

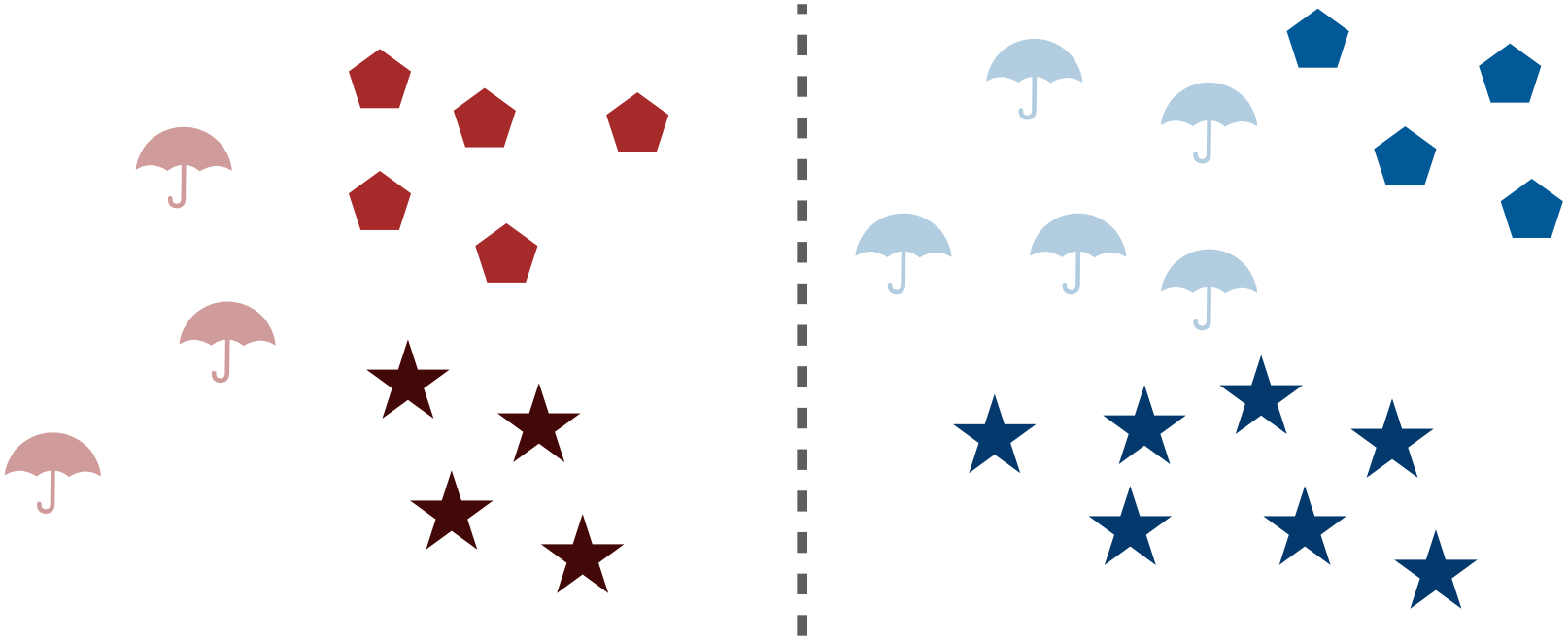




with Submodular Costs

Matching





**G<sub>1</sub>**

*G<sub>2</sub>*









sum over all groups

convert function to "dampen"

