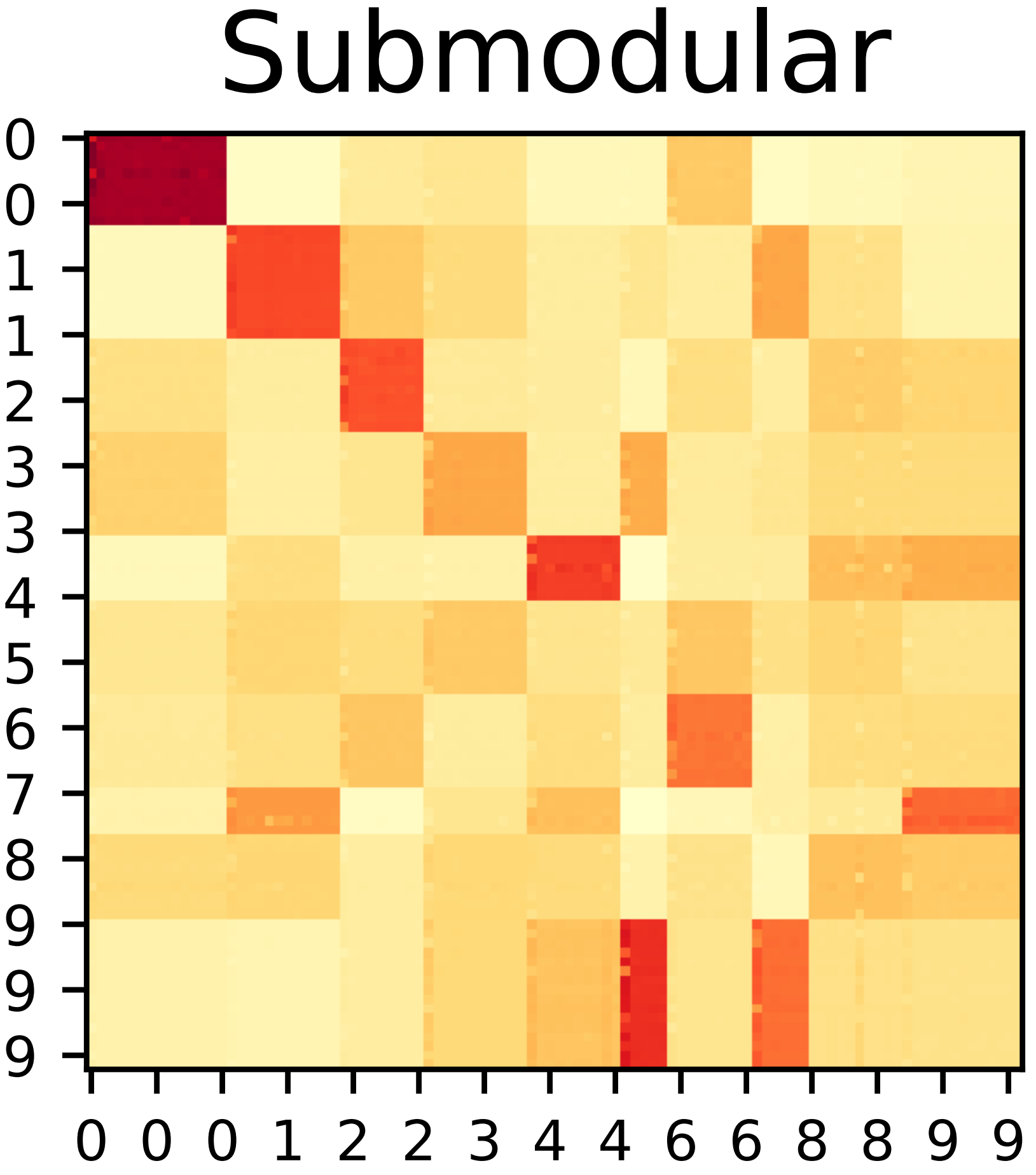
Relaxation with Lovász extension

Effective structure enforcement


B

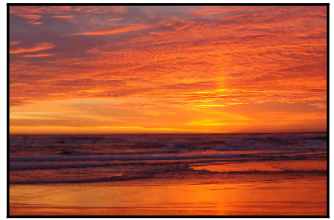

$F(\{b\})$
$F(\{a\})$
$F(\{a,b\})$
$F(\emptyset)$
f(x)
1
0.8
0.6
0.4
0.2
0
0.5
1
x_b
x_a


