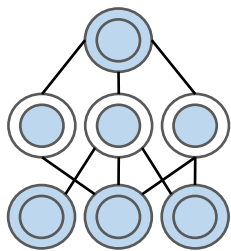
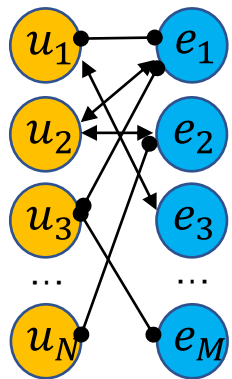


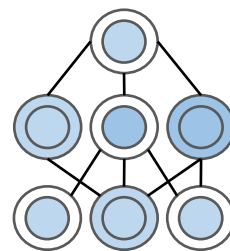
Learner-Exercise Interactions



f_{θ}

$\min \mathcal{L}_{CD}$

Improve Accuracy



f_{θ}

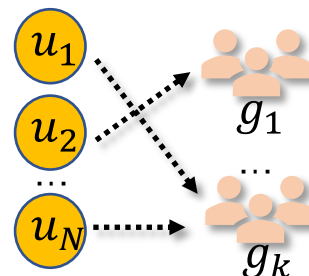
**Pre-training
Basic CD
Model**

| | g_1 | \dots | g_k |
|----------|----------|----------|----------|
| u_1 | 0.1 | \dots | 0.7 |
| \vdots | \vdots | \ddots | \vdots |
| u_N | 0.3 | \dots | 0.5 |

Trainable Matrix \mathcal{W}

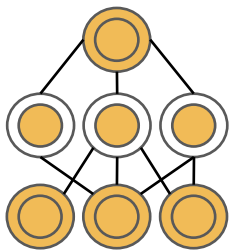
fix parameter θ

$\max \mathcal{L}_{fair}$



**Sensitive
Group
Inference**

pseudo - labels

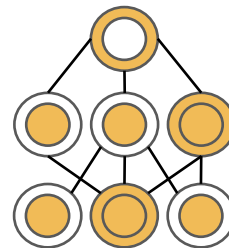


f_{θ^*}

pseudo-labels

$\min \mathcal{L}_{fair}$

$\min \mathcal{L}_{CD}$



f_{θ^*}

**Training
Fair CD
Model**