Supplementary Materials for

A core knowledge architecture of visual working memory

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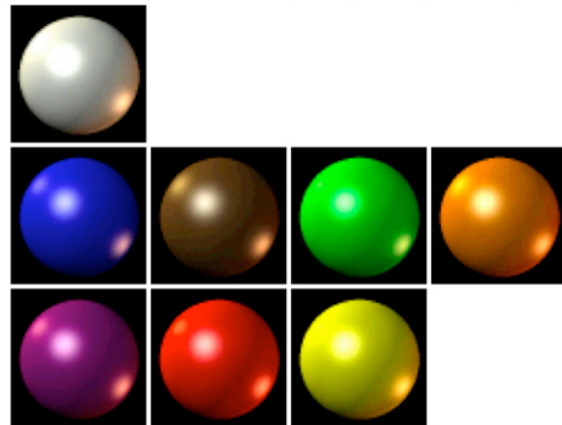Address correspondence to: justin.wood@usc.edu

Appendix 1

(**A**) Static depiction of the movements and changes used in Experiment 1. The images show the movements' and changes' maximal deviation from the neutral position shown at the top left of each figure. (**B**) Includes proportion of Hits (responding *different* on change trials) and False Alarms (responding *different* on same trials) for each of the conditions.

A

Experiment 1: Stimuli for movement memory task

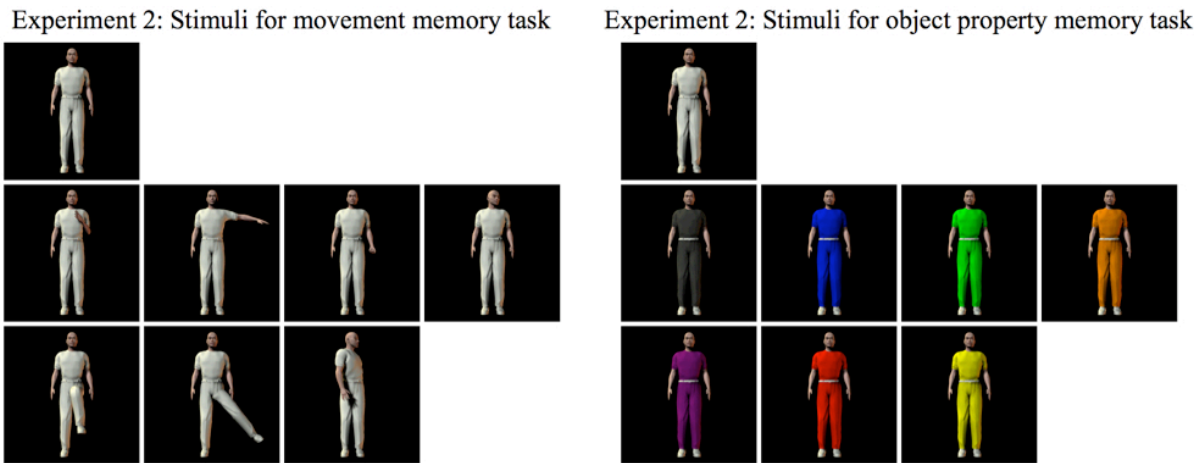Experiment 1: Stimuli for object property memory task

B

Proportions of Hits and False Alarms (FAs) for Experiment I

Set size	Hits/FAs	
	Movement memory task	Object property memory task
1	.94/.01	.97/.09
2	.92/.09	.95/.11
3	.85/.13	.90/.22
4	.77/.20	.87/.31
5	.81/.19	.85/.31

Appendix 2

(**A**) Static depiction of the movements and changes used in Experiment 2. The images show the movements' and changes' maximal deviation from the neutral position shown at the top left of each figure. (**B**) Includes proportion of Hits (responding *different* on change trials) and False Alarms (responding *different* on same trials) for each of the conditions.