f(x)
1
0.8
0.6
0.4
0.2
0
0.5
1
x_b
x_a

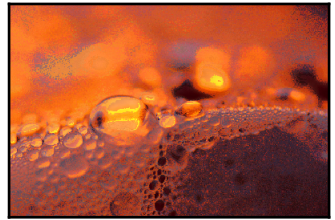

Submodular
0
0
1
1
2
3
3
4
5
6
7
8
9
9
9
0 0 0 1 2 2 3 4 4 6 6 8 8 9 9

Source

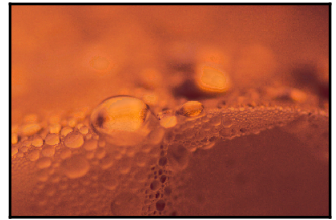
Target



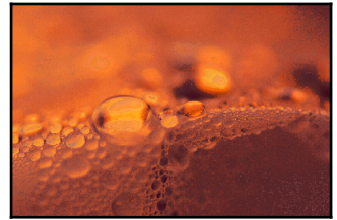
EMD



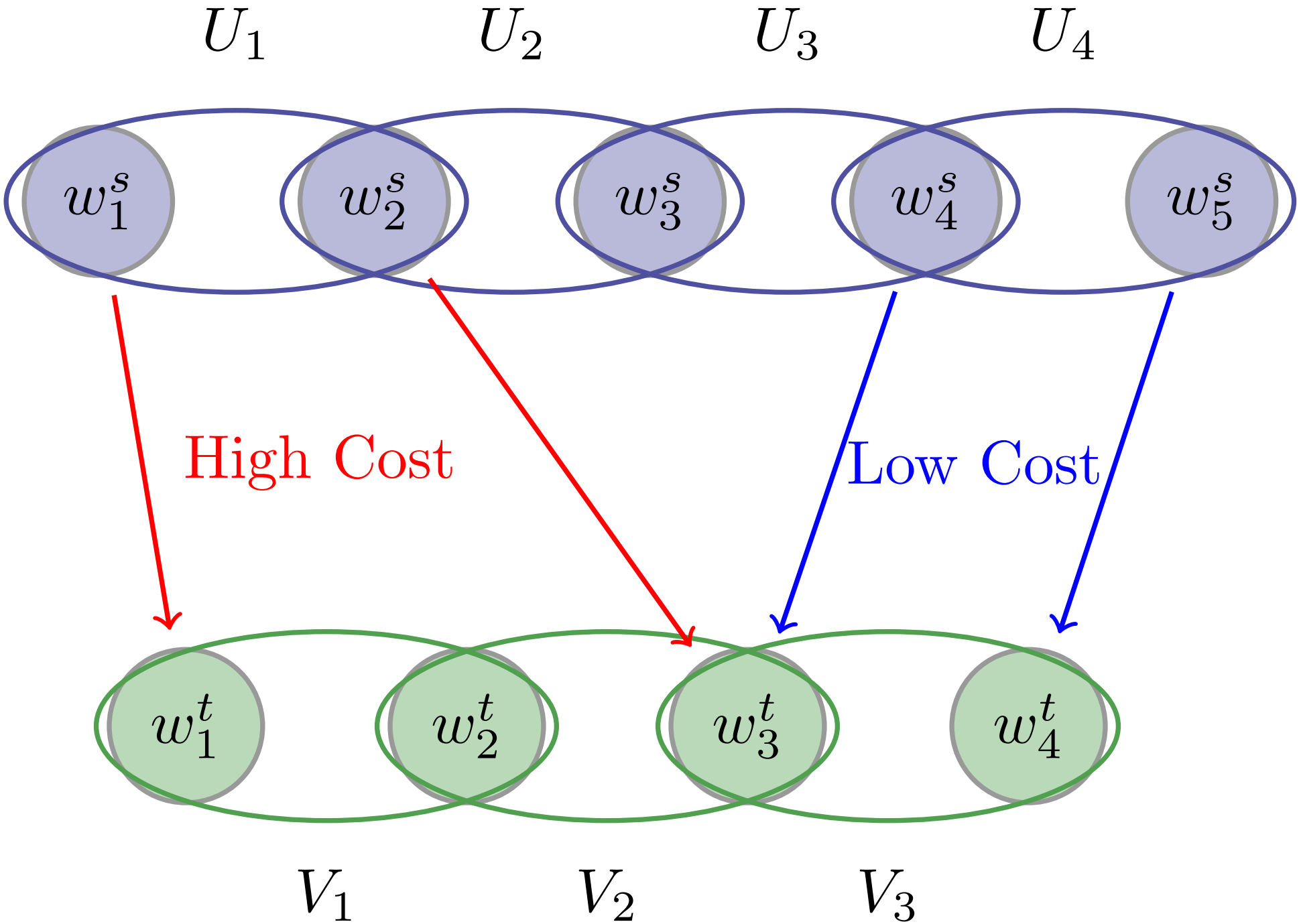
Entropy-regularized

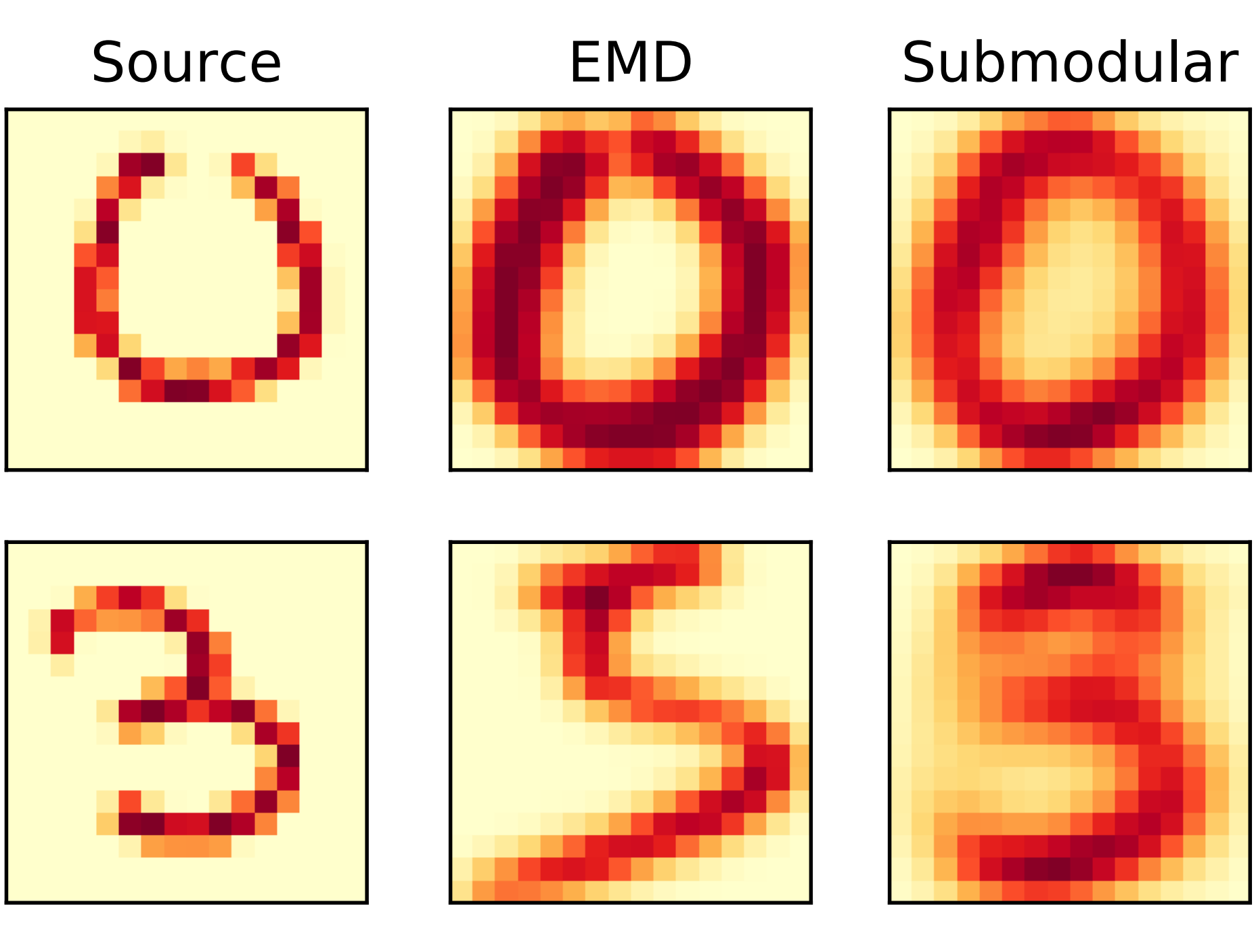


Submod OT



