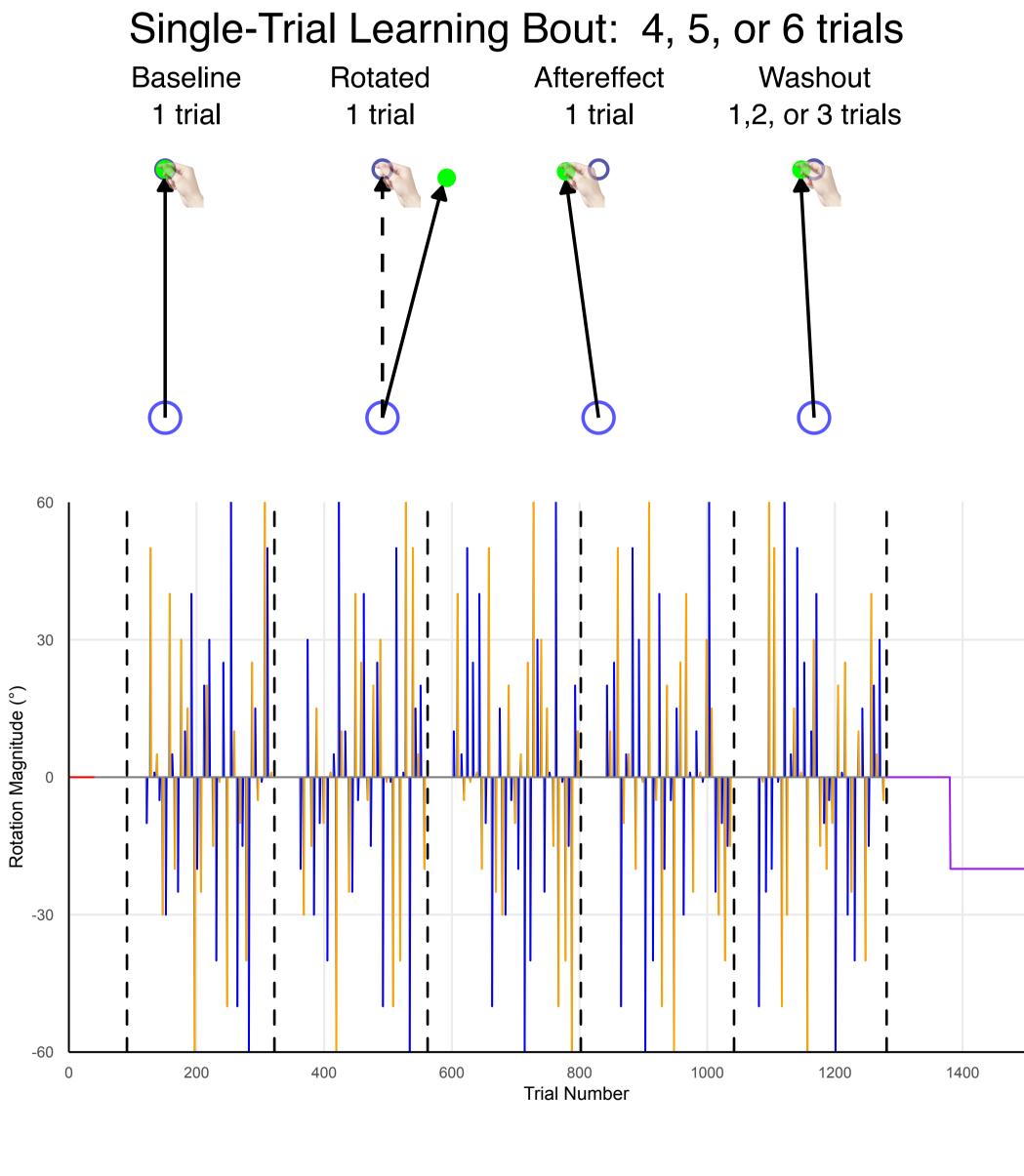
YORK The Effect of Type and Timing of Error Signals on Initial Centre for Integrative and **Applied Neuroscience Implicit Changes in Visuomotor Adaptation** Centre pour l'Intégration et l'Application des Neurosciences Denise Y.P. Henriques, Z. Nabaee-Tabriz, P. Rahimpoor-Marnani, B. Marius 't Hart UNIVERSITÉ UNIVERSITY York University, Toronto, Canada. Effect of limited endpoint feedback and Effect of type of error signals and magnitude Initial rate of implicit change delays Initial implicit changes saturated across perturbations from Although implicit visuomotor adaptation is well studied, little 15° to 90°, with no attenuation at higher magnitudes. is known about the earliest stages—especially how error type, magnitude, and timing shape single-trial learning. We Comparing error signals with training target types used a single-trial approach to quantify initial implicit 0 0 0 changes during movement-contingent adaptation to altered 0 aftereffect magnitude. visual feedback. Across varying perturbation magnitudes, Dot target Arc (wide) target we examined how different error signals and their timing involves both SPE and target errors involves only SPE contribute to early recalibration. O \bigcirc 9 Single-Trial Learning Bout: 4, 5, or 6 trials afterffects were larger following targets that provided both SPE and target error (dot target) than Baseline Rotated Aftereffect Washout Ct 1 trial 1 trial 1,2, or 3 trials 1 trial 4 those who only received SPE signals (arc target). 2 45° max rotation, N = 31 afte ct [°] reach \sim reach dot target arc target 25 45 35 15 -2 60° max rotation, N = 43 rotation magnitude [°] reffect [°] 9 after Take away attribution model capped model with error size. •Task error also plays a role in initial 90° max rotation, N = 51 1200 1400 200 400 600 1000 implicit adaptation. **Trial Number** effect [°] Initial implicit adaptation is reduced VISTA NSEKC reach 2 VISION: SCIENCE TO APPLICATIONS CRSNG YORK UNIVERSITY with delays in feedback. 1 5 10 15 20 70