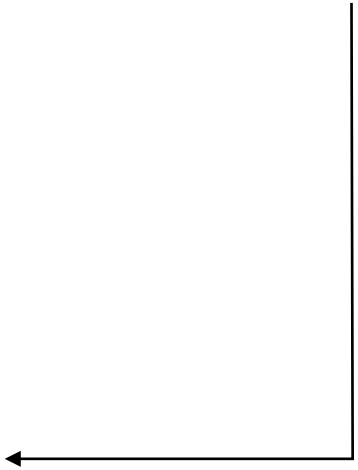
marginCostof(i,j)match

$$F(M) = \sum_k^K g \left( \sum_{(i,j) \in M \cap G_k} c_{ij} \right)$$

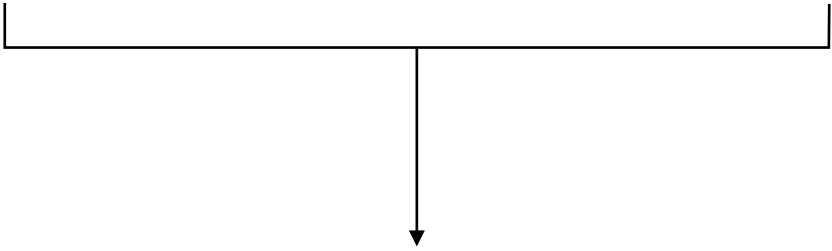
groups defined by problem structure  $\longrightarrow$

[label classes, tree siblings, etc]

