Tug of war

October 9, 2017

Contents

1 Research question

- exploring the probabilistic language of thought hypothesis as a model for human inference in tug of war world
- demonstrate compositionality and productivity of thought

2 Experiment 1: How strong?

Table 1: Games used in Experiment 1. Participants were always asked about the strength of player 1. *Note*: $>$ indicates that team1 won against team2; $<$ indicates that team1 lost against team2.

id	team1	winner	team2
1	1	$>$	2
1	1	$>$	2
1	1	$>$	2
2	1	$>$	2
2	2	$>$	3
2	2	$>$	4
3	1	$>$	2
3	2	$<$	3
3	2	$<$	4
4	1	$>$	2
4	1	$>$	3
4	1	$>$	4
5	1,2	$>$	3,4
5	1,2	$>$	5,6
5	1,2	$>$	7,8
6	1,2	$>$	5,6
6	1,3	$>$	5,7
6	1,4	$>$	5,8
7	1,2	$>$	5,6
7	2,3	$<$	5,6
7	2,4	$<$	5,6
8	1,2	$>$	5,6
8	2,3	$>$	5,6
8	2,4	$>$	5,6
9	1,2	$>$	5,6
9	1,3	$>$	7,8
9	1,4	$>$	9,10
10	1,2	$>$	3,4
10	1,3	$>$	2,4
10	1,4	$>$	2,3
11	1	$<$	2
11	1	$<$	2

id	team1	winner	team2
11	1	<	2
12	1	<	2
12	2	<	3
12	2	<	4
13	1	<	2
13	2	>	3
13	2	>	4
14	1	<	2
14	1	<	3
14	1	<	4
15	1,2	<	3,4
15	1,2	<	5,6
15	1,2	<	7,8
16	1,2	<	5,6
16	1,3	<	5,7
16	1,4	<	5,8
17	1,2	<	5,6
17	2,3	>	5,6
17	2,4	>	5,6
18	1,2	<	5,6
18	2,3	<	5,6
18	2,4	<	5,6
19	1,2	<	5,6
19	1,3	<	7,8
19	1,4	<	9,10
20	1,2	<	3,4
20	1,3	<	2,4
20	1,4	<	2,3
21	1,2	>	3
22	1	<	2,3
23	1,2	>	4,5,6
23	2	>	4,5
24	1,4	>	5,2,3
24	1,5	>	2,3,4
25	1,2,3	>	4,5,6
25	2,3	>	4,5,6
26	1,2	<	3
27	1	>	2,3
28	1,2	<	4,5,6

id	team1	winner	team2
28	2	<	4,5
29	1,4	<	5,2,3
29	1,5	<	2,3,4
30	1,2,3	<	4,5,6
30	2,3	<	4,5,6

2.1 Methods

2.1.1 Design

2.1.2 Procedure

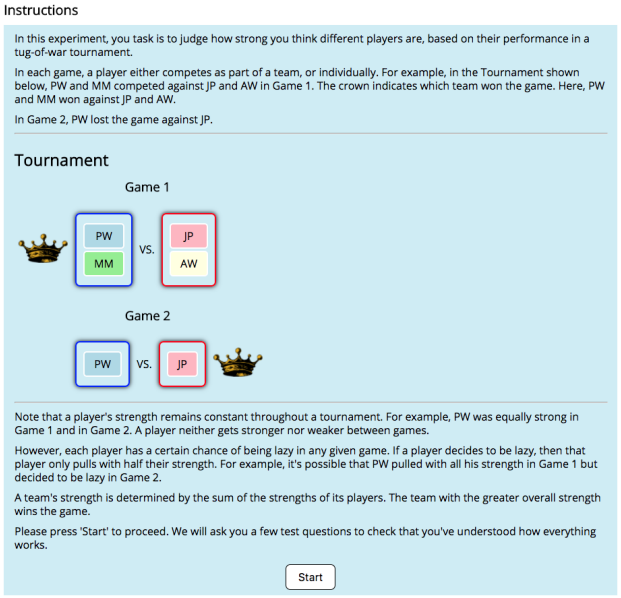

Figure 1: Instructions.

