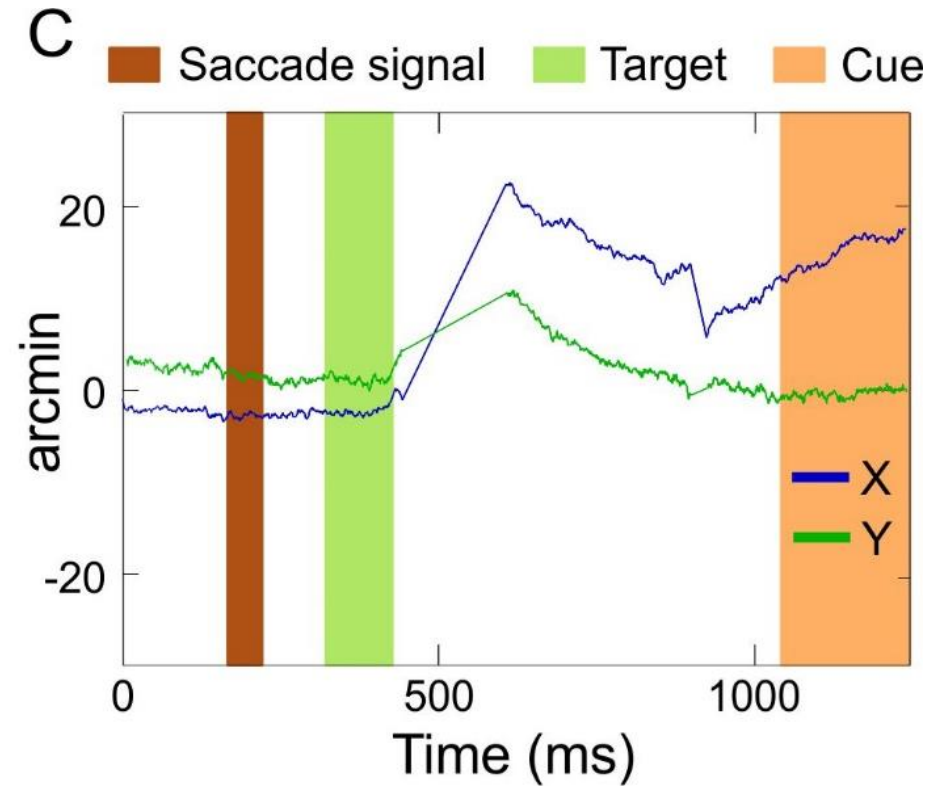
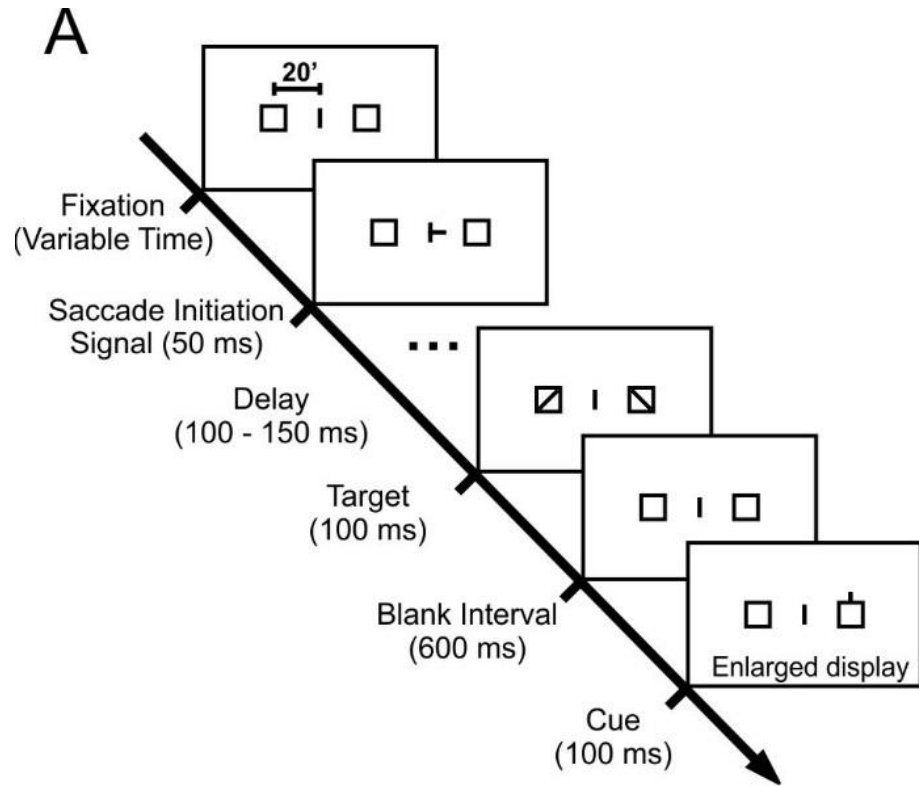


Microsaccadic Modulations of Visual Sensitivity Across the Foveola (Spatial)

Lab Meeting: 9/25/2018

Background

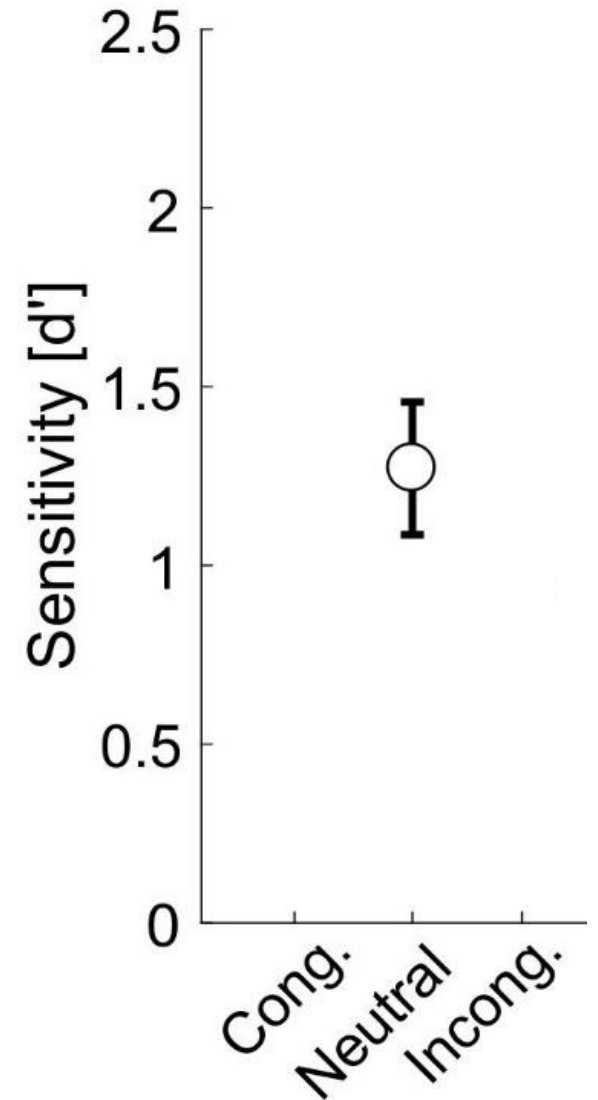
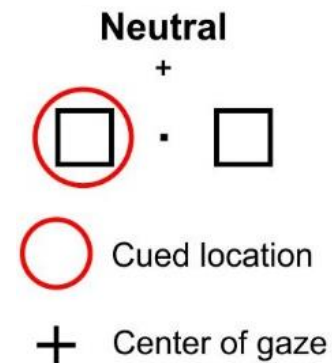


Background

- Increased sensitivity in congruent trials → perceptual enhancement
- Decreased sensitivity in incongruent trials → perceptual detriment

Addition Questions:

- What happens in the vertical direction/how does this effect change as a function of distance?
- What happens to perception at the fixation point?

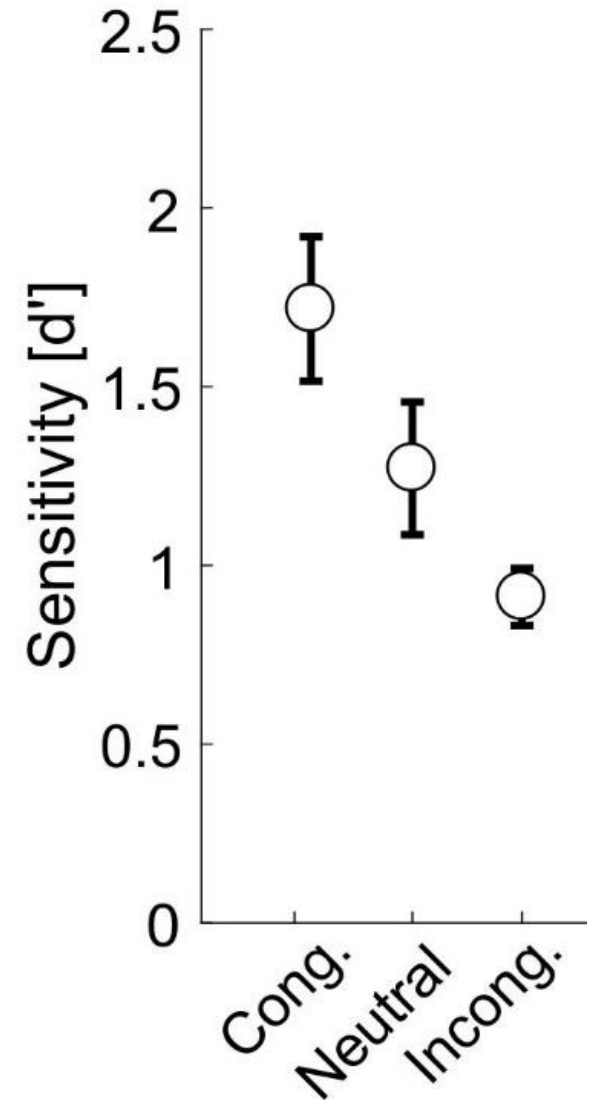
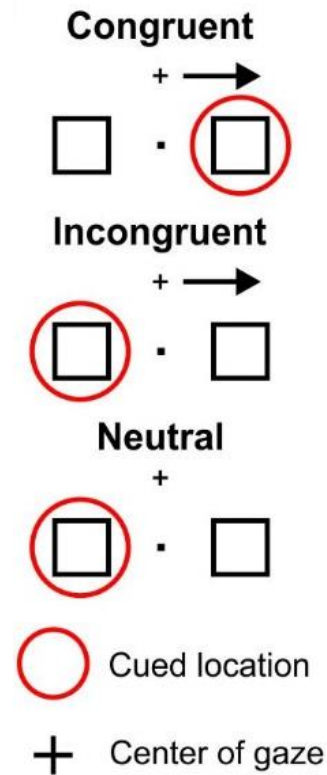


