

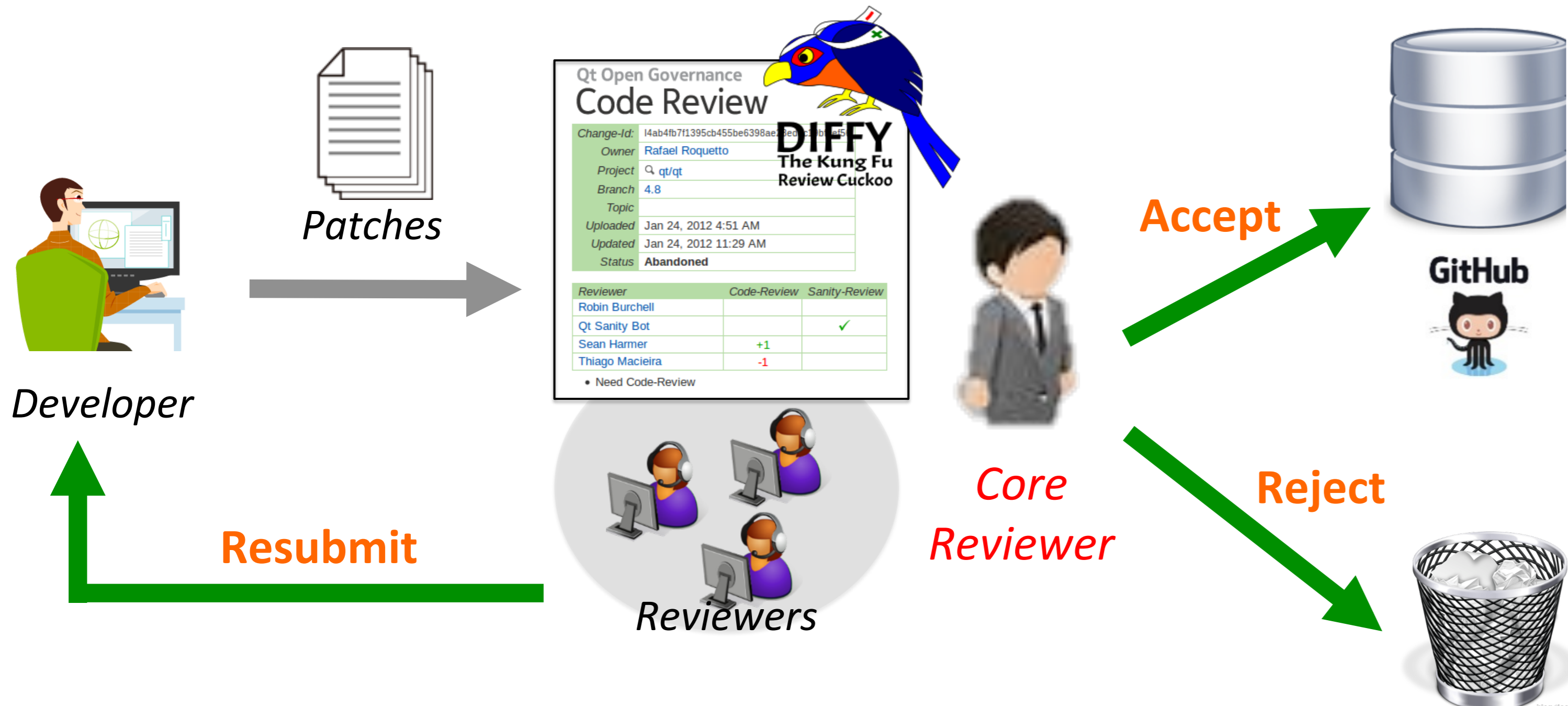
# How do core reviewers make a decision in Code Review Process

