

# Simplex prediction

## Generalization of link prediction

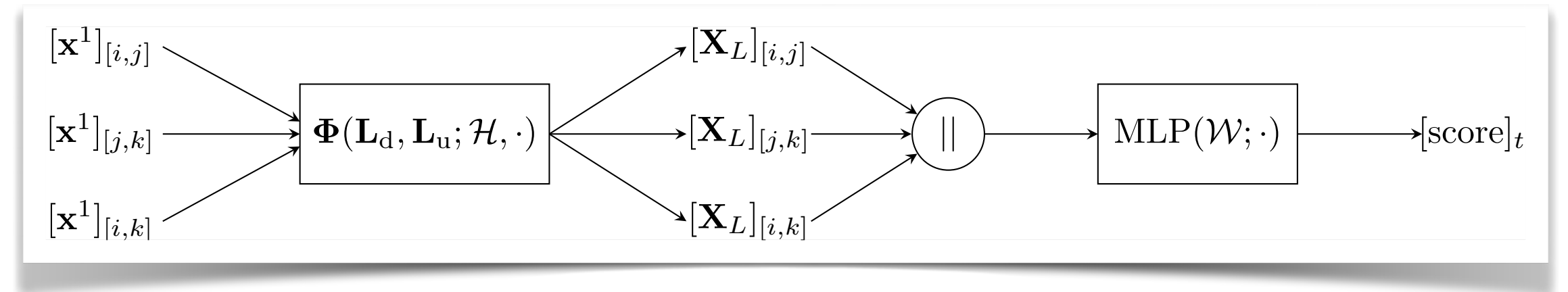


Table 2: Simplex prediction (AUC,  $\uparrow$ ) .

| Methods                         | 2-simplex                      | 3-simplex                      |
|---------------------------------|--------------------------------|--------------------------------|
| Mean (Benson et al., 2018)      | 62.8 $\pm$ 2.7                 | 63.6 $\pm$ 1.6                 |
| MLP                             | 68.5 $\pm$ 1.6                 | 69.0 $\pm$ 2.2                 |
| GNN (Defferrard et al., 2016)   | 93.9 $\pm$ 1.0                 | 96.6 $\pm$ 0.5                 |
| SNN (Ebli et al., 2020)         | 92.0 $\pm$ 1.8                 | 95.1 $\pm$ 1.2                 |
| PSNN (Roddenberry et al., 2021) | 95.6 $\pm$ 1.3                 | 98.1 $\pm$ 0.5                 |
| SCNN (Yang et al., 2022a)       | 96.5 $\pm$ 1.5                 | 98.3 $\pm$ 0.4                 |
| Bunch (Bunch et al., 2020)      | 98.3 $\pm$ 0.5                 | 98.5 $\pm$ 0.5                 |
| MPSN (Bodnar et al., 2021b)     | 98.1 $\pm$ 0.5                 | 99.2 $\pm$ 0.3                 |
| <b>SCCNN</b>                    | <b>98.7<math>\pm</math>0.5</b> | <b>99.4<math>\pm</math>0.3</b> |

# Statistical learning: Gaussian processes on SCs