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**Part 3**

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| --- | --- | --- | --- | --- | --- |
| Gesture | Matched Action | | | | |
| Action 1 | Action 2 | Action 3 | Action 4 | Action 5 |
| Gesture 1 | 100% | 0% | 0% | 0% | 0% |
| Gesture 2\* | 0% | 50% | 33% | 0% | 0% |
| Gesture 3\* | 0% | 17% | 66% | 0% | 0% |
| Gesture 4 | 0% | 0% | 0% | 67% | 33% |
| Gesture 5 | 0% | 0% | 0% | 33% | 67% |

\*Participant did not match this gesture with an action

P1: [Video](https://sakai.unc.edu/access/content/group-user/049a6f26-3e34-408c-9106-74b39c6c268a/2b26db26-eb54-4f7c-9bd5-6bf87efacdb3/BDBF5AE1-1662-471E-BE9D-88328ABA0A9F.MOV) (Action 1)

P2: [Action 2](https://drive.google.com/file/d/17-EXdUK_eW2pELv-D-m7-Zs_5xpAmyaP/view?usp=sharing), [Action 3](https://drive.google.com/file/d/1hRgAUiL7LYx944lwf-b3v1VeNfm5Xb6z/view?usp=sharing)

P3: [Action 5](https://sakai.unc.edu/access/content/group-user/049a6f26-3e34-408c-9106-74b39c6c268a/2b26db26-eb54-4f7c-9bd5-6bf87efacdb3/20190228_164722.mp4)

P4: [Action 4](https://drive.google.com/file/d/1IbHArJWNUVbV_qNukrKfP_kHjvSzd8oy/view?usp=sharing)

**Action 1**

**Gesture 1**, conducted by P1, has a dynamic pose, is physical in nature, is world-independent, and has discrete flow. It has object-centric binding because the gesture only needs information about the object that is being reproduced. The gesture’s flow is discrete because the object will be reproduced after the gesture is performed.

**Action 2**

**Gesture 2,** conducted by P2, has a dynamic pose, because the hand remains in the space position in space while the fingers come in and are extended back outward. The nature of gesture 2 is abstract because it maps the fingers moving toward the palm and then extending out toward the square to changing the color. It has object-centric binding because the gesture only needs information about the object whose color is being changed. The gesture’s flow is discrete because the color will change after the gesture is performed.

**Action 3**

**Gesture 3**, conducted by P2, has a static pose and path because the palm remains out as the wrist is rotated. Gesture 2 has a physical nature because rotating a hand in that way on physical rectangle would produce the same kind of rotation. The gesture has object-centric binding because the gesture would only need to be associated with the specific object being rotated to be relevant; the place in the world doesn’t matter as it acts on the specific object. The gesture’s flow is continuous because the object can be rotated continuously with this gesture.

**Action 4**

**Gesture 4**, conducted by P4, has static pose and path because the hand moves down but remains in the same flat position. It is metaphorical in nature because it represents half of the shape being removed. It has object-centric binding because only information about the object to act on is needed for this gesture to carry out its intended effect. It has discrete flow because the rectangle is cut in half after the participant carries out the gesture; the cutting is not ongoing.

**Action 5**

**Gesture 5**, conducted by P3, has a dynamic pose and path, is physical in nature, is object-centric, and has discrete flow. Utilizing one finger, the participant drags their finger across to convey dragging the object to the desired location. It has object-centric binding because only information about the object to act on is needed for this gesture to carry out its intended effect. The impact of the gesture is definitive; once the object is “dragged”, it will not move until commanded to do so.

**Part 4**

Action 1:

Gesture 1 had a 100% correct match to Action 1, making Gesture 1 a natural choice to match to Action 1, as all our participants understood that the two fingers swiped across the screen duplicated the rectangle. This gesture, as described in part 3, has a dynamic pose, is physical in nature, is world-independent, and has discrete flow.

Action 2:

For this action, Gesture 2 seems to be fitting, as half of our participants correctly matched this gesture for this action. This gesture, as described in part 3 of this project has a dynamic pose, is abstract in nature, object-centric in binding, and has discrete flow.

Action 3:

33% of participants failed to identify the correct gesture for Action 3, with one participant not even able to match the gesture we selected to any action. Ideally, more than 67% percent of participants would be able to understand that a gesture maps to this action. In light of this, [Participant 1’s gesture](https://youtu.be/bs97wukv__w?t=76) for Action 3 might be a better fit, as the rotation with a thumb and two fingers extended may be more understood by users than using the whole palm to rotate the rectangle. This gesture would have to be researched to be sure According to Wobrick’s taxonomy, this gesture has a static pose and path, is physical in nature, has object-centric binding, and has continuous flow. This is the same classification as the previous gesture 3, but the different pose may be more easily understood by users, potentially pushing the recognition rate up if retested.

Action 4:

Gesture 4 seems to be the best choice for this action. Two-thirds of our participants matched this gesture and action together. This gesture has static pose and path, is metaphorical in nature, has object-centric binding, and has discrete flow due to the gesture action not being ongoing once the gesture is performed.

Action 5:

For Action 5, the data proves that gesture 5 is the best candidate for representation. As with Action 3 and Action 4, seeing more than 67% success would be ideal in order to map this action. The gesture has a dynamic pose and path, is physical in nature, is object-centric, and has discrete flow. The impact of the gesture is definitive; once the object is “dragged” - with one hand - it will not move until commanded to do so.