A

Experiment 2: Stimuli for movement memory task   Experiment 2: Stimuli for object property memory task

B

Proportions of Hits and False Alarms (FAs) for Experiment 2

Condition	Hits/FAs	
	Movement memory task	Object property memory task
Movement task	.84/.14	N/A
Object property task	N/A	.95/.07
Movement task & object property task (movement task first)	.71/.11	.90/.13
Movement task & object property task (object property task first)	.83/.08	.88/.15

Appendix 3

(**A**) Static depiction of the movements and changes used in Experiment 3. The images show the movements' and changes' maximal deviation from the neutral position shown at the top left of each figure. (**B**) Includes proportion of Hits (responding *different* on change trials) and False Alarms (responding *different* on same trials) for each of the conditions.
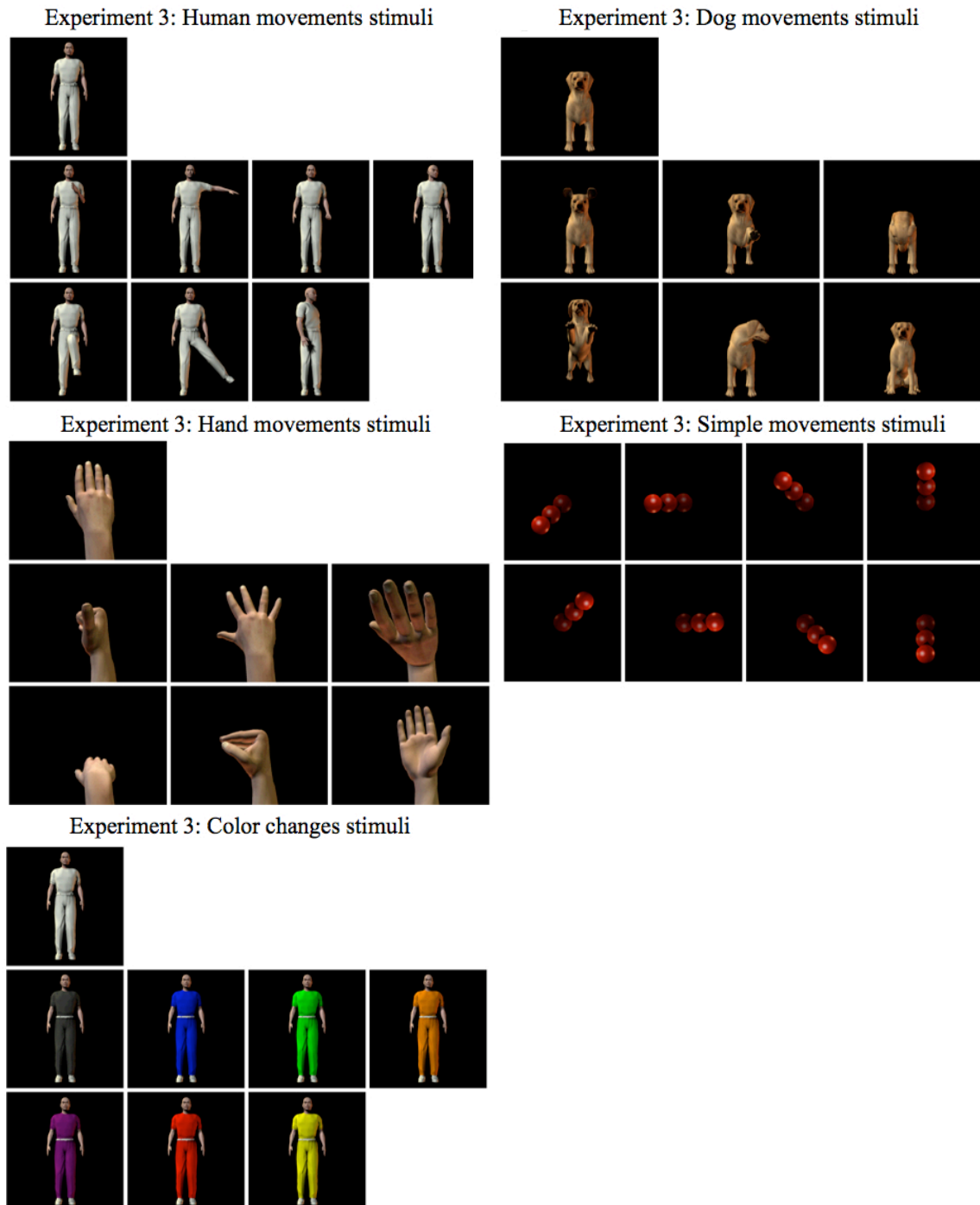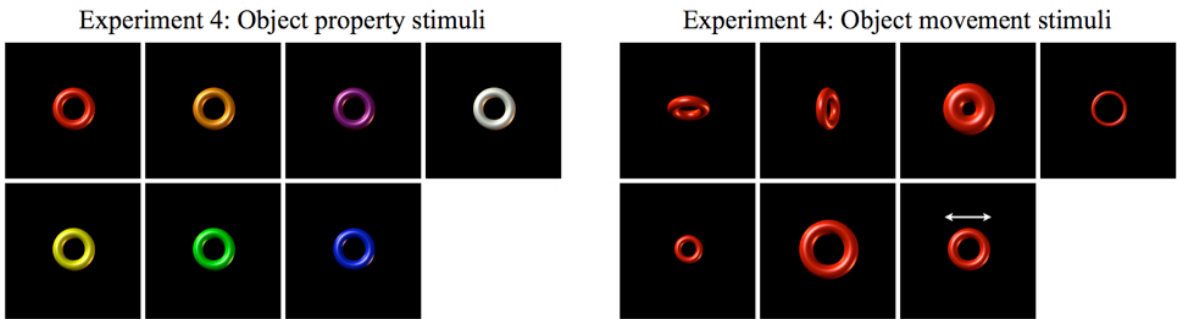
A

