

Figure 1 is a line graph showing the regret curves for different algorithms and regret notions. The x-axis represents the number of iterations on a logarithmic scale from  $10^0$  to  $10^3$ . The y-axis represents the regret, also on a logarithmic scale. The legend identifies the following series:

- Variant:**
  - CFR+ (blue solid line)
  - BM-CFR+ (orange solid line)
  - PCFR+ (green solid line)
  - BM-PCFR+ (red solid line)
  - PCFR+ ( $\gamma = \infty$ ) (purple solid line)
  - BM-PCFR+ ( $\gamma = \infty$ ) (brown solid line)
- Regret notion:**
  - External (solid lines)
  - Swap (dashed lines)

The graph illustrates that the regret generally decreases as the number of iterations increases. The 'Swap' regret notion (dashed lines) consistently shows lower regret than the 'External' regret notion (solid lines) for all variants. The 'BM' variants (BM-CFR+, BM-PCFR+, BM-PCFR+ ( $\gamma = \infty$ )) generally exhibit the lowest regret, while the 'PCFR+' variants (PCFR+, PCFR+ ( $\gamma = \infty$ )) show the highest regret.