Background

- Increased sensitivity in congruent trials → perceptual enhancement
- Decreased sensitivity in incongruent trials → perceptual detriment

Addition Questions:

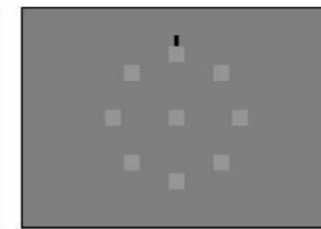
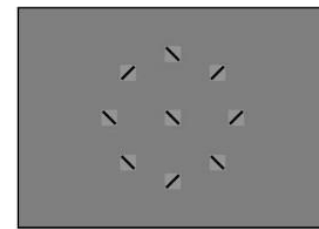
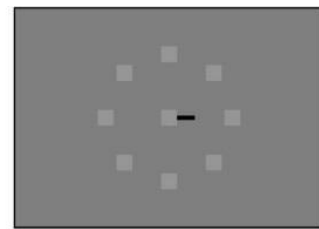
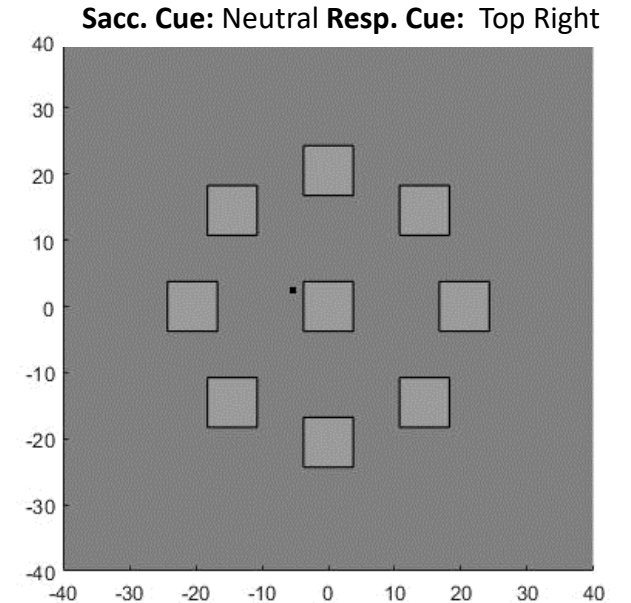
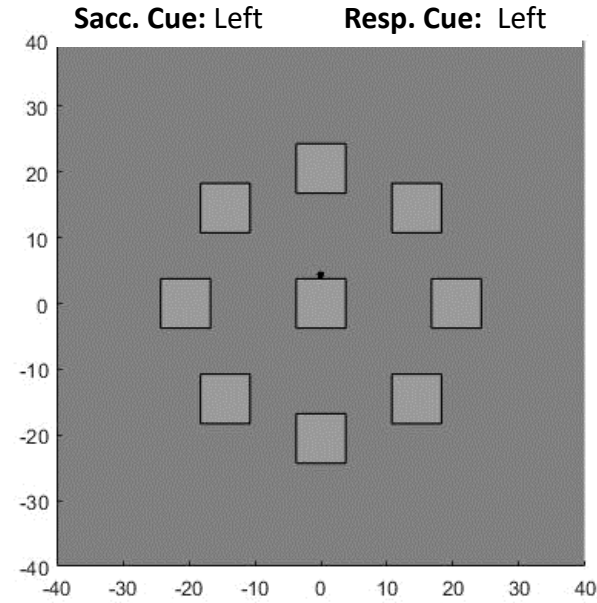
- What happens in the vertical direction/how does this effect change as a function of distance?
- What happens to perception at the fixation point?



Paradigm

Peripheral

Neutral



Fixation
(800 ms)

Saccade Cue
(100 ms)

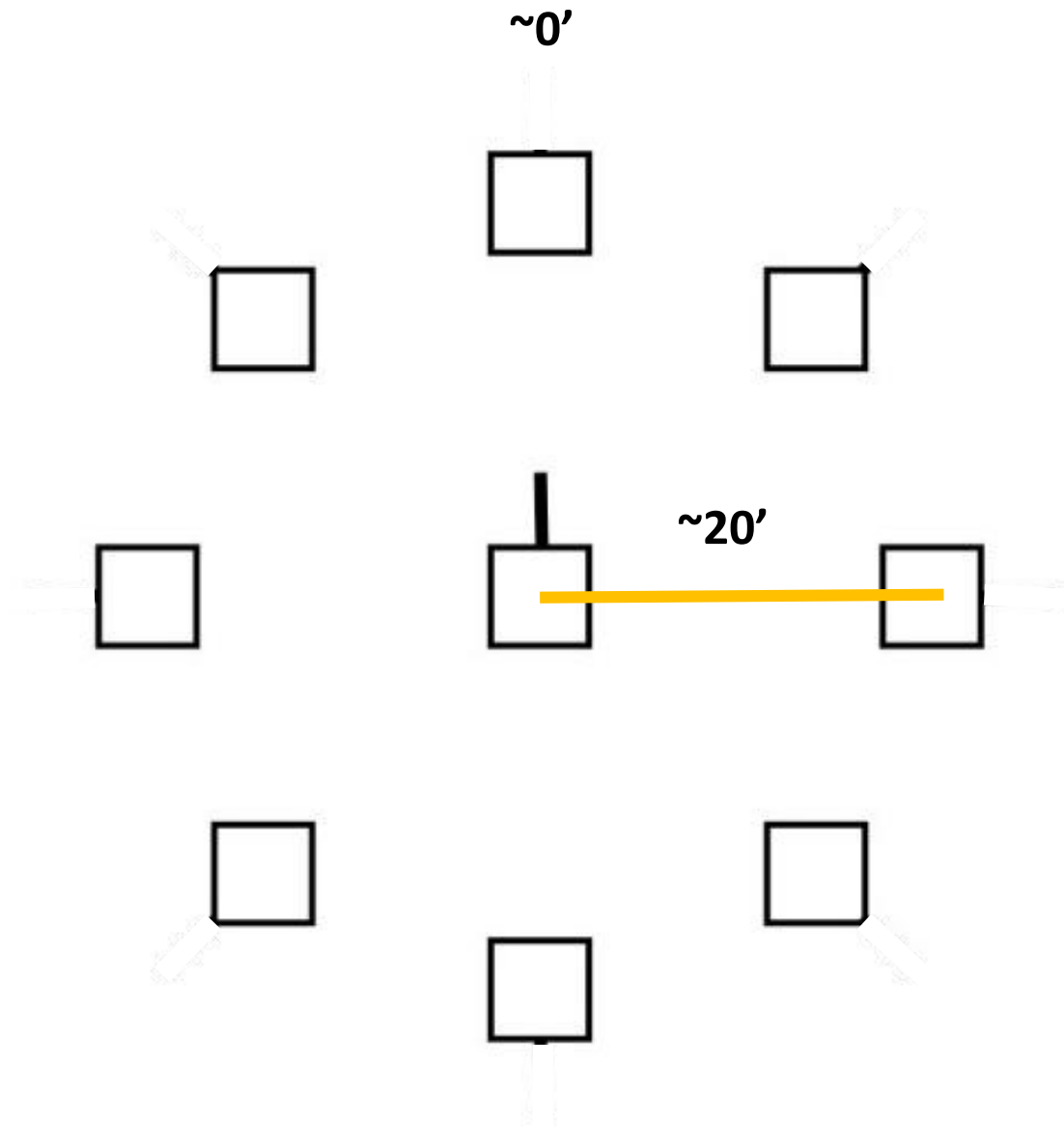
Delay
(100 ms)

Target
(100 ms)

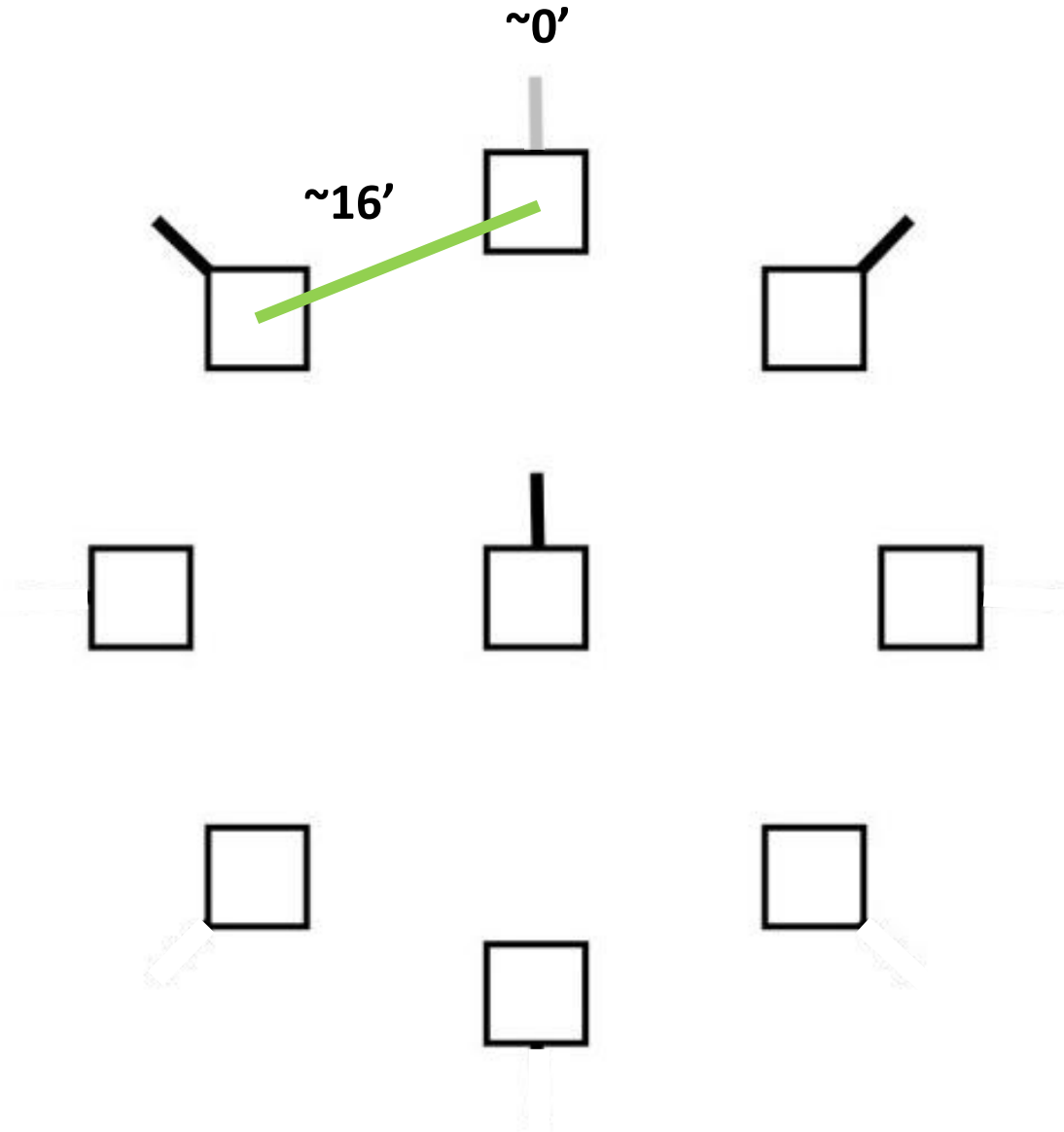
Blank Interval
(600 ms)

