

Recognising and categorising the actions of our conspecifics is important for social interaction and survival. However little is known about how observers make categorical judgements on actions. The aim of the current research was to study perceptual boundaries between different movement categories. In order to study categorical movement perception we used point light displays of natural human movements and action blends created by blending a pair of movement prototypes relative to each other. To achieve this, motion capture data were obtained for the actions of knocking, lifting and throwing movements for a set of 30 actors. From these original 30 actors, representative examples for each action were chosen at the fastest, slowest and median wrist velocity for each action. This resulted in 3 examples of each action being used for subsequent action blends. A registration curve blending technique time-aligned the motions to prevent artifacts in the blending. These blends were done at 9 evenly spaced blend levels between any two examples of an action (for example a fast knock and a slow throw). The blended and original motions were used to create stick-figure displays that were shown to three observers who were asked to categorize the motion as one action or the other. Each display was judged 20 times. The resulting psychometric function provides an estimate of how sharply tuned observers were in categorizing the two actions and whether there was a bias towards either element in the action-pair. Results showed that action categories were broad enough to require a fair amount of blending deviation from the original action before classification of the action changes. However, once classification begins to change the transition can be abrupt.