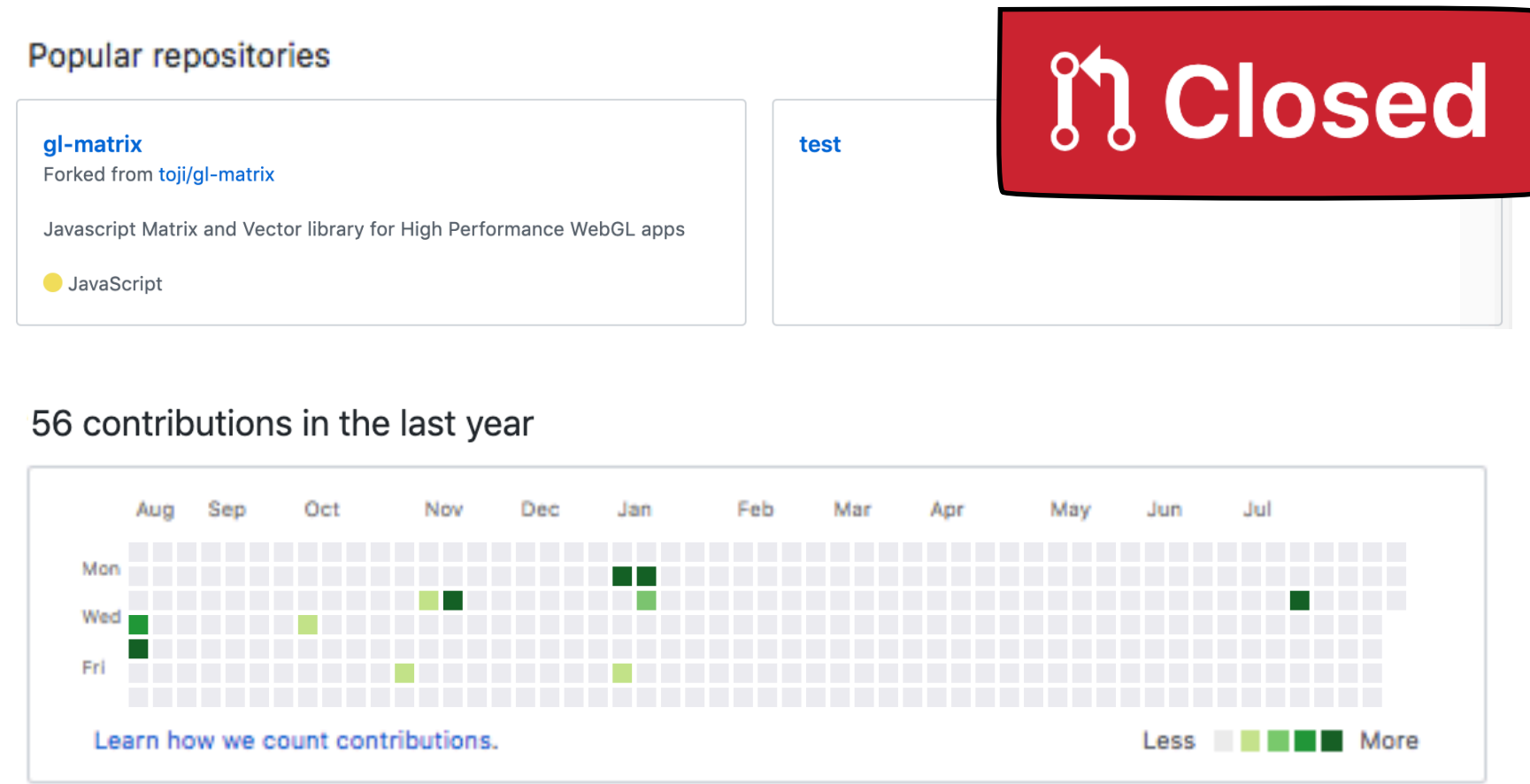


HOW ARE PULL REQUEST REVIEWED?

Pull requests can get rejected for reasons such as infrequent contributions or irrelevant projects

