Domain Intersection and Domain Difference

Summary

1. Presents a method that recovers the information shared b/t 2 domains and unique to the 2 domains.
2. e.g. persons wearing glasses and person smiling
   - persons: shared
   - glasses: unique
   - person: shared
   - smiling: unique
3. The loss is $\mathcal{L} = \mathcal{L}_{zero} + \lambda_1 \mathcal{L}_{adv} + \lambda_2 \mathcal{L}_{recon}$.
   - $\mathcal{L}_{zero}$: enforces that encoder for domain A does not encode any information about domain B
   - $\mathcal{L}_{adv}$: enforces that the common encoder does not encode domain-specific information
   - $\mathcal{L}_{recon}$: enforces that encoder for domain A actually encodes all the info. from domain A.
4. Provide an interesting proof on necessary & sufficient conditions for successful separation of domain-specific and domain-agnostic information.