I. Motion Perception Review
How does motion perception aid depth perception and object recognition?

II. Motion Perception is Hard
Why does the fact that our eyes move make it difficult to perceive the motion of objects?
Give an example:

What is the “temporal correspondence problem” and why does it make motion perception difficult? Give an example.

III. Solving Motion Ambiguity
III.A Local Disturbances vs. Optic Flow
What changes in the retinal image when an object moves? When we move?
What is “optic flow” and what does it tell us about our own movement?

### III.B Corollary Discharge Model (CDM)

**Sketch the CDM:**

According to the CDM, when do we perceive an object as moving?

What is some evidence that the CDM is correct?

How does the CDM help to resolve the true sources of image motion?
III.C Apparent Motion Heuristics
What is the “shortest path heuristic” and how does it help to resolve motion ambiguity?

Is the shortest path heuristic always used?

What is the “occlusion heuristic” and how does it help to resolve motion ambiguity?

How could these heuristics been seen as examples of Helmholtz’s likelihood principle?

What demonstrates the lack of momentum in apparent motion? Why does this appear to violate the likelihood principle?
IV. Physiology of Motion Perception

IV.A Review
Before V1, what pathway is critical for motion perception?

What cells in V1 respond to motion?

IV.B MT
Where is area “MT”? And what is MT’s place in the dorsal and ventral visual streams?

What evidence is there that MT is involved in motion perception?

Why was it important to have all three kinds of evidence (i.e., single cell recording, lesions, & microstimulation)?

IV.C MST
Where is area “MST”? And what type of stimuli does it respond to?
IV.D Real Movement Neurons
What is a “real movement neuron”? How do such neurons appear to resolve some of the ambiguity of motion perception?

Where are real movement neurons found?

IV.E The Aperture Problem
What is the “aperture problem” and why is it such a problem for cells at early levels of visual processing?

Is the aperture problem solved by area MT? How is this possible when the receptive fields of MT neurons are so small?

IV.F Real vs. Apparent Motion
What stimuli did Stevens et al. use to study the neural correlates of apparent motion?
What area associated with real motion perception was activated by apparent motion much more than static images?

What are some areas that showed greater activation to possible motion than impossible motion?