Response Cue
(100 ms)

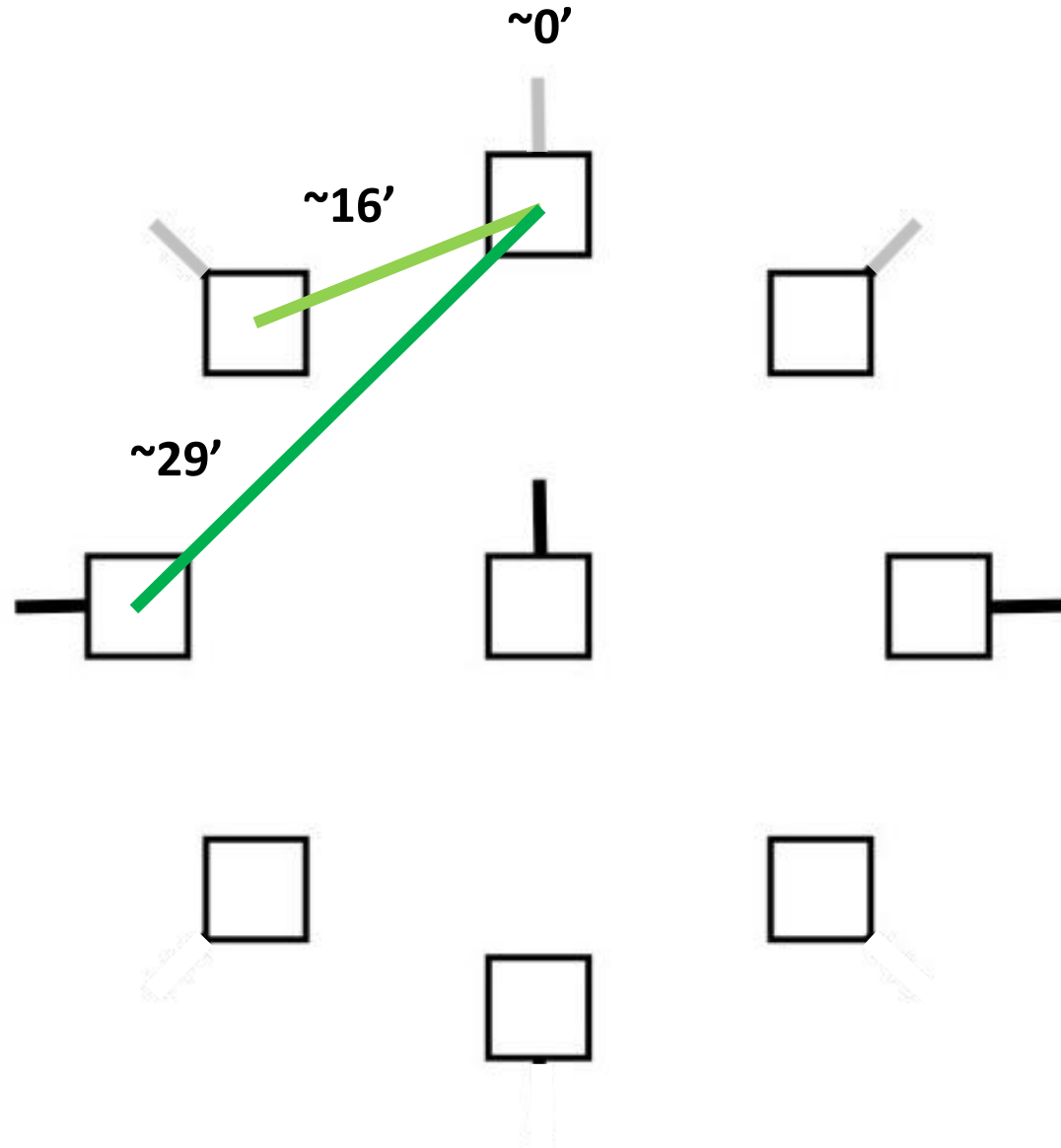
Explanation of Distance



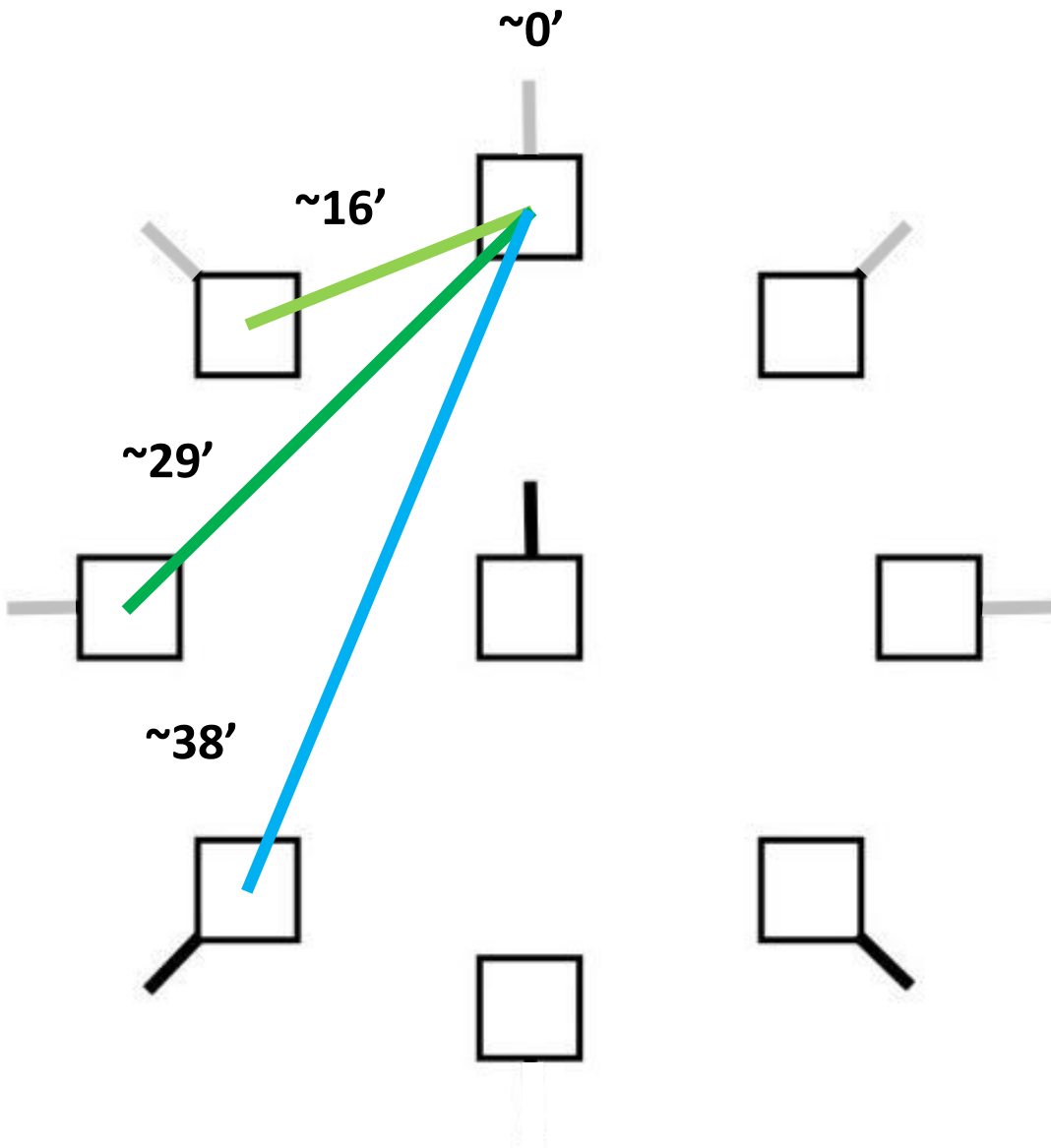
Explanation of Distance



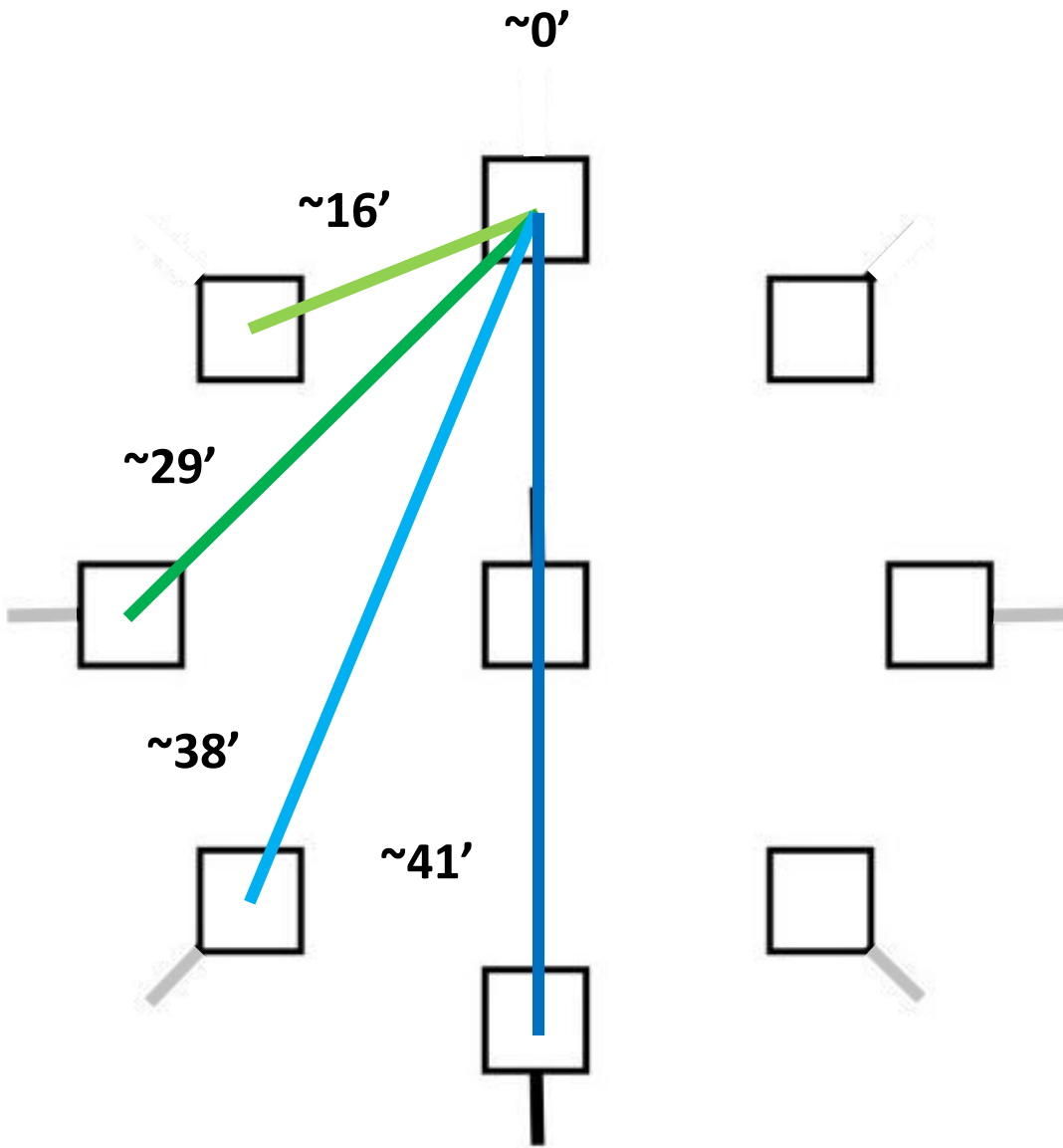
Explanation of Distance



Explanation of Distance



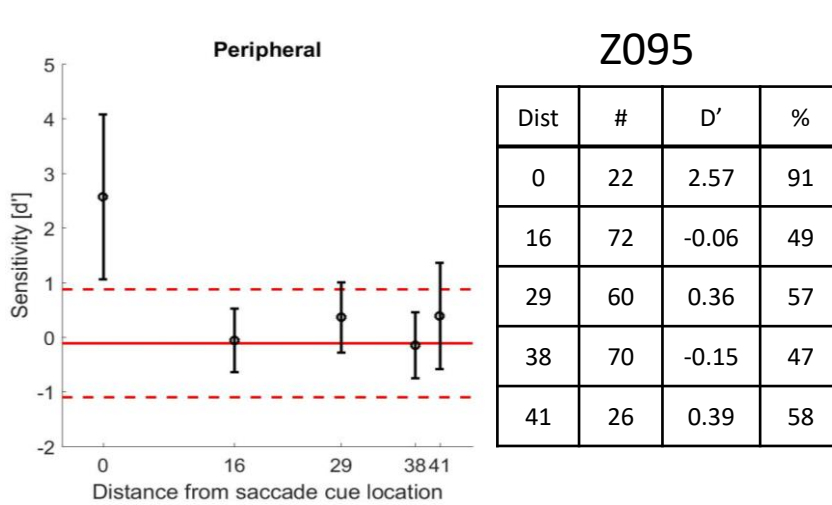
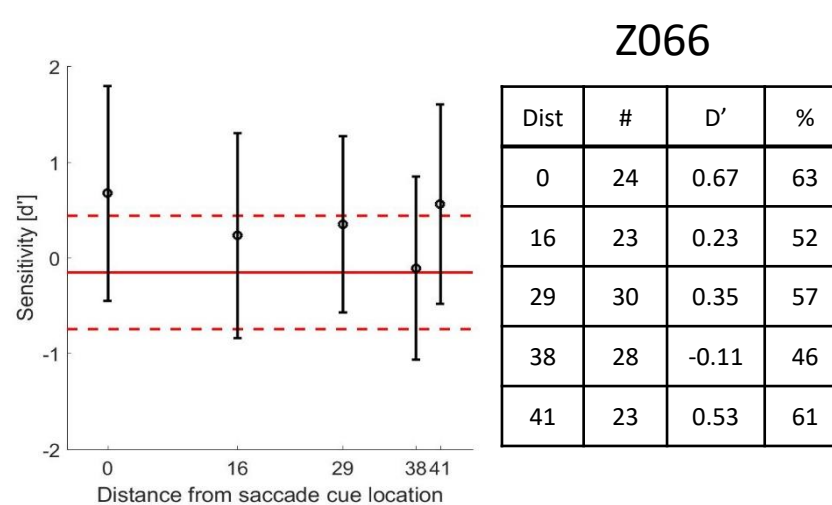
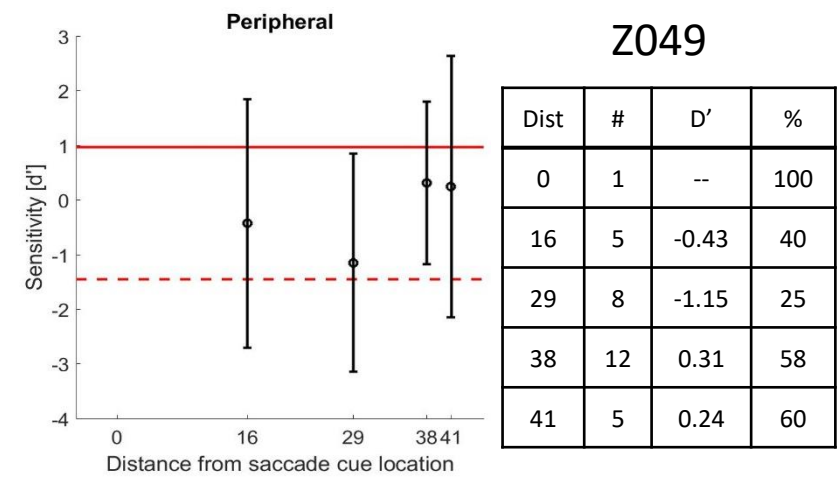
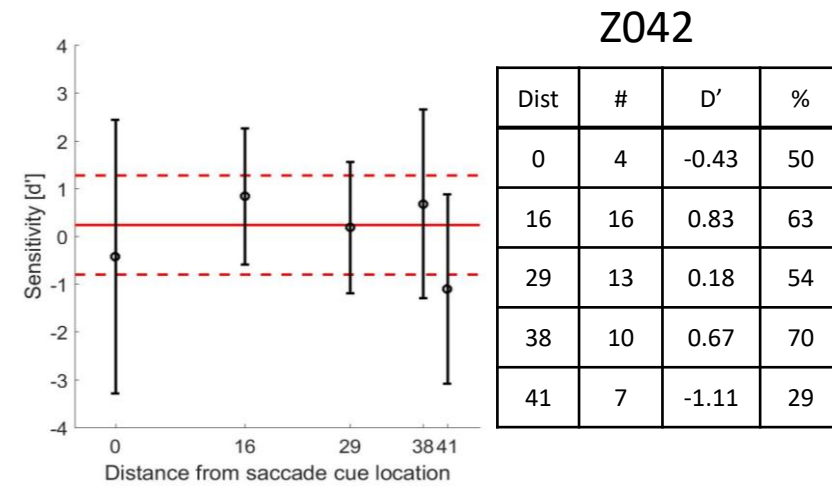
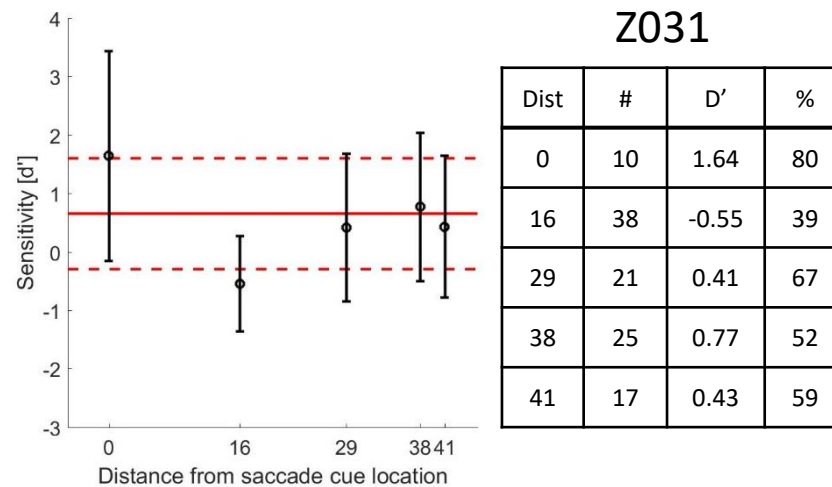
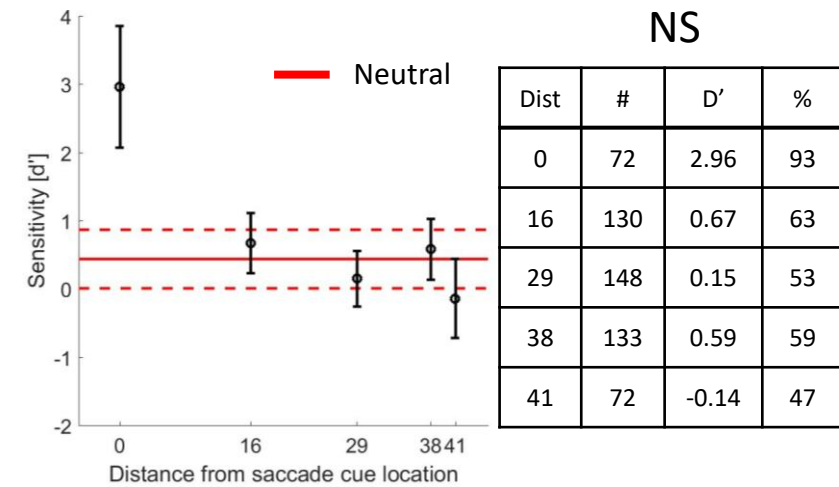
Explanation of Distance



