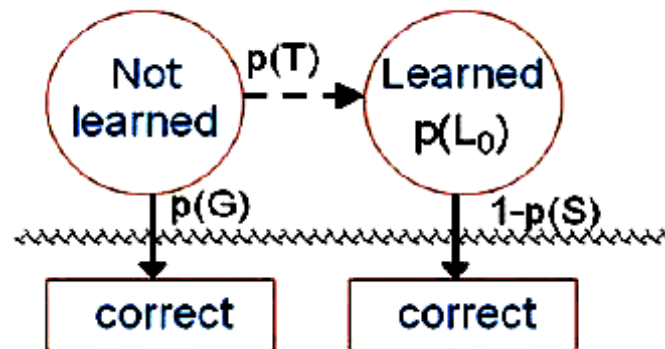


Using Gaming-Related Features to Improve Contextual Guess and Slip Models



Contextual Guess and Slip

- Use linear regression models to predict guess and slip parameters
- Shown to enhance accuracy of Bayesian knowledge tracing models [Baker et al. 2008]
- Slip is significant predictor of student post-test performance [Baker et al. 2010]

New Feature Categories

- Number of past opportunities gamed
- Percentage of past opportunities gamed
- Non-gaming practice opportunity count
- Skill difficulty

Leave-One-Student-Out Cross Validation

Guess

- Previous Model: $r = .139$
- New Model: $r = .364$
- $t(229) = 12.75, p < .0001$

Slip

- Previous Model: $r = .231$
- New Model: $r = .389$
- $t(227) = 7.68, p < .0001$