How slow can you go?: Domain-specific psychophysical limits on the perception of animacy in slow-moving displays

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Psychophysical Motion Thresholds
We can easily see the movement of a clock’s second hand, but not the movement of its minute hand.

Seeing Higher-Level Properties
Certain motion cues also trigger rich percepts of seemingly higher-level properties, such as causality and animacy.

Our Question
Do high-level percepts simply inherit lower-level motion thresholds, or do they have independent temporal constraints?

Our Case Study
The perception of animacy

An exceptionally ubiquitous and adaptive event

Previous Research
Chasing perception is highly efficient: it ‘pops out’, and cannot be explained by simple correlation or proximity (Gao et al., 2009, Cognitive Psych.).

The Current Experiment
• Task: Is one object chasing another?
• The sheep was slightly faster then the wolf
• Wolf/distractor speed was identical

Expts 1 + 2
5 Initial Speeds

Expts 3 + 4: Duration vs. Trajectory

Our Primary "Slow-Motion" Result
Slow motion eliminated chasing detection, even while the movements themselves could still be easily perceived!

Future?

High-level perception does not simply inherit the psychophysical thresholds of low-level vision.