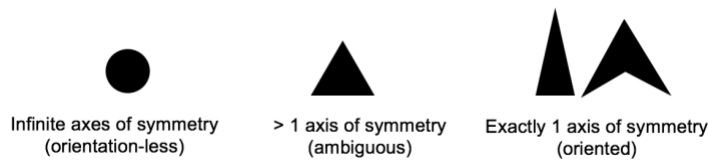


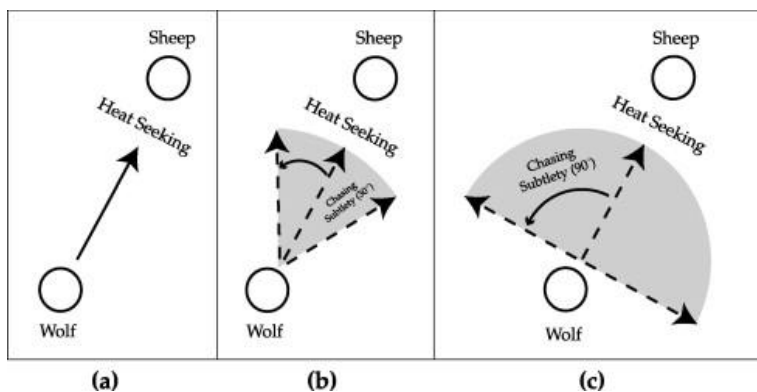
All animations are to be used in external psychology experimentation software (like JS-based jsPsych, Qualtrics or Python-based PsychoPy) that will be run on an internet browser.

Detailed info on the features below:

- *Creating “agents”* or predefined 2D shapes of arbitrary size and color, where users can tether the “face” direction of the agent to the direction of its movement, or allow its orientation to vary either randomly or programmatically with respect to its direction of movement. Agents can appear to be animate (e.g. people or animals) or objects (e.g. a ball) as seen from the top). Some examples below:



- *Assigning “motivators”* or motion algorithms for the aforementioned shapes within a frame. The trajectory can be specified programmatically, by taking in user-provided constraints on (speed, direction, acceleration, distance from edges and/or other shapes, etc.) or be set manually by entering coordinates. The program incorporates physics libraries so that the animations appear “realistic” in terms of Newtonian physics as well as biological motion (as much as possible).
 - With these motivators, we have simulated two-person interactions such as predator-prey, playful vs, aggressive interactions, agents arriving at a goal etc. in the animation mode, and with the options to allow users to control one of the agents when the other one is interacting with them [gaming mode].
 - Example motion parameters that we vary within an agent include:
 - speed, direction, acceleration, noisiness (jitter) – these can be manipulated parametrically
 - Agents’ movements can also be tethered to others flexibly – for example, with varying degrees of noise (example “chasing_subtlety.png”):



- Check out how the app GUI works [here](#), example videos [here](#)

- In the gaming mode, the user can control one of the agents with the keyboard or the mouse (example [here](#), use W-A-S-D to move the agent).

The program operates in two modes:

1. Animation, in which “canned” (unchanging) video stimuli are produced according to a set of rules. Within this mode there would be two options:
 - a. Fixed animation, in which the motion parameter(s) and trajectories are set ahead of time, and the program generates an animation of a requested length. Outputs videos in a video (.webm) format.
 - b. Varying animation, in which the parameter(s) controlling one or more of the movement features would vary from the beginning to the end of the animation according to a pre-specified function (e.g., smooth, stepwise). The idea here would be that a user would press a button to indicate when a transition is perceived (e.g., from two shapes talking to arguing). Would either output .webm for use in external experimentation software, or run in interactive mode where decision task is embedded in the software itself.
2. Video game, in which one of the shapes would be controlled by the user and the position of the other shapes would be updated in real time according to similar types of rules as above. In this case, the software would need to record user behavior (i.e., position of user-controlled shape at each frame). Would need to be played in an embedded interactive mode.