

**GRASPING AT STRAWS? CONSISTENT SECOND-ORDER MOTOR PLANNING BY  
COTTON-TOP TAMARINS (*SAGUINUS OEDIPUS*)**

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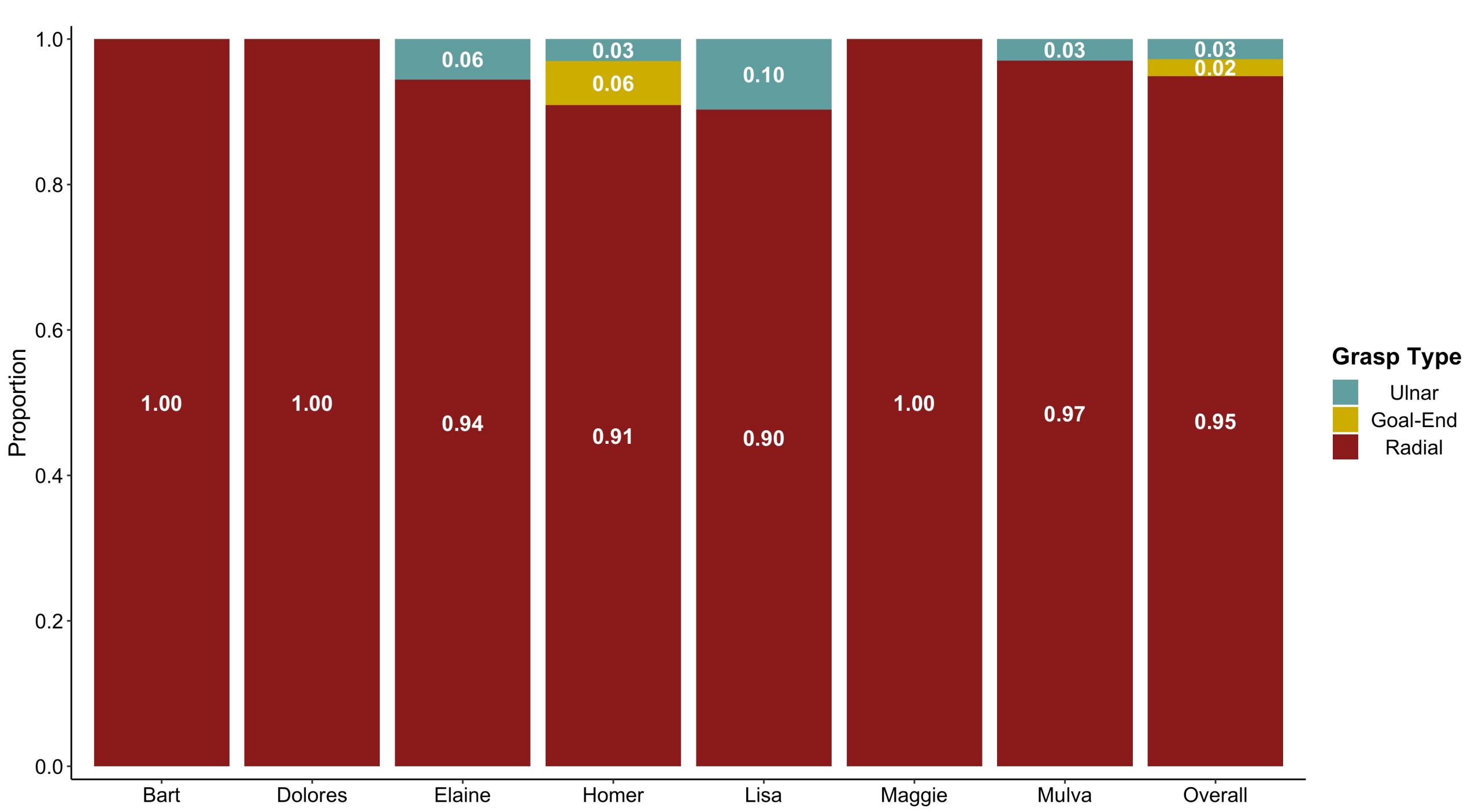
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- Raw data is located at: [https://github.com/ngschwob/Tamarin\\_DOGR](https://github.com/ngschwob/Tamarin_DOGR)
- Questions to be directed to: [ngschwob@gmail.com](mailto:ngschwob@gmail.com)
- Videos available upon request