- A Pilot Study of Open Source Project Patches -

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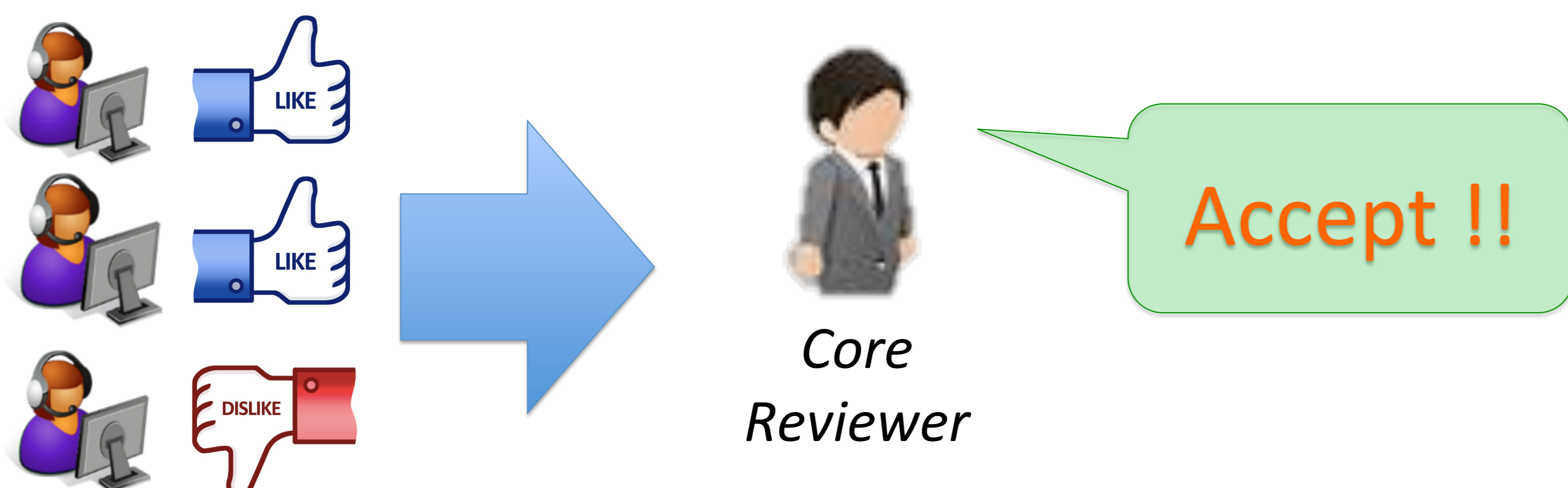
## Code Review Process

**Core Reviewers** decide **Accept** or **Reject** patches.  
If the patches need to be revised, it will be **Resubmitted**