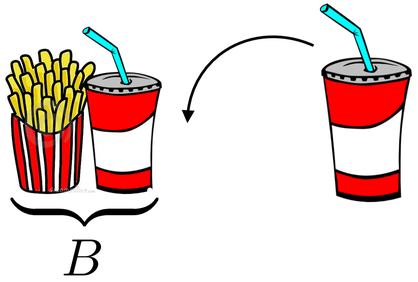
Applications in domain adaptation, sentence similarity, color transfer


U_1
U_2
U_3
U_4
w_1^s
w_2^s
w_3^s
w_4^s
w_5^s
High Cost
Low Cost
w_1^t
w_2^t
w_3^t
w_4^t
V_1
V_2
V_3

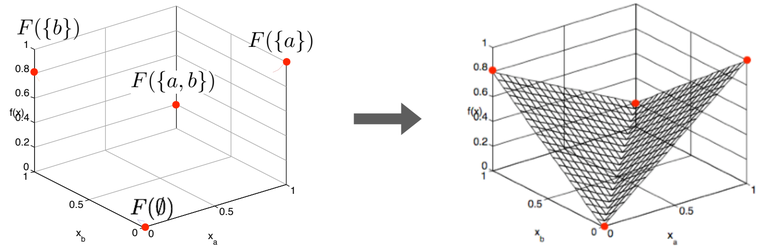

Source
EMD
Submodular

Structured OT
Key Takeaways

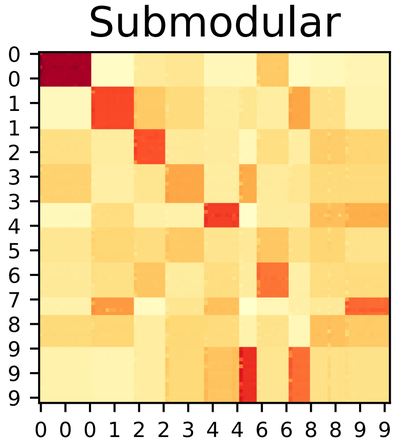
Structured costs via submodularity