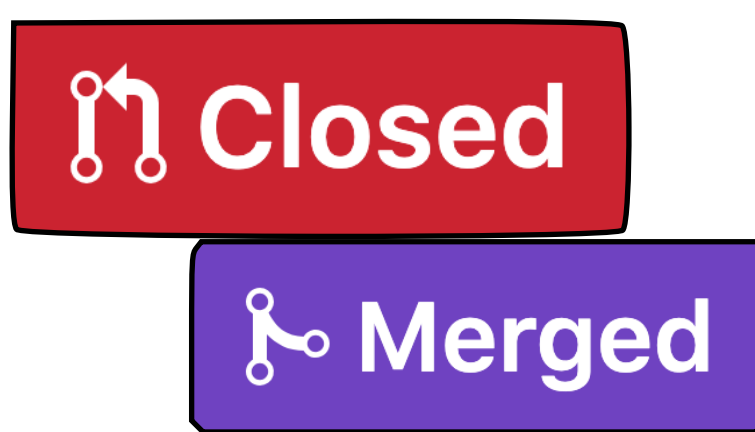


BUILDING ON PRIOR WORK

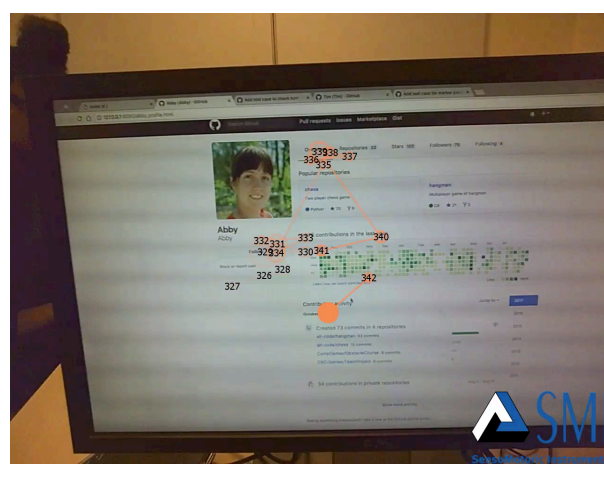
Social Coding in GitHub: Transparency and Collaboration in an Open Software Repository