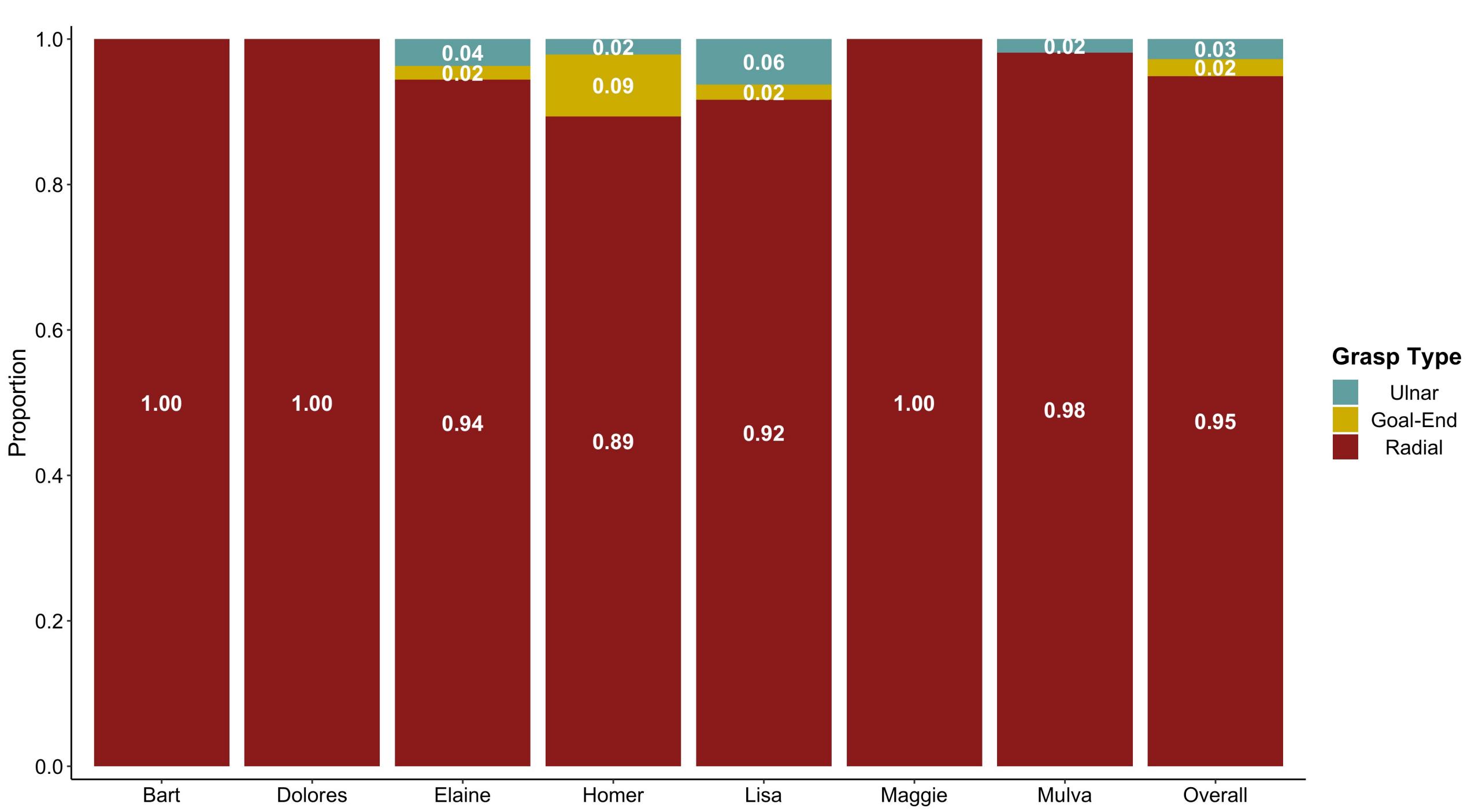
## Grip Type per Tamarin and Binomial Analysis Results; w/o Control Trials