Subject Counts

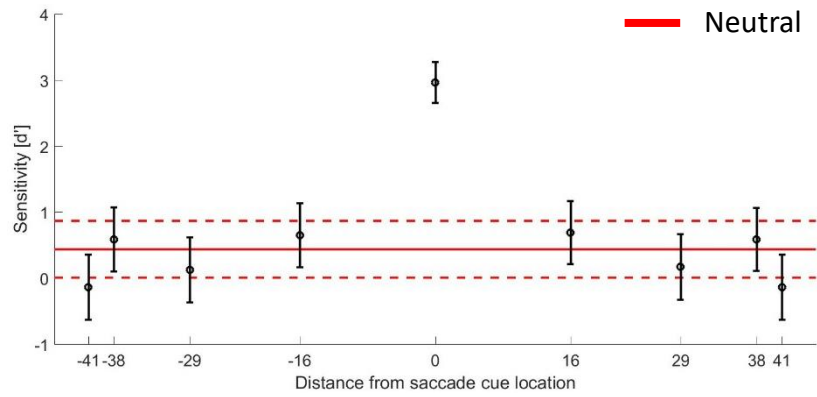
Subject	Dist. 0	Dist. 16		Dist. 29		Dist. 38		Dist. 41	Neutral	Neutral (Valid)	Neutral (Invalid)
		-	+	-	+	-	+				
NS	72	130		148		133		72	135	50	122
		68	62	71	77	68	65				
Z031	10	38		21		25		17	29	4	9
		20	18	12	9	14	11				
Z042	4	16		13		10		7	26	3	7
		11	5	6	7	4	6				
Z049	1	5		8		12		5	5	2	0
		3	2	2	6	4	8				
Z066	24	23		30		28		23	70	9	16
		12	11	17	13	16	12				
Z095	22	72		60		70		26	25	6	30
		26	46	31	29	35	35				

Sensitivity (Peripheral)

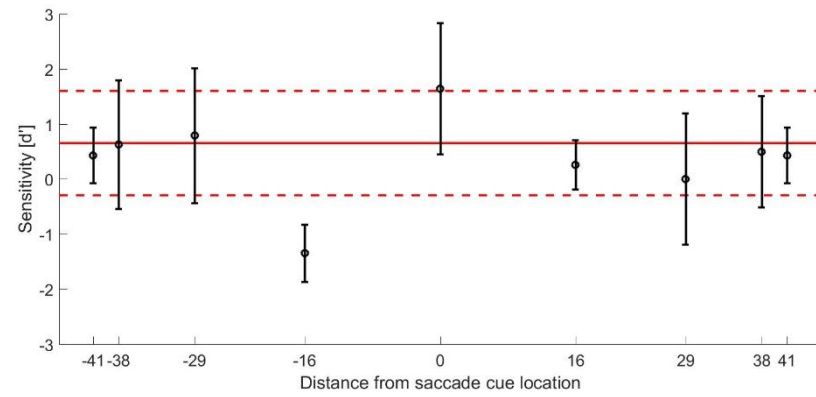


Sensitivity (Peripheral)

