1. Introduction

The presence of familiar object motion is known to facilitate visual object recognition\(^1\). In addition to shape cues, observers can utilise familiar visual changes in an object’s physical properties for identification.

Such changes typically arise in the natural environment as the result of either a moving observer or object (Fig. 1). Here, we show that characteristic dynamic information can sometimes compensate for when object recognition is impaired by unreliable shape cues e.g., 2D shape distortions by viewpoint variations\(^2\).

![Real-life examples of rigid and nonrigid visual changes resulting from: i) moving observer (top row); ii) animate object (bottom row)](image)

2. Method

Part 1: Learning

Participants learned 2 moving objects. The 2 objects changed in a consistent fashion, either rigidly (Expt 1,3) or nonrigidly (Expt 2,4) across time.

Part 2: Two interval-forced choice Test

Two objects were presented in succession: one learned and one novel. Participants had to identify the object previously learned in Part 1.

- **Test variables**
  - a) Object-Motion: Learned objects were presented moving in either the learned or reverse direction (See Figure 2.1 for details).
  - b) Viewpoint variation: Objects were viewed from novel viewpoints that varied from the learned viewpoint in steps of 10° (Expt 1 & 2: 0°, 10°, 20°, 30°); 20° (Expt 3 & 4: 0°, 20°, 40°, 60°)

3. Results

- **Experiment 1: Rigid motion**
  - There is a general benefit of recognising a learned object presented in its learned motion. (Experiment 1: F(1,23)=13.9, p <0.05; Experiment 2: F(1,23)=8.8, p<0.05)
  - Object recognition decreases with increasing variation between test and learned viewpoint. (Experiment 1: F(3,69)=4.4, p <0.05; Experiment 2: F(3,69)=27.0, p<0.05)
  - There was no interaction effect between the factors of Object-motion and Viewpoint-variation.

- **Experiment 2: Nonrigid motion**
  - This is true for both rigid and nonrigid types of object motion.

4. Discussion

It is well-known that visual object recognition is dependent on:

- the availability of familiar object motion [1, 2].
- view-familiarity [3]

Both findings are replicated in our studies.

More importantly, we show that this recognition benefit of familiar object motion remains constant across the varying viewpoints.

5. References