	Grip Type				Binomial			
	Ulnar	Goal-Oriented	Radial	Sum	Prop Radial	p value	95% Lower	95% Upper
Bart	0	0	12	12	1	4.88E-04	0.7353515	1
Dolores	0	0	2	2	1	/	/	/
Elaine	2	0	34	36	0.9444444444	1.94E-08	0.8133633	0.9931997
Homer	1	2	30	33	0.909090909	1.40E-06	0.7566836	0.9808451
Lisa	3	0	28	31	0.903225806	4.65E-06	0.7424609	0.9795801
Magie	0	0	20	20	1	1.91E-06	0.8315665	1
Mulva	1	0	33	34	0.970588235	4.08E-09	0.8467323	<b>0.9992556</b>
<b>Sum</b>	<b>7</b>	<b>2</b>	<b>159</b>	<b>168</b>	<b>0.946428571</b>			
<b>Average</b>	<b>1</b>	<b>0.285714286</b>	<b>22.71428571</b>	<b>24</b>	<b>0.961049914</b>			
<b>SD</b>	<b>1.154700538</b>	<b>0.755928946</b>	<b>12.00991654</b>	<b>13.02561579</b>	<b>0.042742279</b>			



## Grip Type per Tamarin and Binomial Analysis Results; includes Control Trials

	Grip Type				Binomial			
	Ulnar	Goal-Oriented	Radial	Sum	Prop Radial	p value	95% Lower	95% Upper
Bart	0	0	20	20	1	1.91E-06	0.8315665	1
Dolores	0	0	3	3	1	0.25	0.2924018	1
Elaine	2	1	51	54	0.9444444	2.92E-12	0.846115	0.9883932
Homer	1	4	42	47	0.893617	2.46E-08	0.7689524	0.9645437
Lisa	3	1	44	48	0.9166667	1.51E-09	0.800172	0.9768265
Magie	0	0	30	30	1	1.86E-09	0.8842967	1
Mulva	1	0	52	53	0.9811321	1.20E-14	0.8992985	0.9995224
<b>Sum</b>	<b>7</b>	<b>6</b>	<b>242</b>	<b>255</b>	<b>0.949019608</b>			



# N Trials for each Side Baited by Tamarin

	Side Baited				<b>N Sessions</b>	<b>Avg # Trials per session</b>
	Left	Control	Right	<b>N Trials</b>		
Bart	5	8	7	<b>20</b>	<b>4</b>	<b>5</b>
Dolores	1	1	1	<b>3</b>	<b>1</b>	<b>3</b>
Elaine	18	18	18	<b>54</b>	<b>10</b>	<b>5.4</b>
Homer	16	14	17	<b>47</b>	<b>9</b>	<b>5.22</b>
Lisa	16	17	15	<b>48</b>	<b>10</b>	<b>4.8</b>
Magie	10	10	10	<b>30</b>	<b>5</b>	<b>6</b>
Mulva	17	19	17	<b>53</b>	<b>10</b>	<b>5.3</b>
<b>Sum</b>	<b>83</b>	<b>87</b>	<b>85</b>	<b>255</b>	<b>49</b>	<b>/</b>
<b>Average</b>	<b>11.85714286</b>	<b>12.42857143</b>	<b>12.14285714</b>	<b>36.42857143</b>	<b>7</b>	<b>5.204082</b>