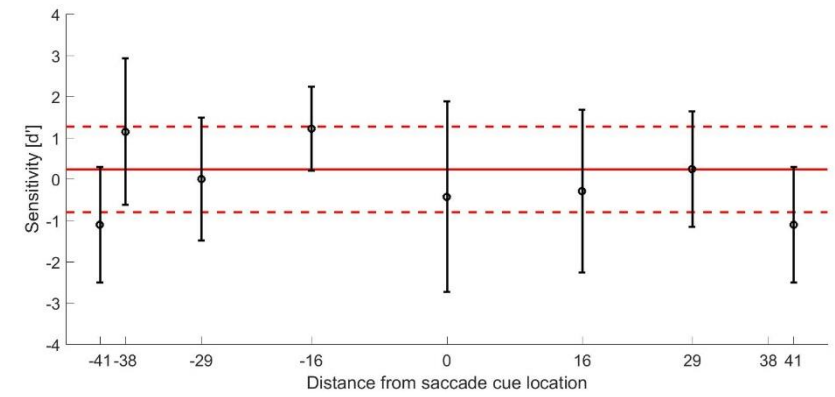
NS



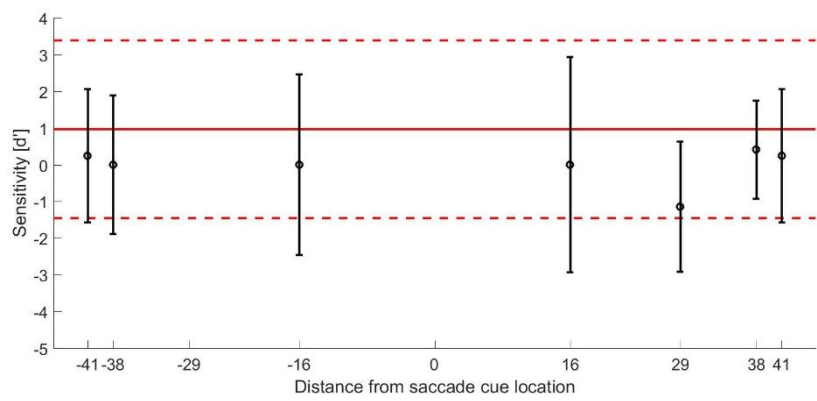
Z031



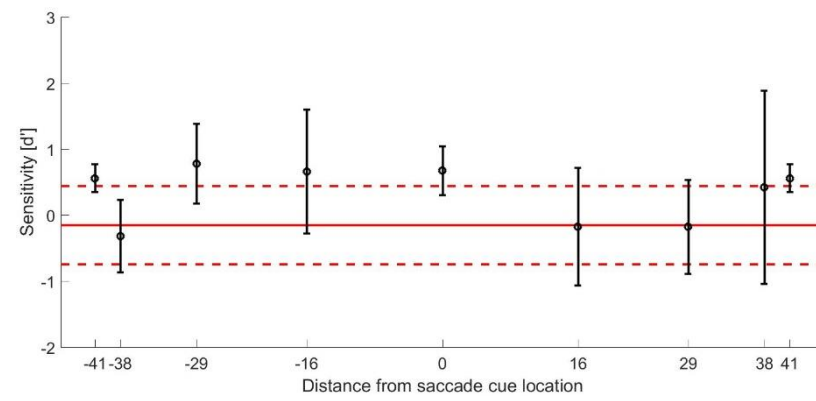
Z042



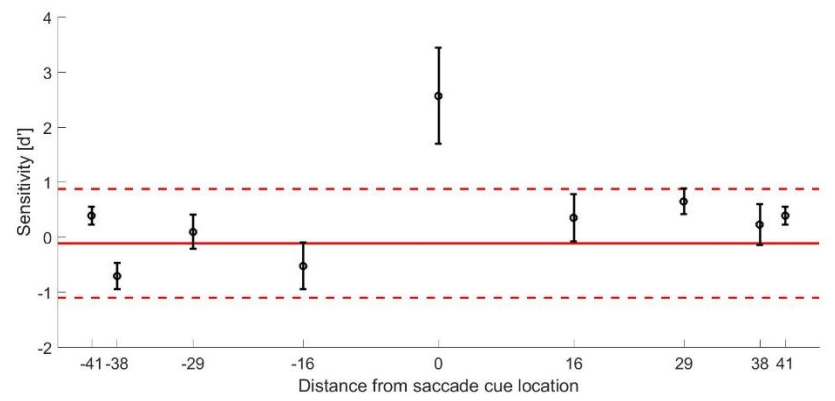
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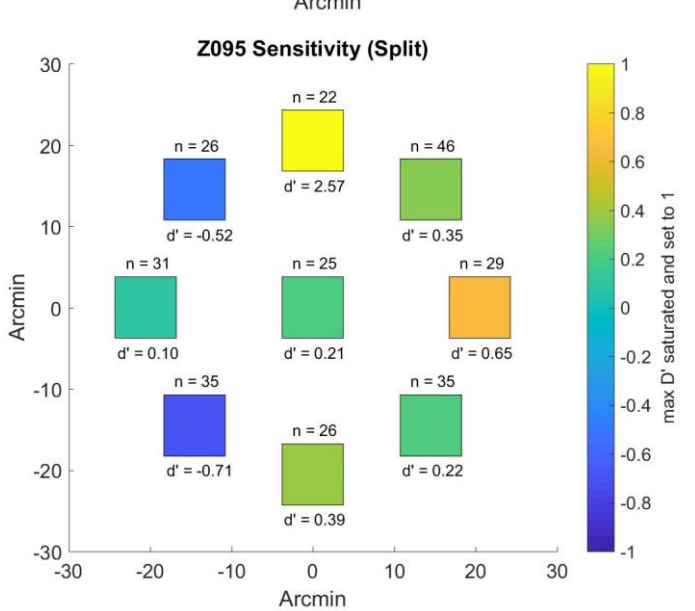
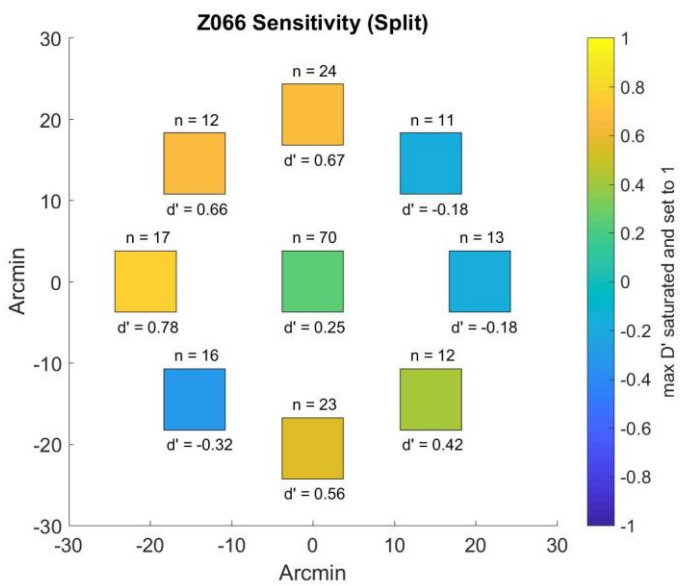
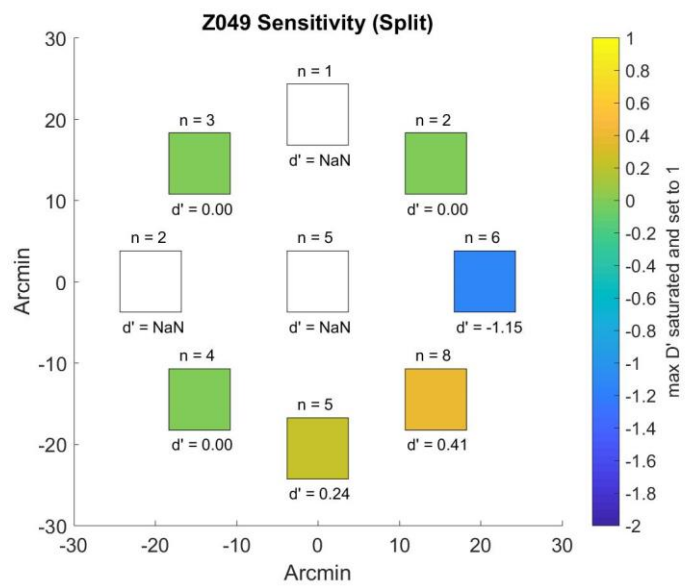