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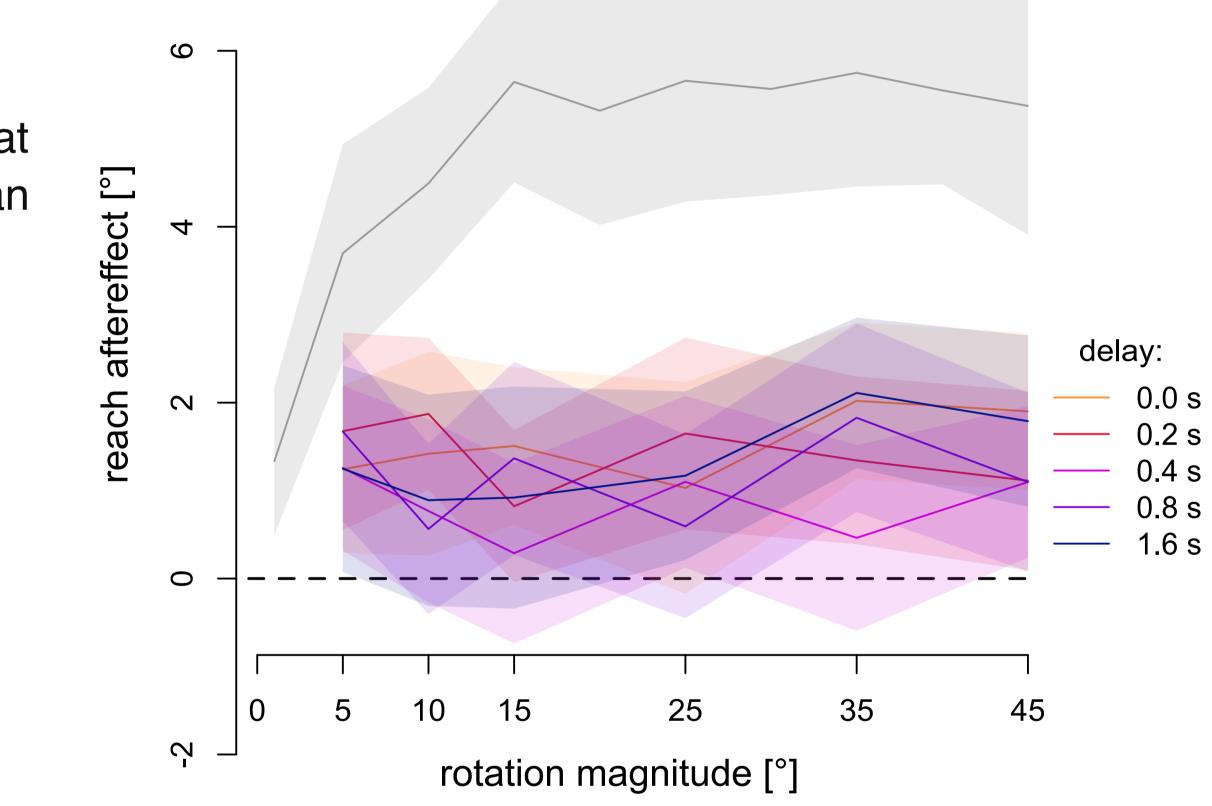
rotation magnitude [°]







Initial aftereffects were smaller when single-trial learning occurred with endpoint feedback compared to continuous cursor feedback. However, introducing feedback delays of up to 1.6 seconds did not lead to further reductions in



•Initial implicit adaptation does not scale