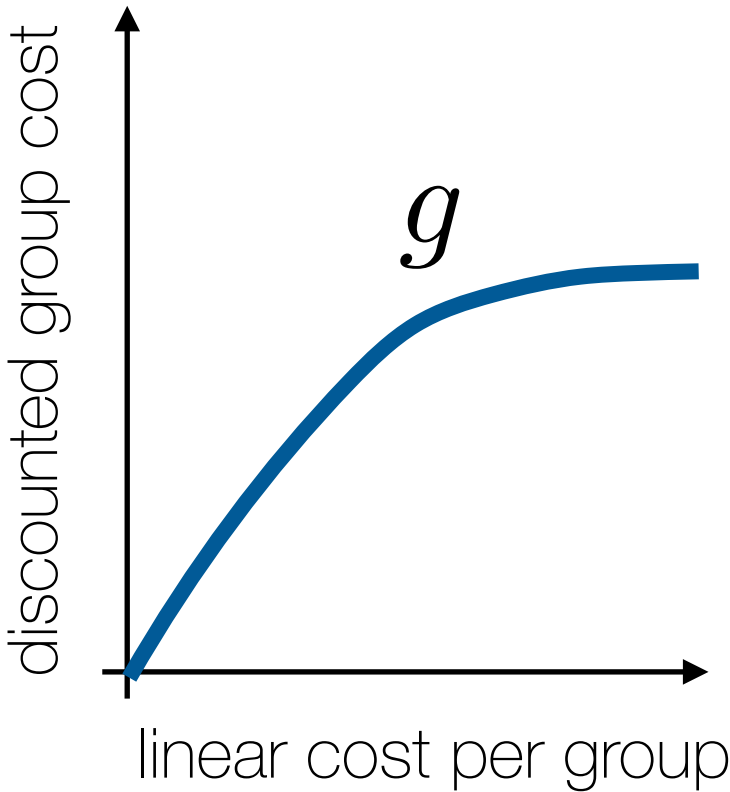






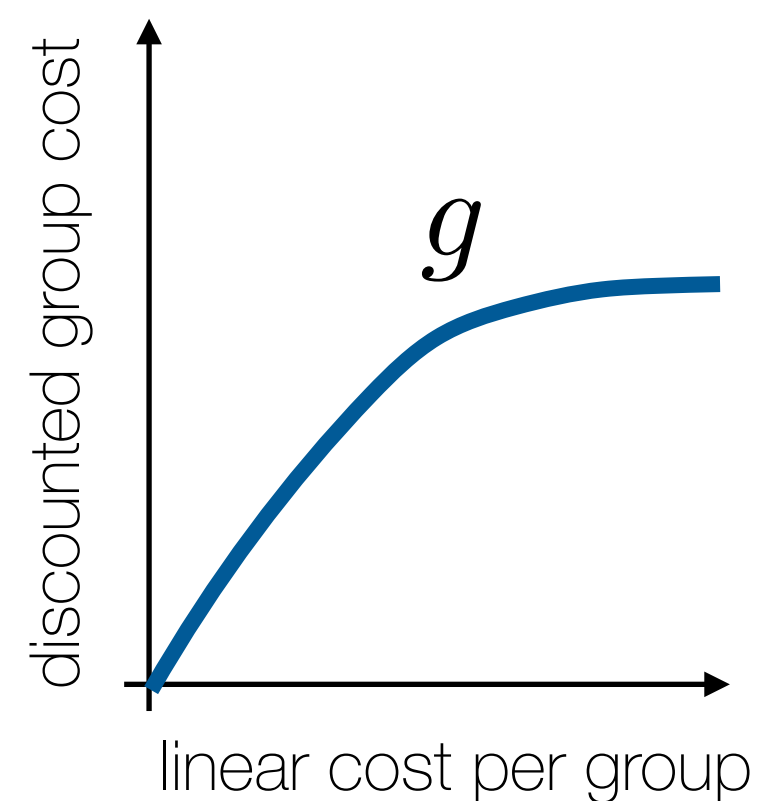
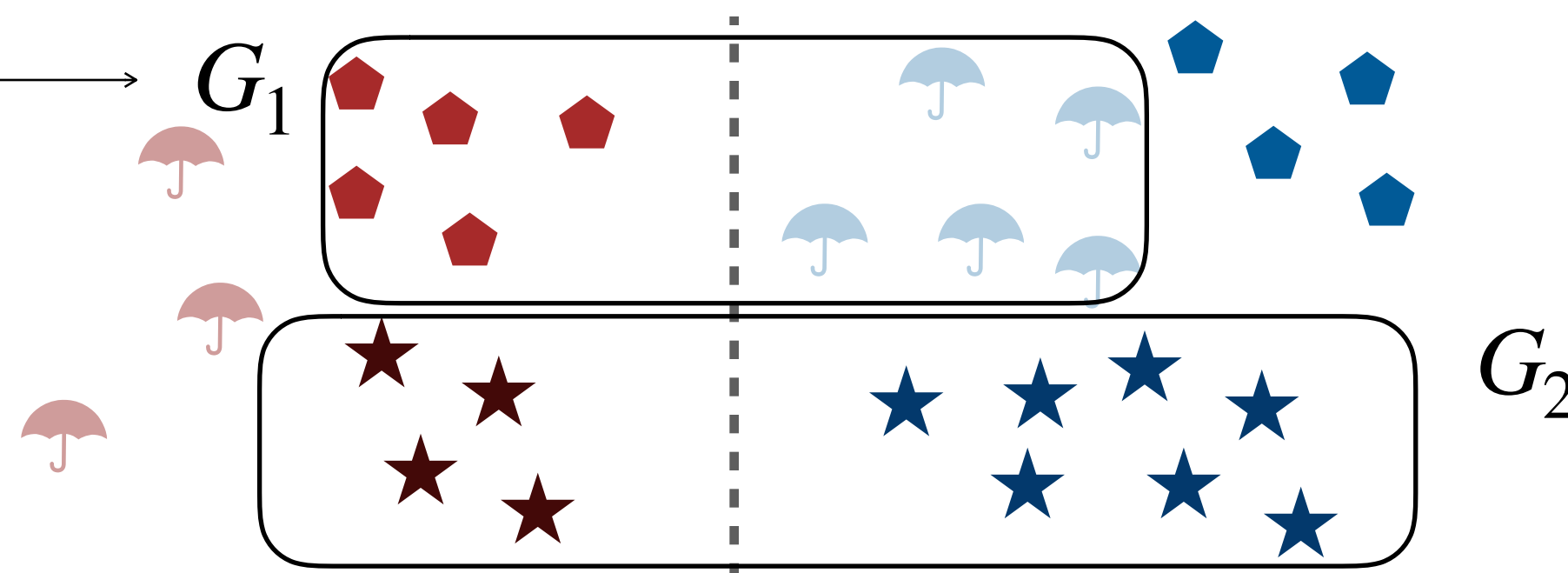


cumulative cost for matches in group



# Matching with Submodular Costs

groups defined by problem structure  
[label classes, tree siblings, etc]



$$F(M) = \sum_k^K g \left( \sum_{(i,j) \in M \cap G_k} c_{ij} \right)$$

sum over all groups

concave function to "dampen"

cumulative cost for matches in group

marginal cost of (i,j) match

# Structured OT

## Relaxing the Objective