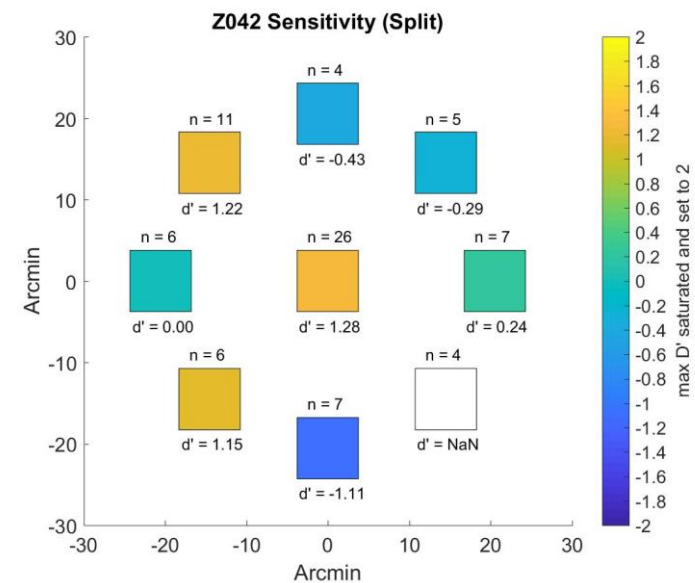
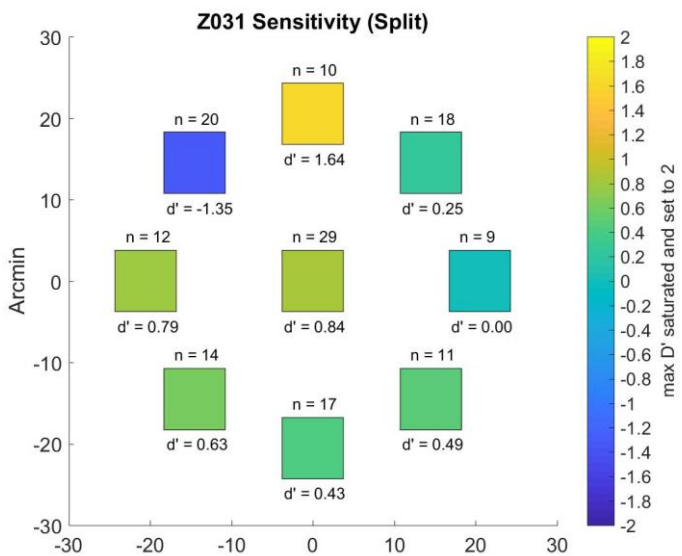
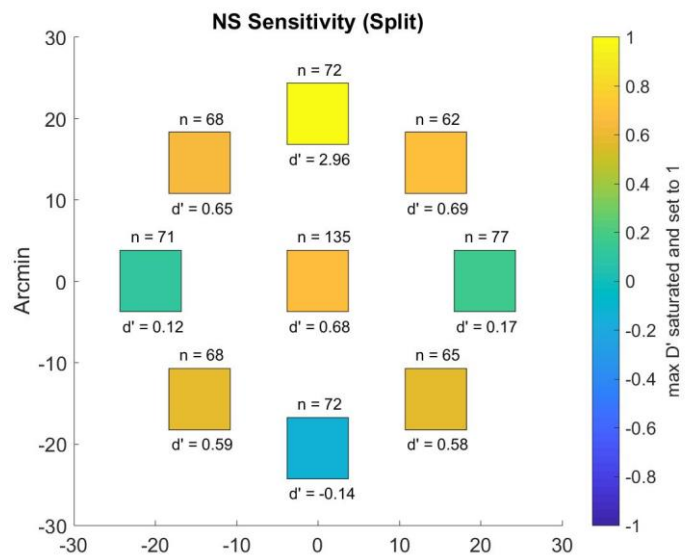
Z066



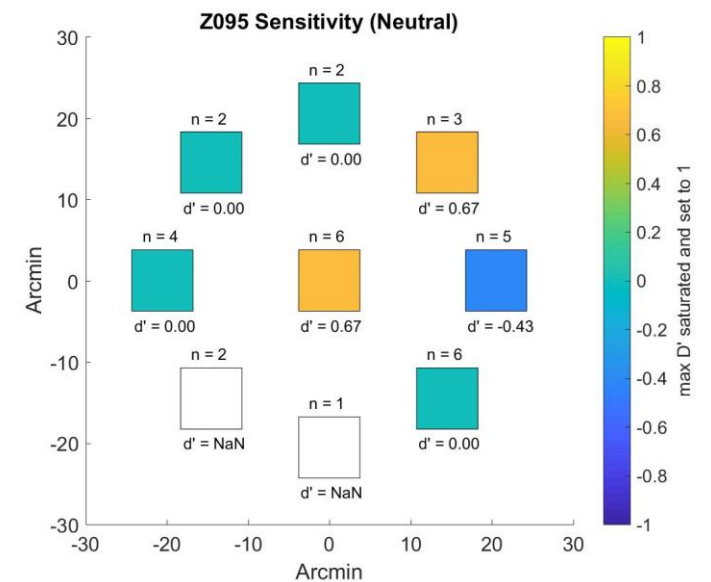
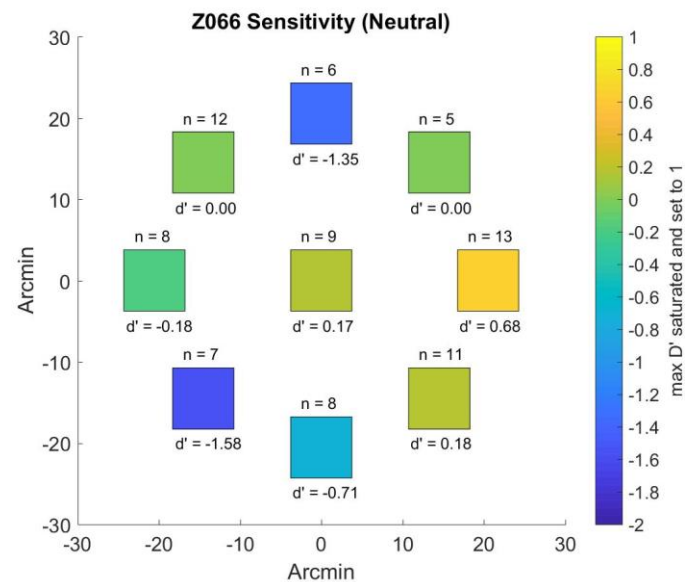
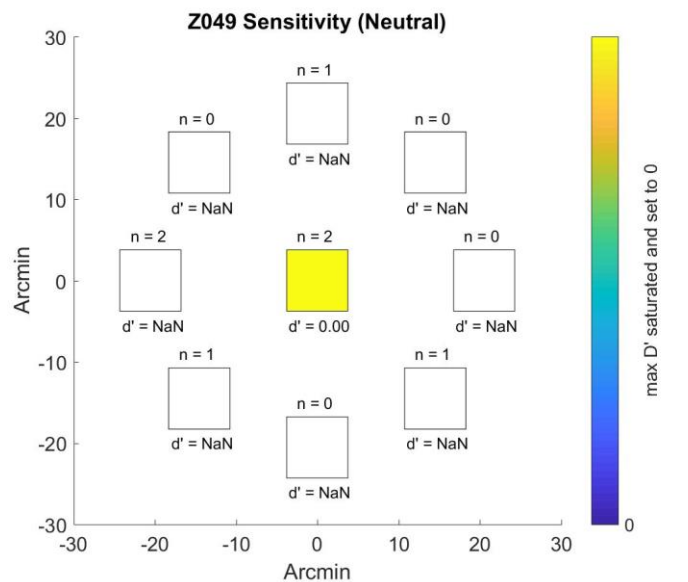
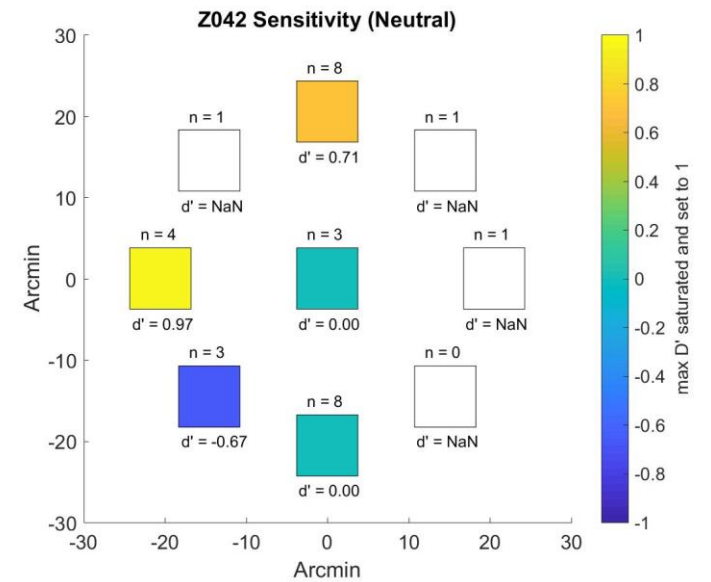
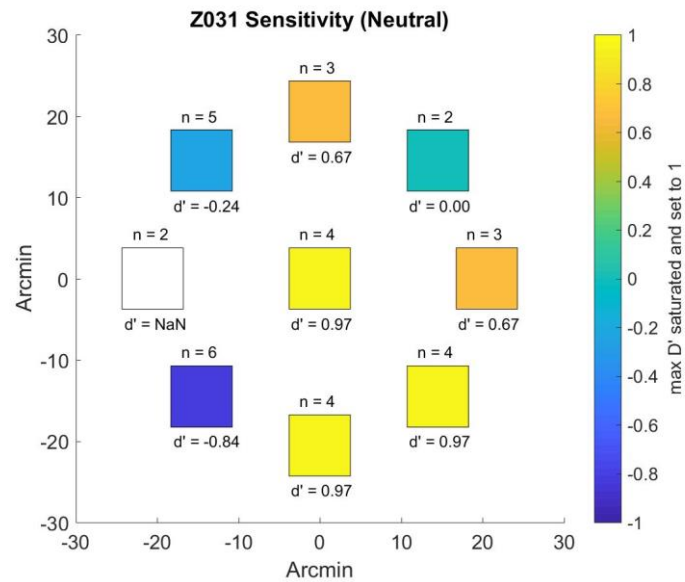
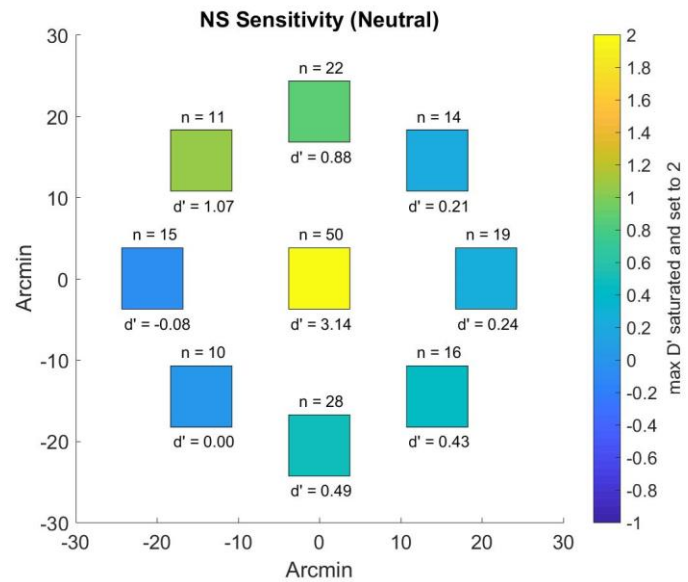
Z095