# Trial Information Includes Control Trials

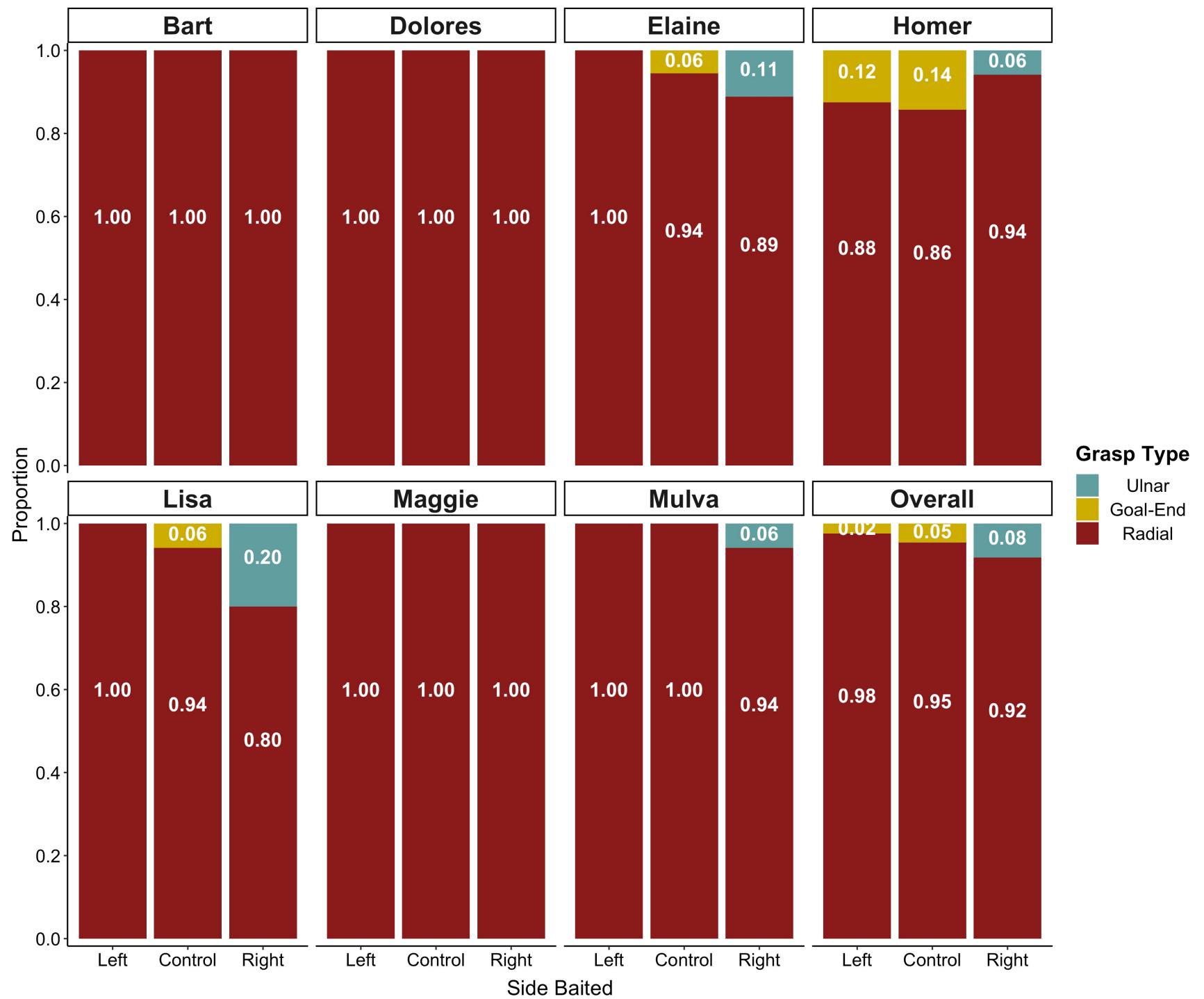
Range	3, 54
Average Number of trials per	36.42857
Range of Sessions	1, 10
Average Number of Sessions	7
Range # Trials per Session	1, 6
Avg # trials per session	5.204082

# Grip Type by Side Baited Overall

		Side Baited			
		Left	Control	Right	Sum
Grip Type	Ulnar	0	0	7	7
	Goal-Oriented	2	4	0	6
	Radial	81	83	78	242
	Sum	83	87	85	255
	Average	27.666666667	29	28.333333333	85