## Motivation and Goal

### How do Core Reviewers make a decision?

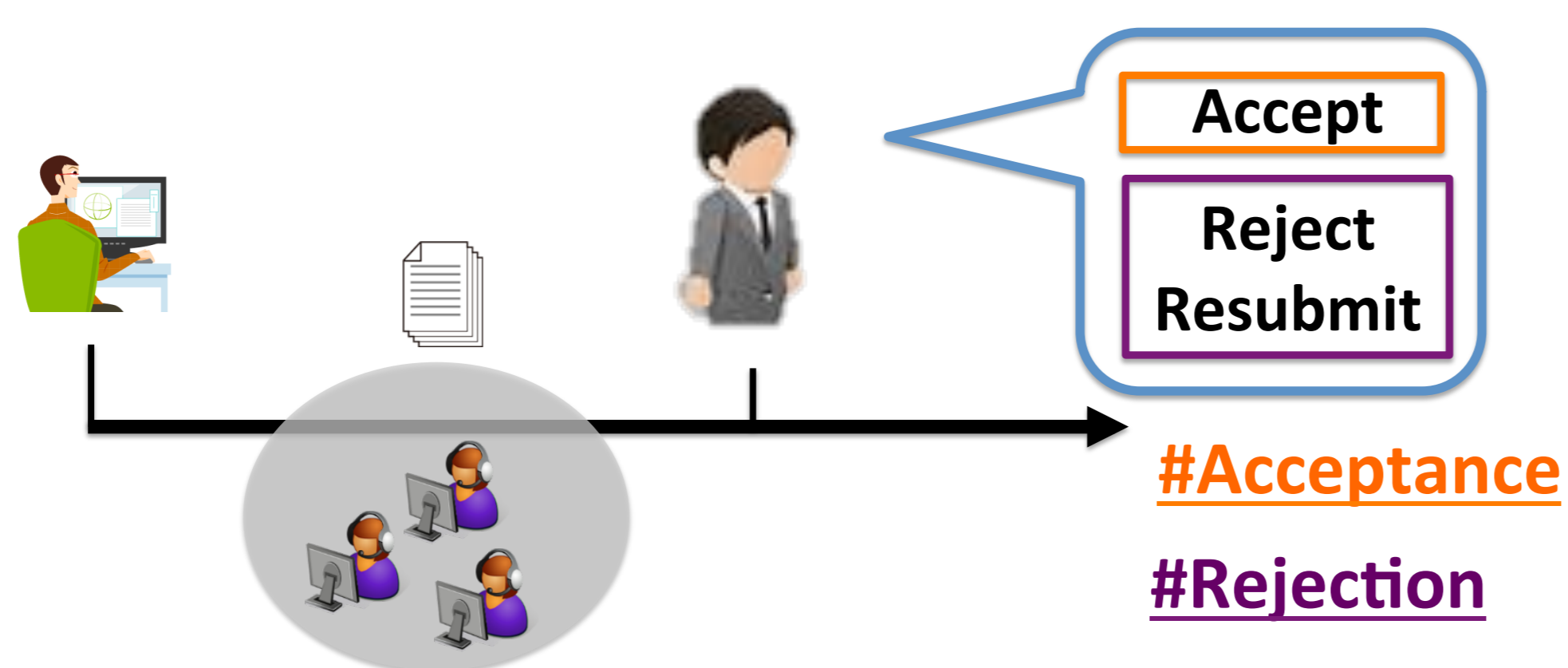


- Their decision making follows **Majority voting...?**
- What leads to make a Final decision?





We build a prediction model to decide whether or not core reviewers can make a decision!

## Preliminary Study









Case study  
OSS Project:   
Review tool:   
# Patch sets: 66,393



### 2 reviewers

Pattern	#Acceptances	#Rejection	Total
	26,293 (86.2%)	4207 (13.7%)	30,500
	18 (0.4%)	4,881 (99.6%)	4,899
	363 (55.5%)	291 (44.4%)	654
	0 (0.0%)	447 (100%)	447

### 3 reviewers

Pattern	#Acceptances	#Rejection	Total
	5119 (87.4%)	737 (12.6%)	5,856
	40 (4.5%)	854 (95.5%)	894
	96 (43.6%)	124 (56.4%)	220
	268 (81.5%)	61 (18.5%)	329
	0 (0.0%)	491 (100%)	491
	1 (1.8%)	55 (98.2%)	56
	3 (30.0%)	7 (70.0%)	10
	0 (0.0%)	50 (100%)	50

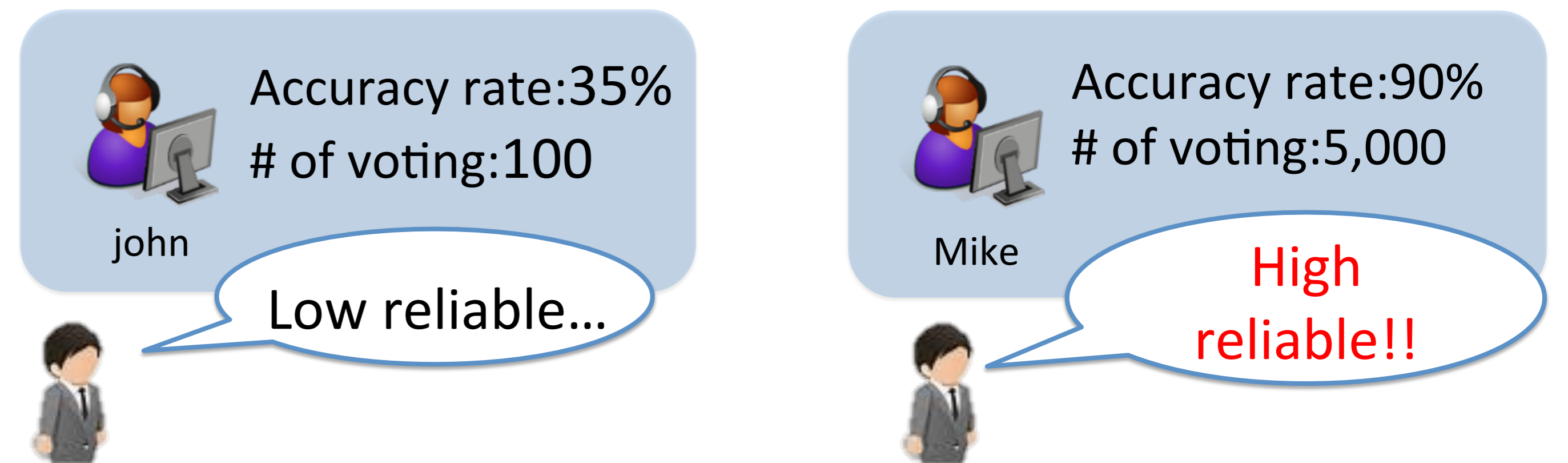
- The latter negative voting is stronger than the former one.
- Negative voting is stronger impact to the final decision than positive voting [1]