Experiment 3: Human movements stimuli

Experiment 3: Dog movements stimuli

Experiment 3: Hand movements stimuli

Experiment 3: Simple movements stimuli

Experiment 3: Color changes stimuli

B

Proportions of Hits and False Alarms (FAs) for Experiment 3

Condition	Hits/FAs
Experiment 3a	
Human movements	.86/.05
Human movements (6 movements)	
Human movements 1	.60/.15
Human movements 2	.75/.15
Dog movements	.88/.10
Hand movements	.87/.15
Simple movements	.93/.07
Color changes	.94/.11
Experiment 3b	
Human movements + Human movements	
Human movements 1	.64/.17
Human movements 2	.74/.12
Human movements + Dog movements	
Human movements	.78/.18
Dog movements	.70/.08
Human movements + Hand movements	
Human movements	.69/.15
Hand movements	.60/.14
Human movements + Simple movements	
Human movements	.82/.20
Simple movements	.93/.20
Human movements + Color changes	
Human movements	.83/.10
Color changes	.94/.10

Appendix 4

(**A**) Static depiction of the movements and object properties used in Experiment 4. (**B**) Includes proportion of Hits (responding *different* on change trials) and False Alarms (responding *different* on same trials) for each of the conditions.

A

Experiment 4: Object property stimuli   Experiment 4: Object movement stimuli

B

Proportions of Hits and False Alarms (FAs) for Experiment 4

Condition	Hits/FAs
Object properties only	.98/.07
Movements only	.79/.09
Both	
Object Properties	.96/.19
Movements	.80/.19
Binding object properties & movements	.73/.30