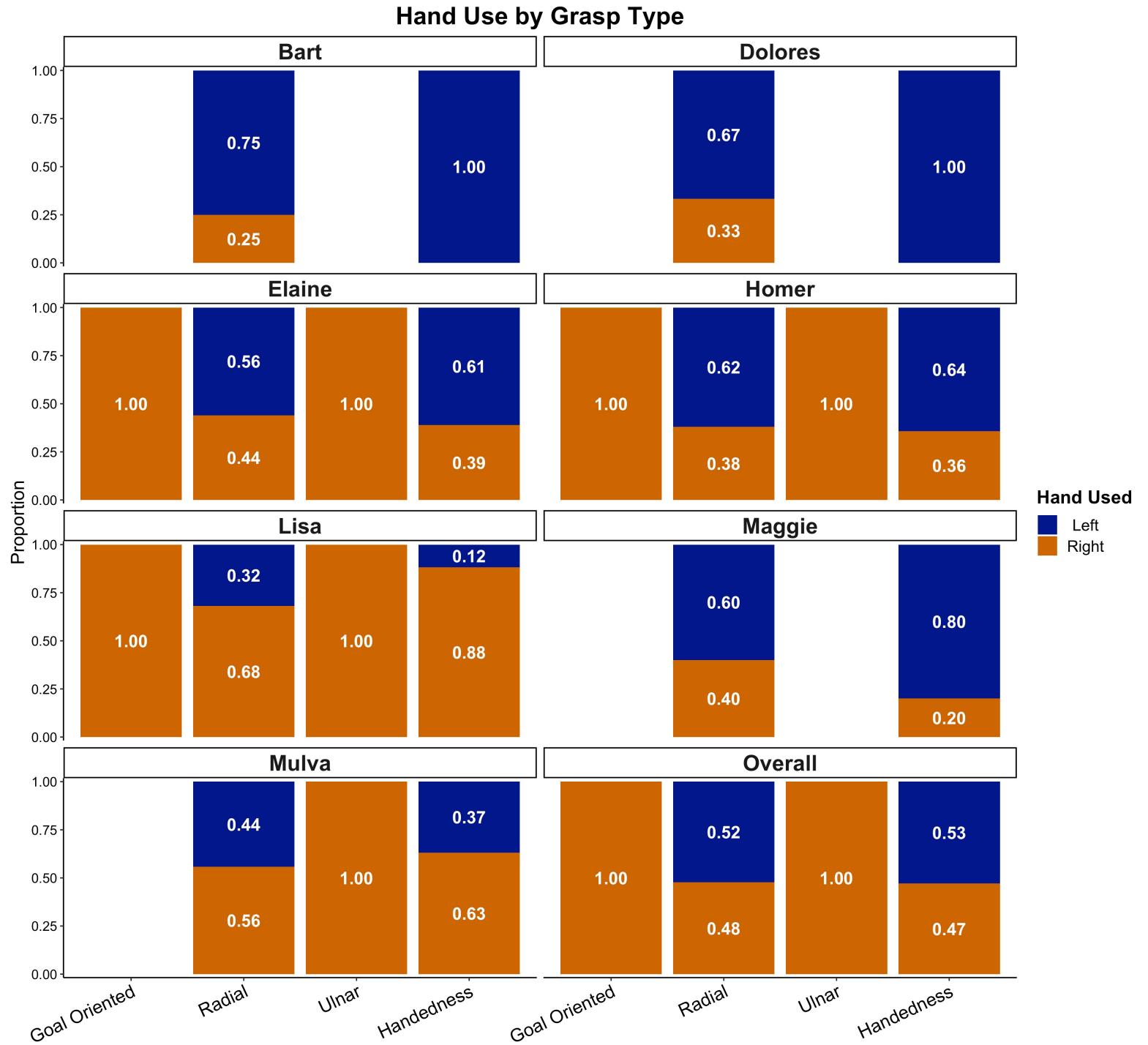
## Grip Type by Side Baited by Tamarin

	Left Side Baited			Both Sides Baited			Right Side Baited			<b>N Trials</b>
	Ulnar	Goal-Oriented	Radial	Ulnar	Goal-Oriented	Radial	Ulnar	Goal-Oriented	Radial	
Bart	0	0	5	0	0	8	0	0	7	20
Dolores	0	0	1	0	0	1	0	0	1	3
Elaine	0	0	18	0	1	17	2	0	16	54
Homer	0	2	14	0	2	12	1	0	16	47
Lisa	0	0	16	0	1	16	3	0	12	48
Maggie	0	0	10	0	0	10	0	0	10	30
Mulva	0	0	17	0	0	19	1	0	16	53
<b>Sum</b>	<b>0</b>	<b>2</b>	<b>81</b>	<b>0</b>	<b>4</b>	<b>83</b>	<b>7</b>	<b>0</b>	<b>78</b>	<b>255</b>
<b>Average</b>	<b>0</b>	<b>0.285714286</b>	<b>11.57142857</b>	<b>0</b>	<b>0.571428571</b>	<b>11.85714286</b>	<b>1</b>	<b>0</b>	<b>11.14285714</b>	<b>36.42857143</b>



