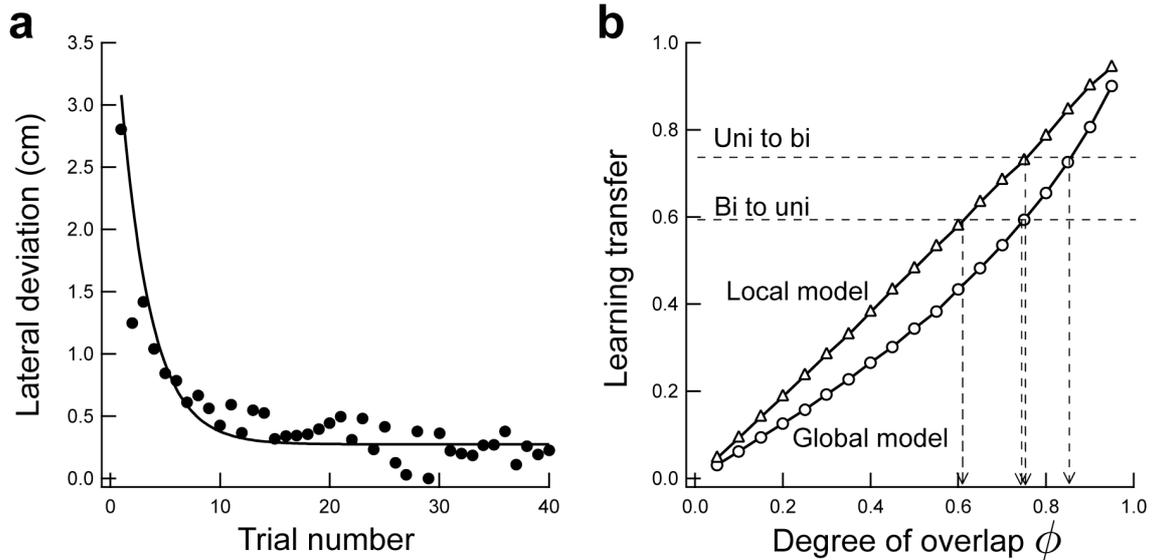# Supplemental Information

Supplementary Figure 1. Determination of model parameters. a Lateral hand deviation at peak velocity during the learning phase of Experiment 1 (closed circle). The solid line indicates the curve (Eq.(13) in the main text) fitted using a least squares method. b Relationship between the degree of overlap and the learning transfer obtained from the 3 compartments model with global (circles) and local (triangles) update rules. The degree of overlap of the model was obtained from the motor learning transfer from bimanual to unimanual movement or from unimanual to bimanual movement observed in Experiment 1.

The local model with less overlap cannot explain slow washout observed during combined learning condition

The model with local update rule failed to reproduce the result of the experiment 3 (Fig. 7) in terms of the level of force compensation and slow washout behavior. One might consider that the model could reproduce the result if ϕ changed. However, this is not the case. Indeed, the ϕ needs to be decreased to a very small value (~0.35) so that the model produces the compensation level of the force fields (Fig. S2). It should be noted that the model with such a small ϕ cannot reproduce the results of the experiment 1 and 2. In addition, even when the ϕ is used, the slow washout behavior can never be replicated (Fig. S2): the convergence rate of the washout of the local model is almost identical to that of the ordinary washout (i.e., unimanual washout after unimanual learning).

Local model prediction ($\phi = 0.35$)
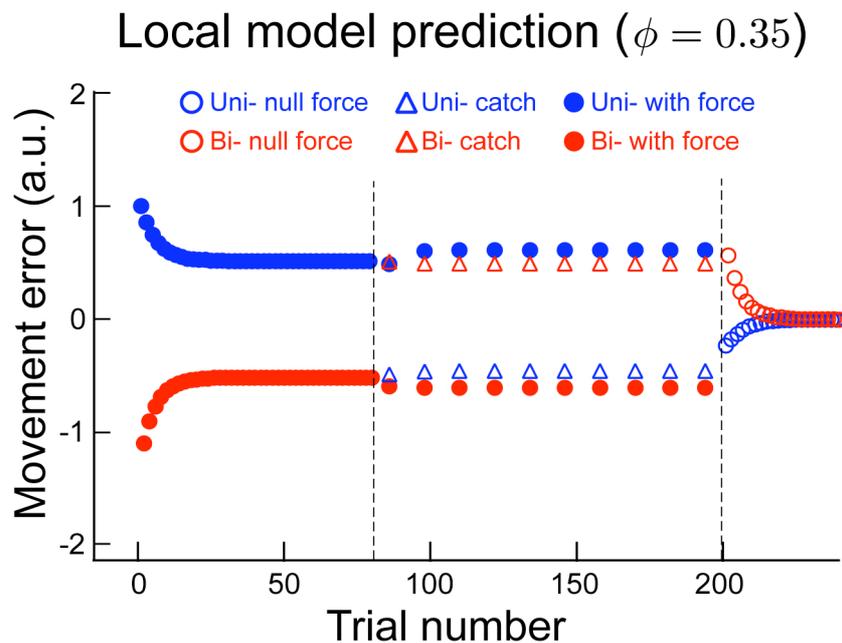
Supplementary Figure 2. Adjusted multi-compartment model with a local update rule to explain 'combined' learning in Experiment 3. The human pattern of learning could be predicted with a small value for ϕ (0.35) representing the degree of overlap. All other parameters values were the same as in Fig. 2c.