Appendix 5

(**A**) Static depiction of the movements and shapes used in Experiment 5. The images show the movements' maximal deviation from the neutral position shown at the top left of the figure. (**B**) Includes proportion of Hits (responding *different* on change trials) and False Alarms (responding *different* on same trials) for each of the conditions.
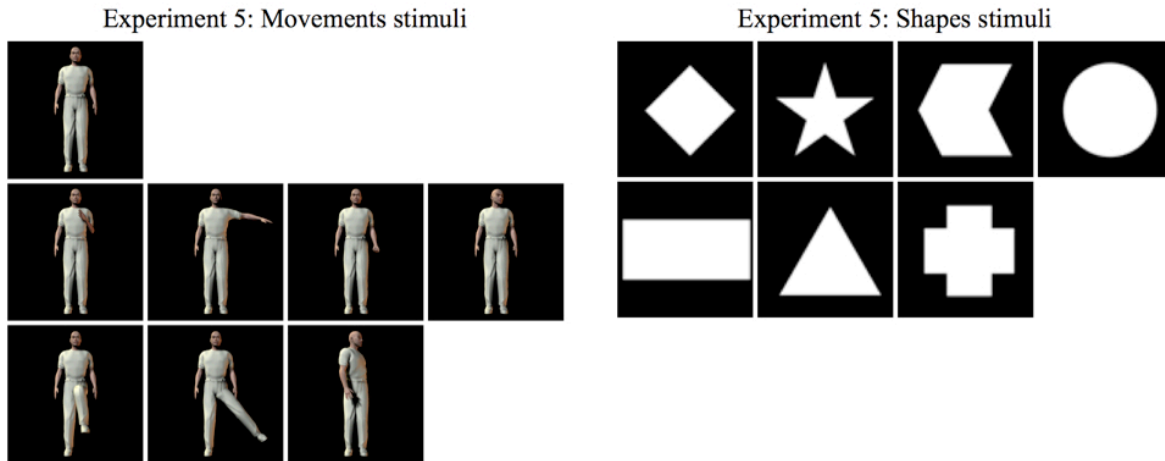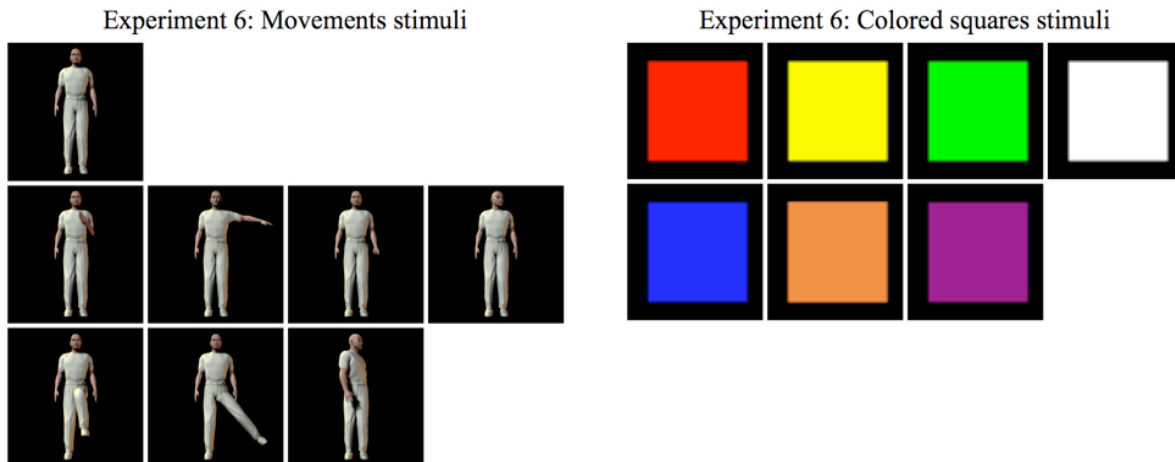
A

Experiment 5: Movements stimuli

Experiment 5: Shapes stimuli

B

Proportions of Hits and False Alarms (FAs) for Experiment 5

	Hits/FAs			
	0 shapes	2 shapes	4 shapes	6 shapes
0 movements				
movements	N/A	N/A	N/A	N/A
shapes	N/A	.91/.13	.69/.18	.51/.18
1 movement				
movements	.85/.05	.90/.08	.93/.13	.92/.08
shapes	N/A	.93/.12	.70/.23	.43/.33
2 movements				
movements	.83/.12	.75/.18	.87/.20	.77/.15
shapes	N/A	.92/.12	.78/.17	.55/.32
3 movements				
movements	.82/.18	.85/.25	.73/.22	.83/.10
shapes	N/A	.93/.18	.70/.28	.40/.25