# Hand Use by Grip Type and Side Baited by Tamarin

		Left Baited			Control Baited			Right Baited			N Trials
		Ulnar Grasp	Goal-Oriented Grasp	Radial Grasp	Ulnar Grasp	Goal-Oriented Grasp	Radial Grasp	Ulnar Grasp	Goal-Oriented Grasp	Radial Grasp	
Bart	BothHands	0	0	0	0	0	0	0	0	0	20
	LeftHand	0	0	0	0	0	8	0	0	7	
	RightHand	0	0	5	0	0	0	0	0	0	
Dolores	BothHands	0	0	0	0	0	0	0	0	0	3
	LeftHand	0	0	0	0	0	1	0	0	1	
	RightHand	0	0	1	0	0	0	0	0	0	
Elaine	BothHands	0	0	1	0	0	0	0	0	0	54
	LeftHand	0	0	1	0	0	11	0	0	16	
	RightHand	0	0	16	0	1	6	2	0	0	
Homer	BothHands	0	0	0	0	0	0	0	0	0	47
	LeftHand	0	0	1	0	0	9	0	0	16	
	RightHand	0	2	13	0	2	3	1	0	0	
Lisa	BothHands	0	0	0	0	0	0	0	0	0	48
	LeftHand	0	0	0	0	0	2	0	0	12	
	RightHand	0	0	16	0	1	14	3	0	0	
Maggie	BothHands	0	0	0	0	0	0	0	0	0	30
	LeftHand	0	0	0	0	0	8	0	0	10	
	RightHand	0	0	10	0	0	2	0	0	0	
Mulva	BothHands	0	0	0	0	0	0	0	0	0	53
	LeftHand	0	0	0	0	0	7	0	0	16	
	RightHand	0	0	17	0	0	12	1	0	0	
Overall	BothHands	0	0	1	0	0	0	0	0	0	255
	LeftHand	0	0	2	0	0	46	0	0	78	
	RightHand	0	2	78	0	4	37	7	0	0	
N Trials		83			87			85			255



# Proportion of trials where a Radial Grasp was used by Tamarin; Includes Control Trials

	N Radial Trials	N Trials	Prop. Radial
Bart	20	20	1
Dolores	3	3	1
Elaine	51	54	0.944
Homer	42	47	0.894
Lisa	44	48	0.917
Maggie	30	30	1
Mulva	52	53	0.981
<b>Sum</b>	<b>242</b>	<b>255</b>	<b>0.949019608</b>
<b>Average</b>	<b>34.57142857</b>	<b>36.42857143</b>	<b>0.962285714</b>
<b>SD</b>	<b>18.01718756</b>	<b>19.39808533</b>	<b>0.044093515</b>