[1]Toshiki Hirao, Akinori Ihara, Ken-ichi Matsumoto, "Pilot Study of Collective Decision-making in the Code Review Process," Proc.CASCON '15 (to appear).

## Research Question & Future Work

### RQ1 : How is the reviewers' reliability effective?

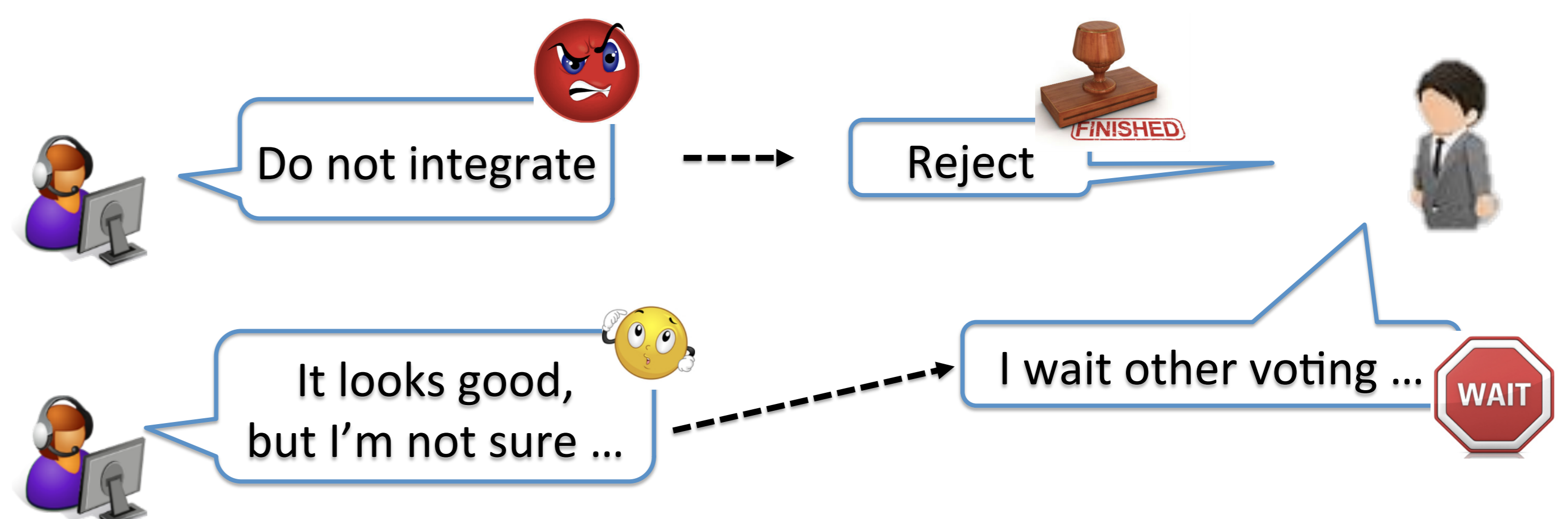
We define that the reviewer's reliability means the percentage of correct answer in their experience.



The higher reliability is likely to lead to make decision

- ✓ Whose voting do core reviewers believe?
- ✓ What experiences should core reviewers measure?