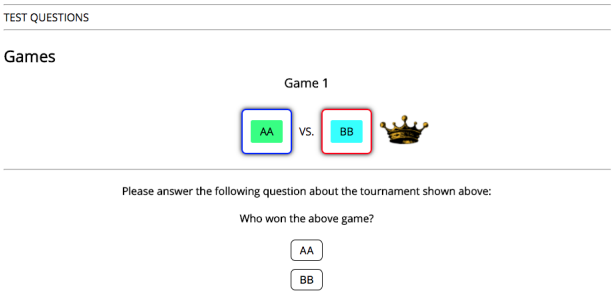

Figure 2: Test question.

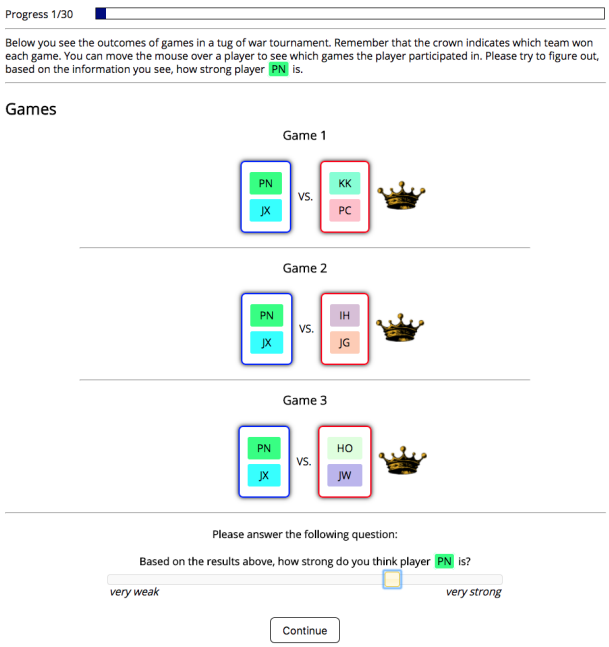

Figure 3: Trial.