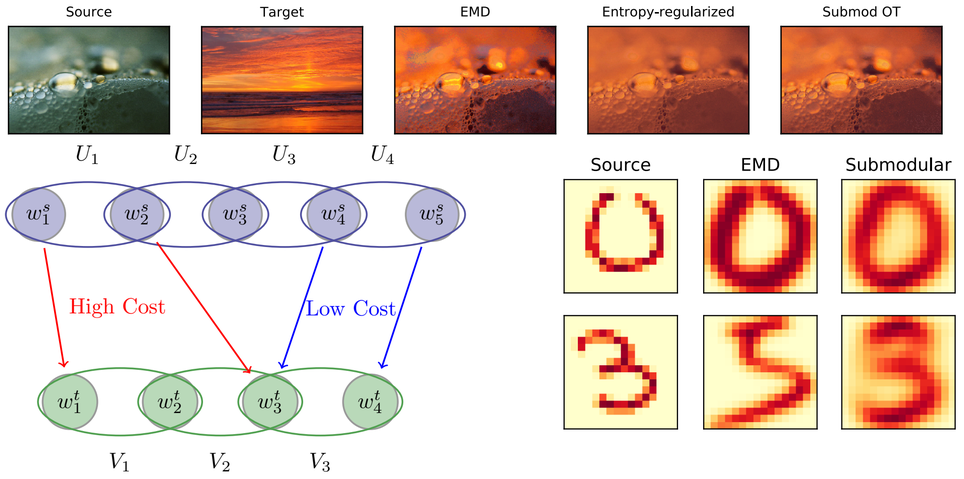
Relaxation with Lovász extension



Effective structure enforcement



Applications in domain adaptation, sentence similarity, color transfer



Part II:
OT with Global Invariances

Based on:

AM & Jaakkola. "*Gromov-Wasserstein Alignment of Word Embedding Spaces*", EMNLP 2018

AM, Jegelka, Jaakkola. "*Towards Optimal Transport with Global Invariances*", AISTATS 2019