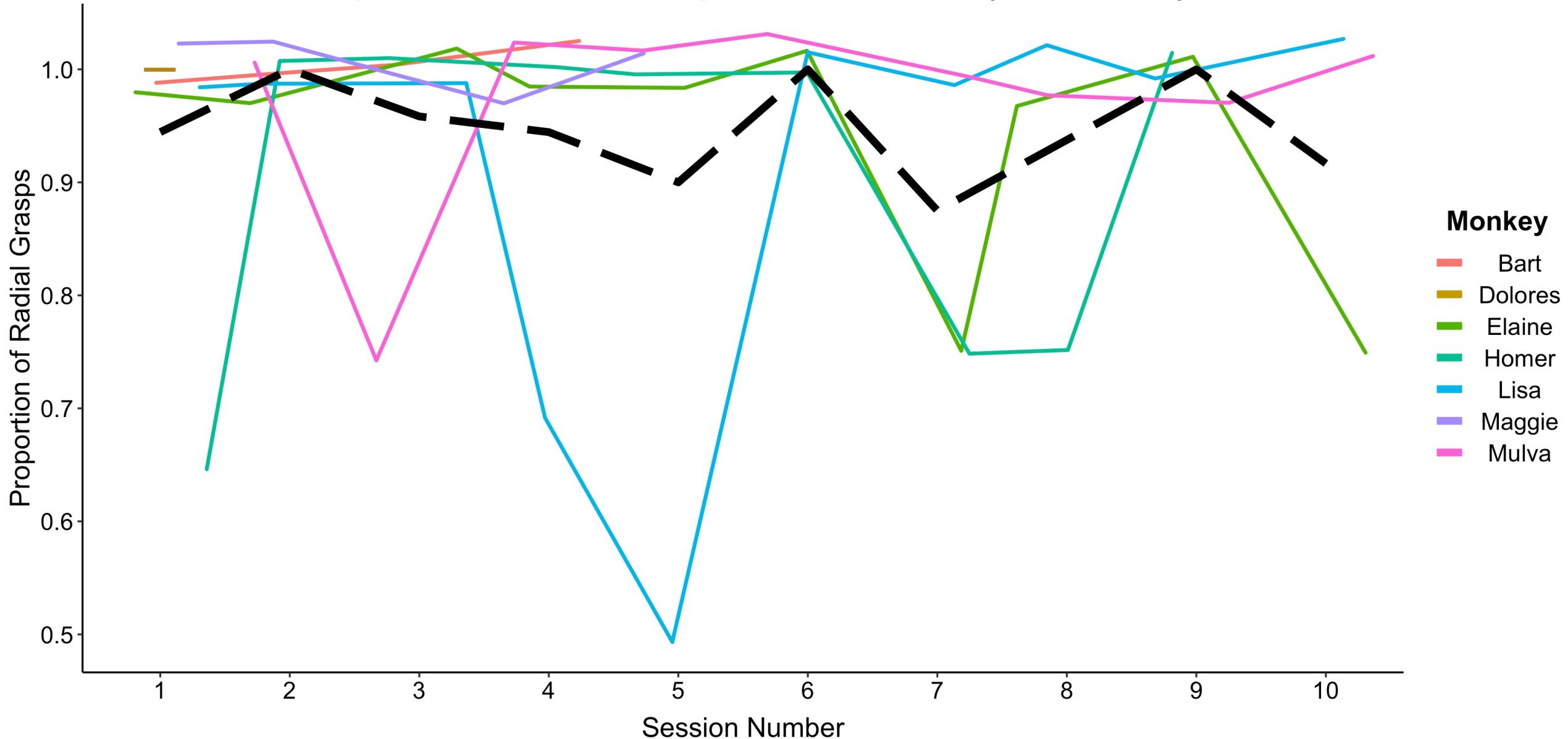
# Proportion of trials where a Radial Grasp was used by Tamarin; w/out Control Trials

	N Radial Trials	N Trials	Prop. Radial
Bart	12	12	1
Dolores	2	2	1
Elaine	34	36	0.944444444
Homer	30	33	0.909090909
Lisa	28	31	0.903225806
Maggie	20	20	1
Mulva	33	34	0.970588235
<b>Sum</b>	<b>159</b>	<b>168</b>	<b>0.946428571</b>
<b>Average</b>	<b>22.71428571</b>	<b>42</b>	<b>0.959222246</b>
<b>SD</b>	<b>12.00991654</b>	<b>13.02561579</b>	<b>0.042742279</b>

## Number of Trials per Session

		Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10
Bart	Left	1	2	1							
	Center	2	2	2							
	Right	1	2	2							
Dolores	Left	1									
	Center	1									
	Right	1									
Elaine	Left	2	2	1	2	1	2	2	2	2	2
	Center	2	2	1	2	1	2	2	2	2	2
	Right	2	2	1	2	1	2	2	2	2	2
Homer	Left	1	1	2	2	2	2	2	2	2	
	Center	2	1	1	2	2	1	2	1	2	
	Right	2	1	2	2	2	2	2	2	2	
Lisa	Left	1	1	0	2	2	2	2	2	2	2
	Center	1	1	1	2	2	2	2	2	2	2
	Right	2	1	1	1	2	0	2	2	2	2
Maggie	Left	2	2	2	2	2					
	Center	2	2	2	2	2					
	Right	2	2	2	2	2					
Mulva	Left	0	2	2	2	1	2	2	2	2	2
	Center	1	2	2	2	2	2	2	2	2	2
	Right	0	2	2	2	3	1	2	2	2	1

## Proportion of Radial Grasps Over Sessions (w/o Control)



## Proportion of Radial Grasps Over Sessions (includes Control)