Influence of Social and Technical Factors for Evaluating Contribution in GitHub

Previous studies were done *post factum*



Further insight into the decision making process



Eye tracking offers a holistic perspective to the story

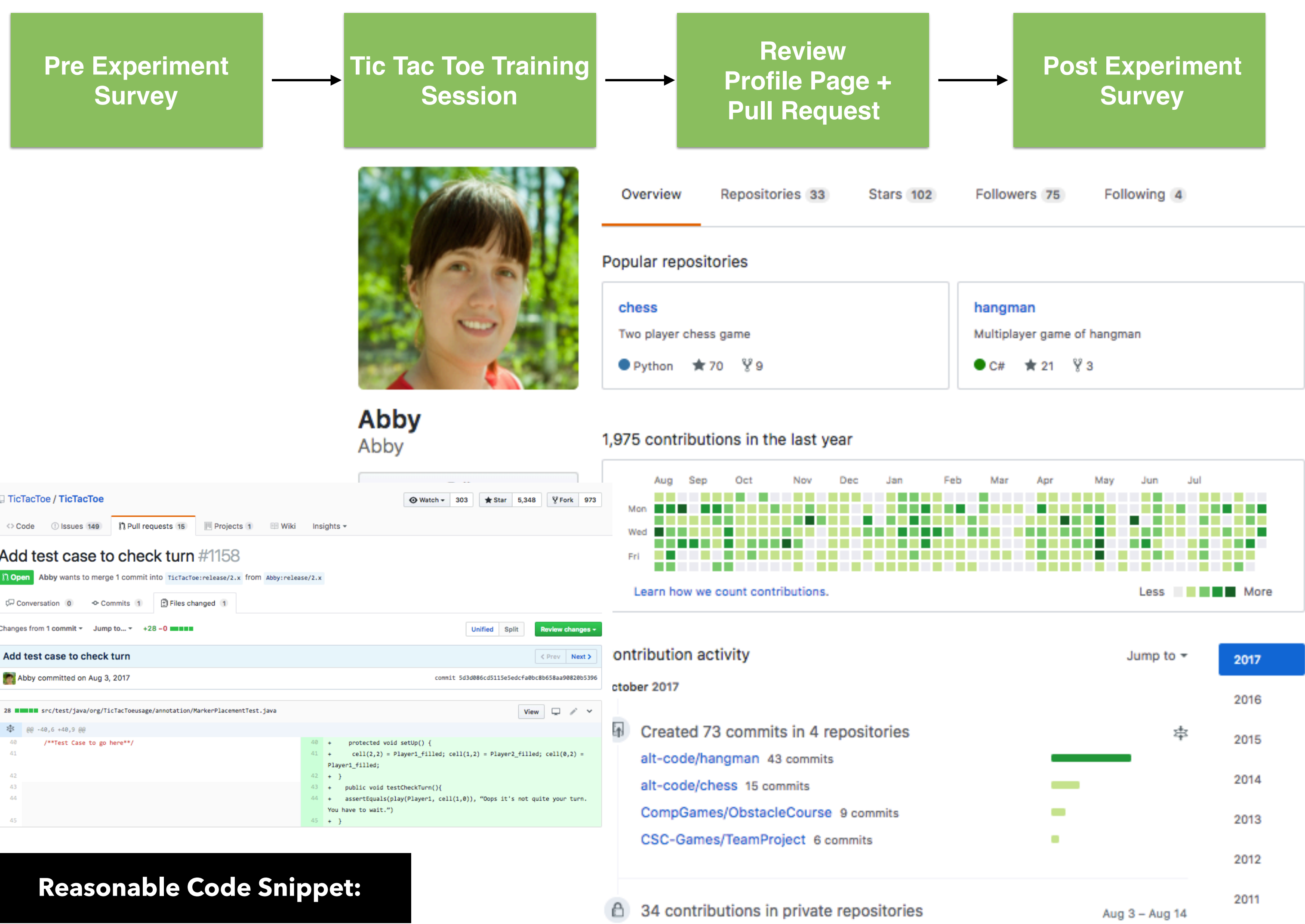
RESEARCH QUESTIONS

RQ1 How do programmers review pull requests?

RQ2 Where do programmers think they look and where they really look?



METHODOLOGY



Reasonable Code Snippet:

```
40 + protected void setUp() {
41 +     cell(2,2) = Player1_filled; cell(1,2) = Player2_filled; cell(0,2) = Player1_filled;
42 + }
43 + public void testCheckTurn(){
44 +     assertEquals(play(Player1, cell(1,0)), "Oops it's not quite your turn. You have to wait.")
45 + }
```

Unreasonable Code Snippet:

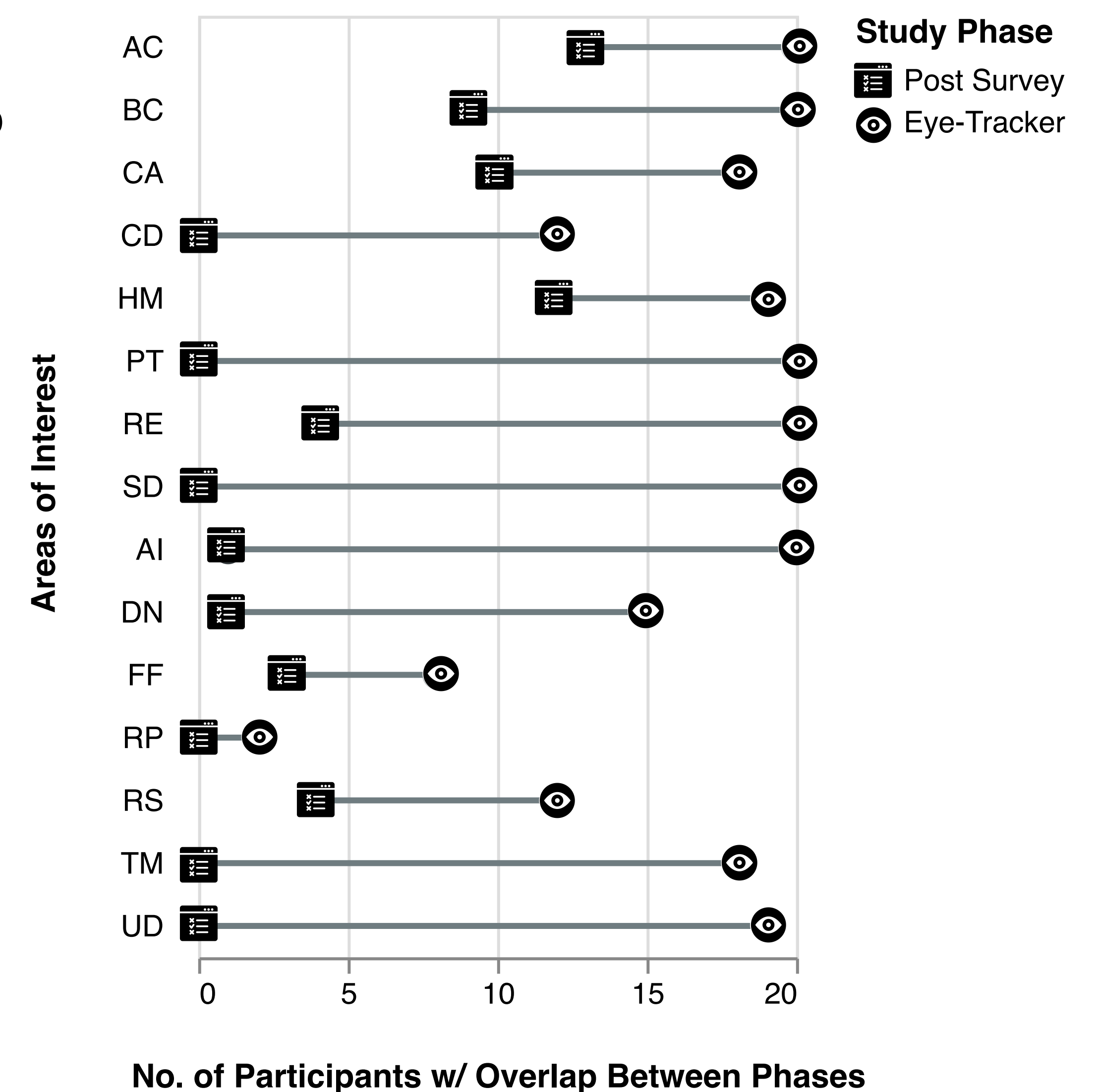
```
40 + protected void setUp() {
41 +     cell(0,0) = Player2_filled; cell(1,1) = Player1_filled; cell(1,0) = Player2_filled;
42 + }
43 + public void test1(){
44 +     assertEquals(play(Player1, cell(0,0)), "Great job! It is now the next player's turn")
45 + }
```