Sensitivity (Peripheral)



Sensitivity (Fixation)

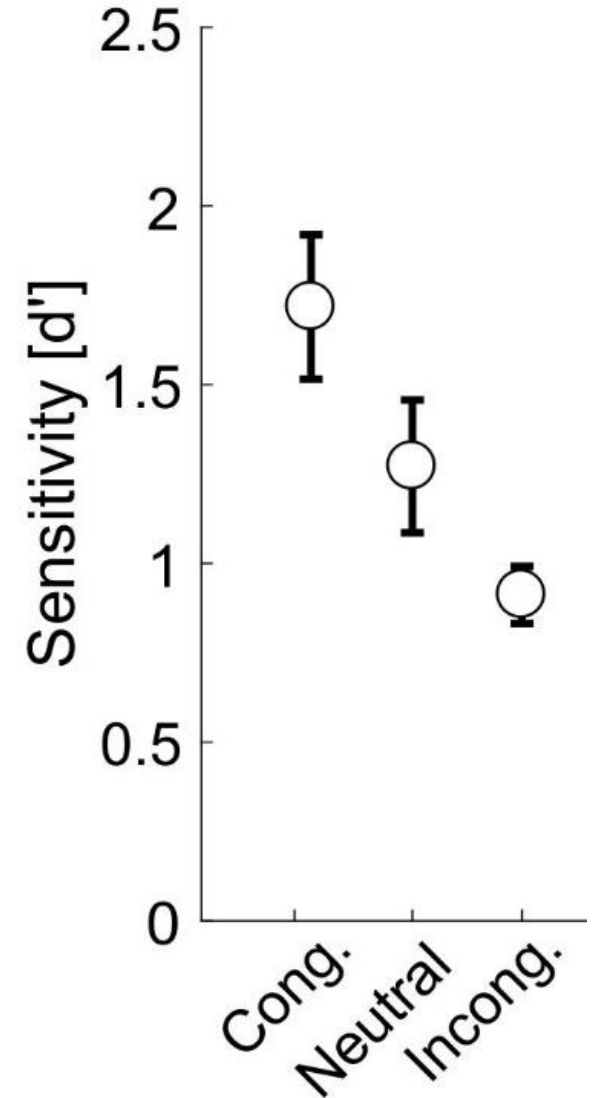
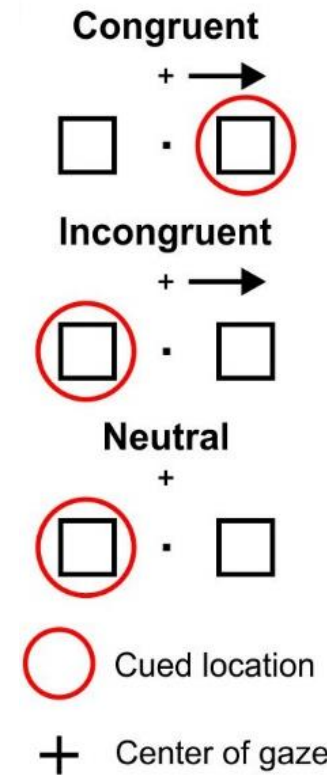


Background

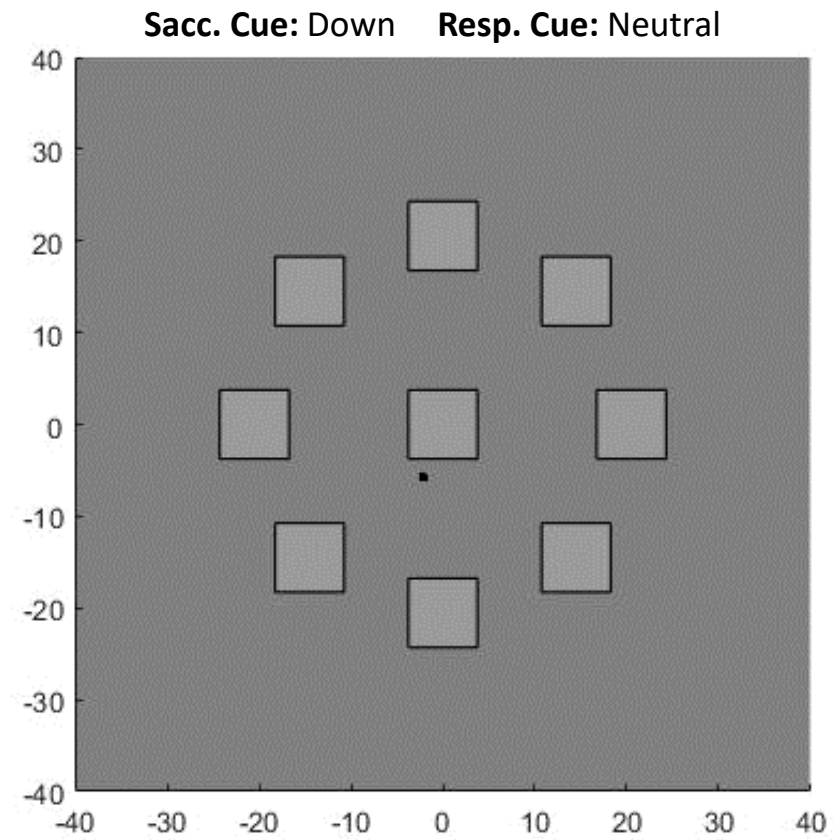
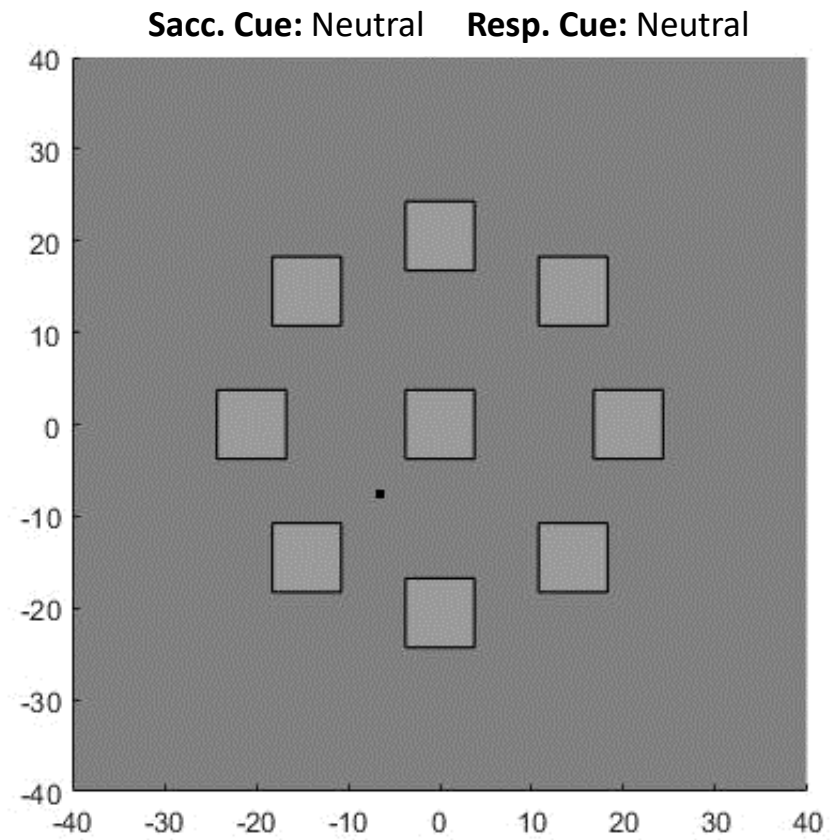
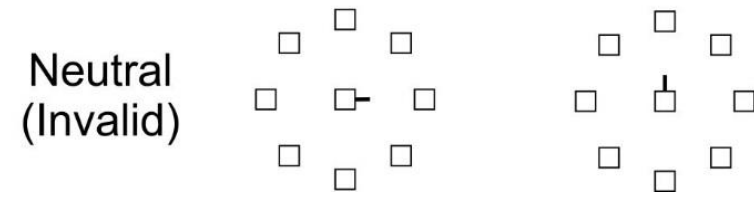
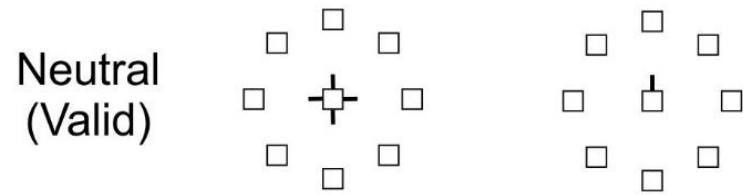
- Increased sensitivity in congruent trials → perceptual enhancement
- Decreased sensitivity in incongruent trials → perceptual detriment