2.2 Results (N = 39)

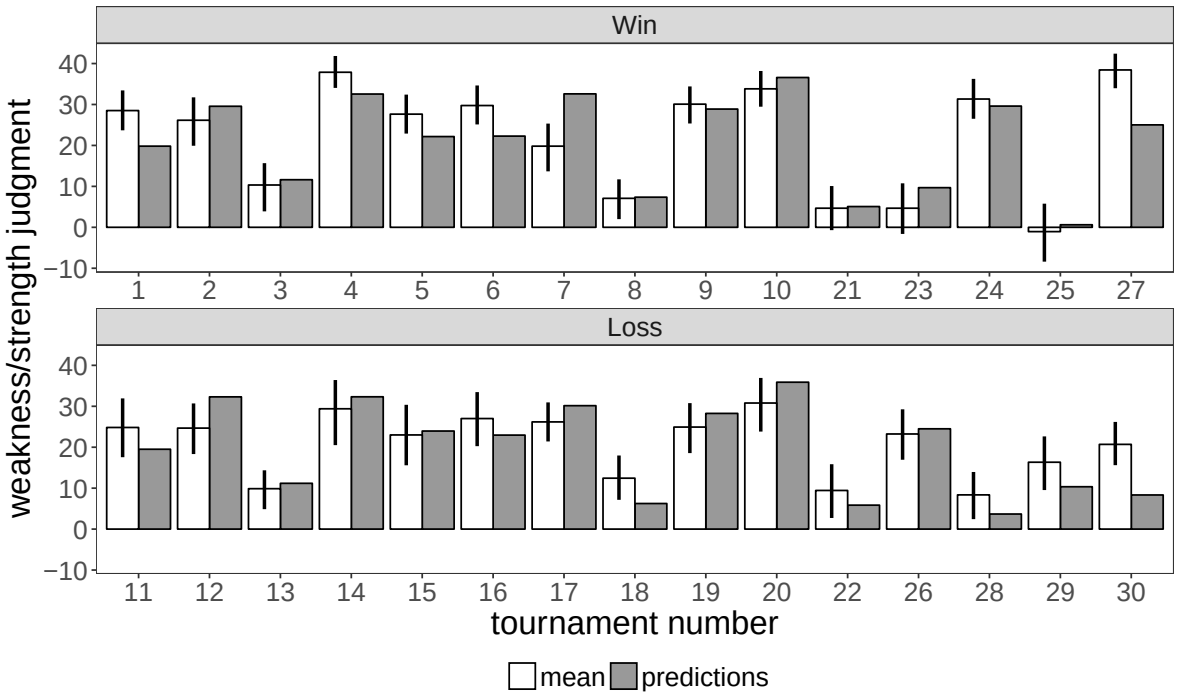

Figure 4: Mean weakness/strength judgments across the 30 tournaments with model predictions. *Note*: Error bars indicate 95% confidence intervals.

3 Experiment 2: How hard did the person try?

3.1 Methods

3.1.1 Design

Table 2: Games used in Experiment 2. Participants were asked how likely it was that the player indicated by the ? tried hard in this game. *Note*: $>$ indicates that team1 won against team2; $<$ indicates that team1 lost against team2.

id	game
1	**1?** $>$ 2
2	**1?** $<$ 2
3	**1?** $>$ 2
3	1 $>$ 2
3	1 $>$ 2
4	1 $>$ **2?**
4	1 $>$ 2
4	1 $>$ 2
5	**1?** 2 $>$ 3
6	1 2 $>$ **3?**
7	**1?** 2 $<$ 3
8	1 2 $<$ **3?**
9	**1?** $<$ 2
9	1 $>$ 2
9	1 $>$ 2
10	1 $<$ **2?**
10	1 $>$ 2
10	1 $>$ 2
11	1 $<$ 2
11	**1?** $>$ 2
11	1 $>$ 2
12	1 $<$ 2
12	1 $>$ **2?**
12	1 $>$ 2
13	**1?** 2 $<$ 3
13	2 $>$ 3
14	1 **2?** $<$ 3
14	2 $>$ 3
15	1 2 $<$ 3
15	2 $>$ **3?**
16	**1?** $<$ 2

id	game
16	$2 > 3$
16	$2 > 4$
17	$\mathbf{1?} < 2$
17	$2 < 3$
17	$2 < 4$
18	$\mathbf{1?} > 2$
18	$1 > 2$
19	$1 > \mathbf{2?}$
19	$1 > 2$
20	$\mathbf{1?} > 2$
20	$1 < 2$
21	$\mathbf{1?} > 2$
21	$1 > 3$
21	$1 > 4$
22	$1 > \mathbf{2?}$
22	$1 > 3$
22	$1 > 4$
23	$\mathbf{1?}\ 2 > 3\ 4$
24	$\mathbf{1?}\ 2 > 3\ 4$
24	$3 > 4$
25	$\mathbf{1?}\ 2 < 3$
25	$2 < 3$
26	$1\ \mathbf{2?} < 3$
26	$2 < 3$
27	$\mathbf{1?}\ 2\ 3 > 4\ 5$
28	$\mathbf{1?}\ 2\ 3 < 4\ 5$
29	$1\ 2\ 3 > \mathbf{4?}\ 5$
30	$1\ 2\ 3 < \mathbf{4?}\ 5$
31	$\mathbf{1?}\ 2 > 3\ 4$
31	$1\ 2 < 3\ 4$
32	$\mathbf{1?}\ 2\ 3 > 4$
33	$\mathbf{1?}\ 2\ 3 < 4$