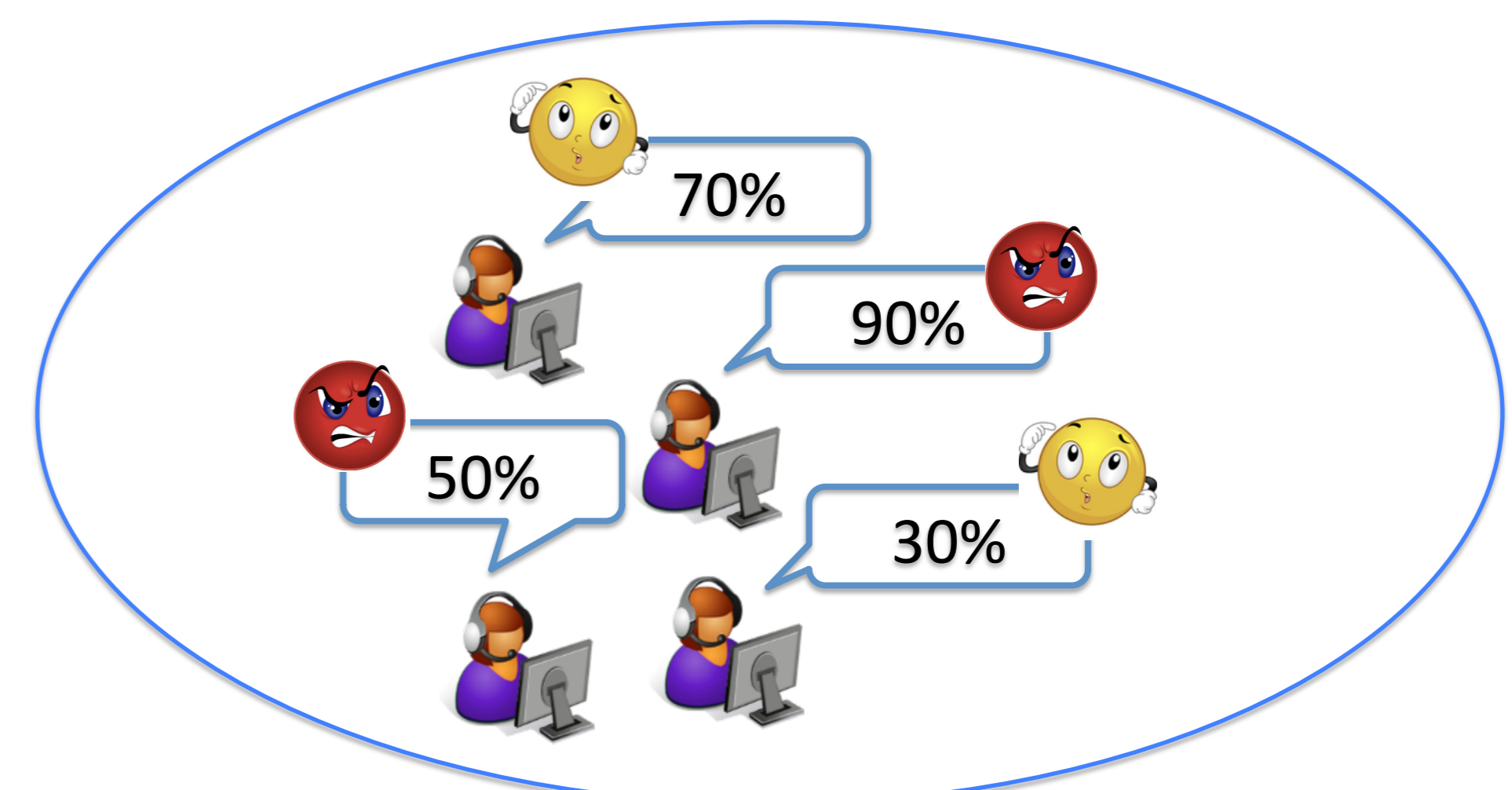
### RQ2 : How is a voting message's strength effective?



The stronger messages lead to make a decision

- ✓ What words are **strong** or **weak** meaning for the final decision?
- ✓ How do these strength impact to the final decision?

### RQ3 : How many reviewers' votes does core reviewers need?



The reliability and strength relate to reviewer's discussion quality

- ✓ How do the reliability and strength work for decision making in multiple review?

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