RESULTS

	Participants																			
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
Experience	H	H	H	L	H	H	H	H	H	H	L	L	H	L	H	L	L	L	H	L
PR Reviewed	P	P	P	A	A	A	A	T	T	T	P	P	P	A	A	A	A	T	T	T
Decision Evaluation	T	-	F	-	T	F	T	T	-	T	T	T	F	F	T	F	T	T	T	T
Overview																				
Code Signals																				
Code Signals	67%	66%	66%	21%	59%	25%	70%	83%	27%	73%	60%	70%	25%	69%	32%	75%	86%	63%	58%	27%
Technical Signals	26%	30%	28%	48%	29%	49%	22%	11%	57%	17%	31%	24%	62%	25%	42%	18%	7%	28%	38%	56%
Social Signals	7%	4%	6%	31%	12%	26%	8%	6%	16%	10%	8%	5%	13%	7%	6%	7%	7%	9%	3%	17%
Code Signals																				
After Code Snippet (AC)	97%	90%	88%	80%	98%	80%	89%	96%	71%	74%	93%	100%	28%	94%	97%	86%	89%	82%	99%	54%
Before Code Snippet (BC)	3%	10%	12%	20%	2%	20%	11%	4%	29%	26%	7%	-	72%	6%	3%	14%	11%	18%	1%	46%
Technical Signals																				
Contribution Activity (CA)	47%	65%	48%	36%	-	18%	11%	-	35%	20%	19%	5%	18%	24%	43%	12%	11%	28%	5%	11%
Commit Details (CD)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contribution Heat Map (HM)	7%	1%	-	2%	-	2%	19%	-	-	-	-	1%	9%	3%	-	3%	-	9%	3%	3%
Pull Request Title (PT)	14%	16%	17%	12%	-	8%	11%	25%	13%	8%	23%	28%	10%	14%	14%	13%	26%	19%	44%	18%
Popular Repositories (RP)	2%	3%	3%	9%	63%	23%	20%	18%	17%	28%	33%	24%	18%	7%	8%	6%	25%	15%	13%	5%
Submission Details (SD)	23%	15%	17%	28%	12%	26%	11%	46%	17%	13%	14%	11%	13%	23%	23%	32%	2%	16%	30%	45%
Social Signals																				
Avatar Image (AI)	25%	20%	51%	28%	13%	16%	7%	64%	26%	52%	35%	33%	7%	24%	50%	21%	74%	42%	35%	46%
Display Name (DN)	16%	24%	4%	8%	-	3%	5%	12%	11%	-	-	-	5%	8%	14%	5%	14%	11%	-	11%
Followers/Following (FF)	6%	19%	19%	6%	-	11%	-	3%	-	-	-	-	-	2%	-	2%	-	-	-	-
Repository Popularity (RE)	-	-	-	-	-	-	-	5%	-	-	-	-	-	-	-	-	-	-	-	-
Repository Stars (RS)	45%	21%	17%	-	12%	32%	-	3%	14%	-	3%	-	8%	-	22%	-	5%	-	-	13%
To Merge (TM)	6%	4%	-	42%	70%	29%	39%	-	28%	13%	58%	57%	63%	44%	20%	24%	3%	11%	65%	21%
User Details (UD)	2%	13%	9%	16%	5%	9%	49%	14%	20%	35%	5%	10%	25%	13%	16%	26%	10%	29%	-	9%

RQ1 They review code the most, but also tech + social signals

RQ2 Programmers reviewed more social signals than reported



CONCLUSION

Both social and technical aspects are being taken into consideration when deciding upon pull request acceptance.

Future work will study how the **execution of concealing or amplifying these signals** affect developers across the identity spectrum and development experiences at scale.