3.2 Results

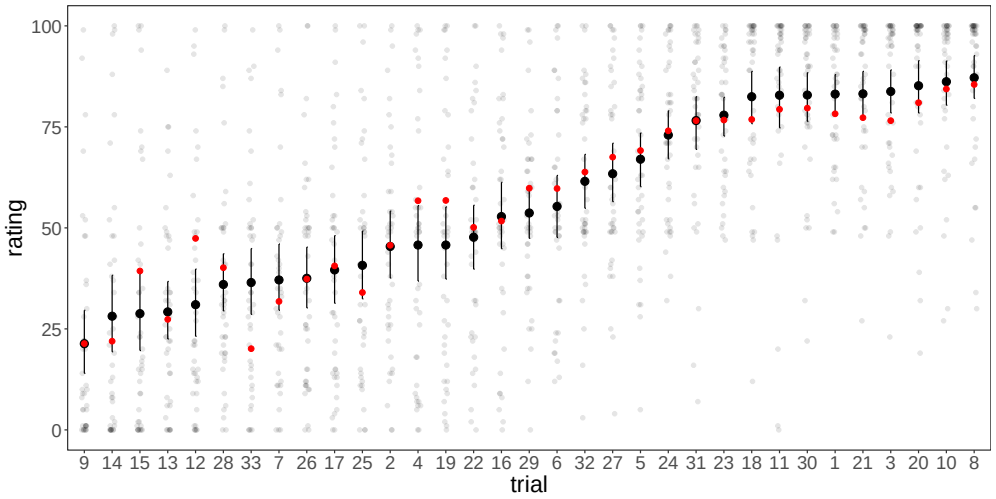

Figure 5: Results.

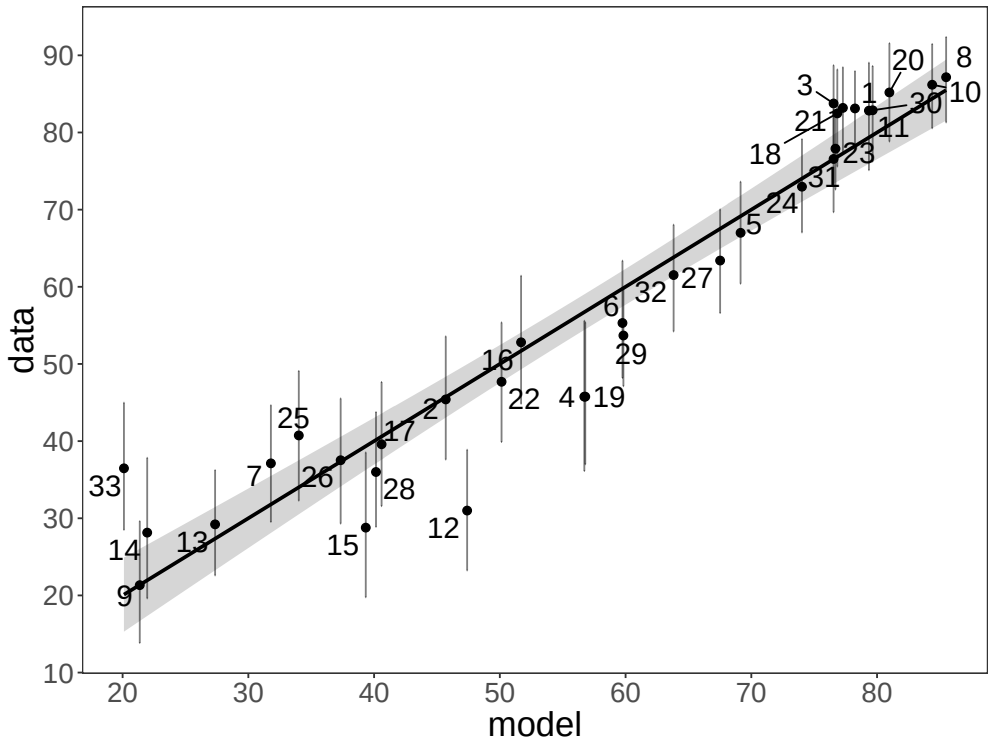

Figure 6: Scatter plot.