Appendix 6

(**A**) Static depiction of the movements and colored objects used in Experiment 6. The images show the movements' maximal deviation from the neutral position shown at the top left of the figure. (**B**) Includes proportion of Hits (responding *different* on change trials) and False Alarms (responding *different* on same trials) for each of the conditions.
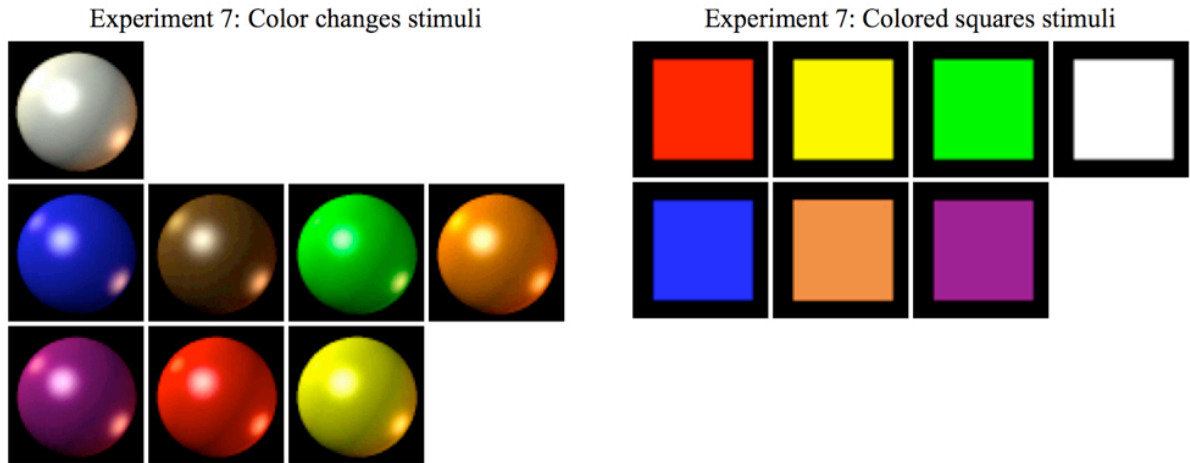
A

Experiment 6: Movements stimuli

Experiment 6: Colored squares stimuli

B

Proportions of Hits and False Alarms (FAs) for Experiment 6

	Hits/FAs			
	0 colored objects	2 colored objects	4 colored objects	6 colored objects
0 movements				
movements	N/A	N/A	N/A	N/A
colored objects	N/A	.98/.12	.92/.22	.83/.36
1 movement				
movements	.93/.02	.87/.03	.85/.02	.92/.10
colored objects	N/A	.98/.08	.92/.20	.87/.37
2 movements				
movements	.93/.09	.82/.07	.87/.07	.83/.12
colored objects	N/A	.97/.02	.97/.32	.90/.45
3 movements				
movements	.85/.10	.75/.08	.85/.12	.87/.12
colored objects	N/A	.98/.12	.93/.30	.87/.25

Appendix 7

(**A**) Static depiction of the color changes and colored objects used in Experiments 7-8. The images show the color changes' maximal deviation from the neutral position shown at the top left of the figure. (**B**) Includes proportion of Hits (responding *different* on change trials) and False Alarms (responding *different* on same trials) for each of the conditions in Experiment 7.

A

Experiment 7: Color changes stimuli

Experiment 7: Colored squares stimuli

B

Proportions of Hits and False Alarms (FAs) for Experiment 7

	Hits/FAs			
	0 colored objects	2 colored objects	4 colored objects	6 colored objects
0 color changes				
color changes	N/A	N/A	N/A	N/A
colored objects	N/A	.96/.05	.93/.20	.89/.31
1 color change				
color changes	.95/.05	.95/.16	.92/.11	.88/.18
colored objects	N/A	.92/.09	.90/.19	.89/.29
2 color changes				
color changes	.92/.12	.91/.25	.92/.28	.88/.10
colored objects	N/A	.98/.07	.91/.13	.85/.38
3 color changes				
color changes	.93/.17	.93/.30	.87/.21	.82/.29
colored objects	N/A	.95/.12	.93/.27	.86/.33