Addition Questions:

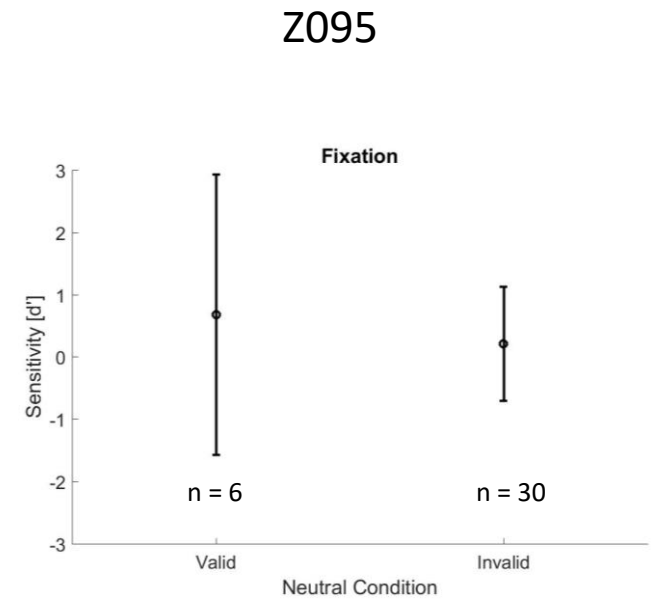
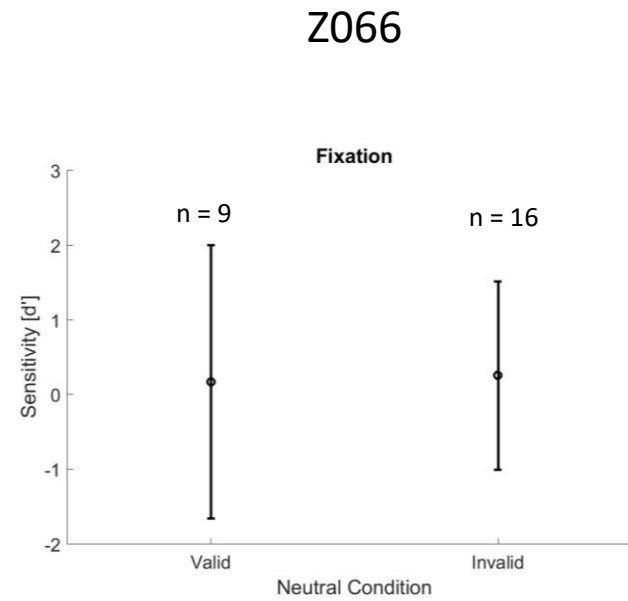
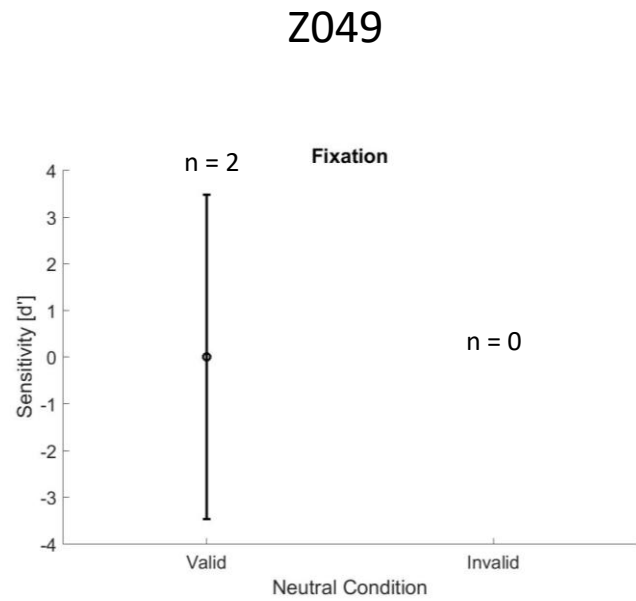
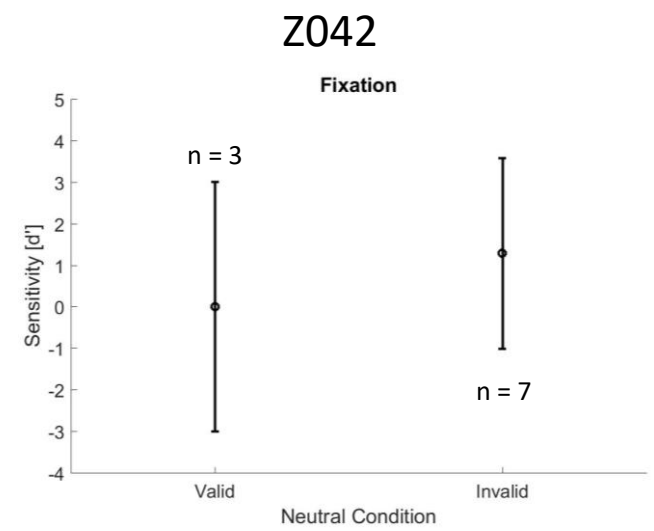
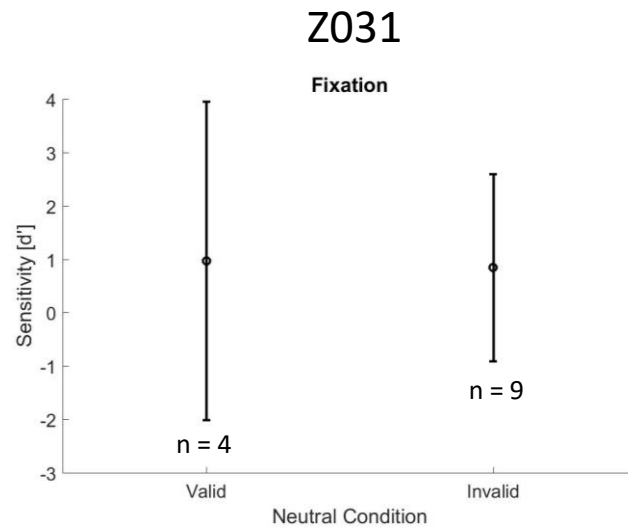
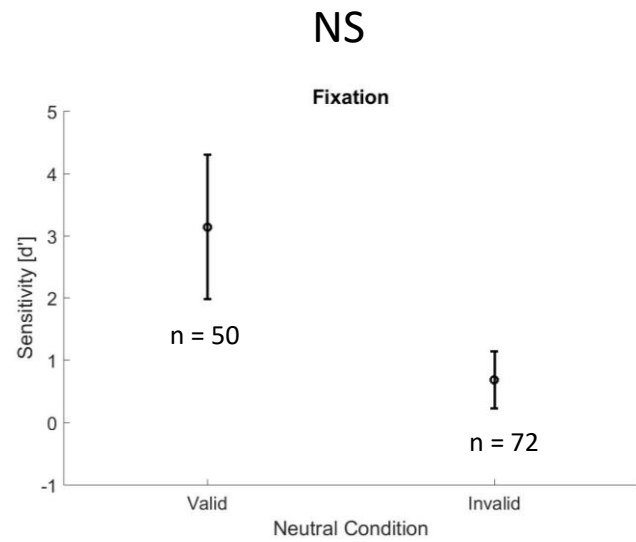
- What happens in the vertical direction/how does this effect change as a function of distance?
- What happens to perception at the fixation point?



Fixation Condition



Sensitivity (Fixation)



Conclusions

- There is a drop in performance when targets are presented 16' away from microsaccade landing location
- This drop in performance appears symmetrical
- There is a sharp drop in visual sensitivity at the preferred locus of fixation (i.e center of gaze) prior to the execution of a microsaccade
- **Future Directions:**
 - Gather more data to look for bias in performance drop
 - Look at the drop in performance from 0 to 16'
 - Gather more data to determine if there is suppression at the fixation location during microsaccade preparation
 - Look at the distribution of sensitivity across the locus of fixation in neutral condition