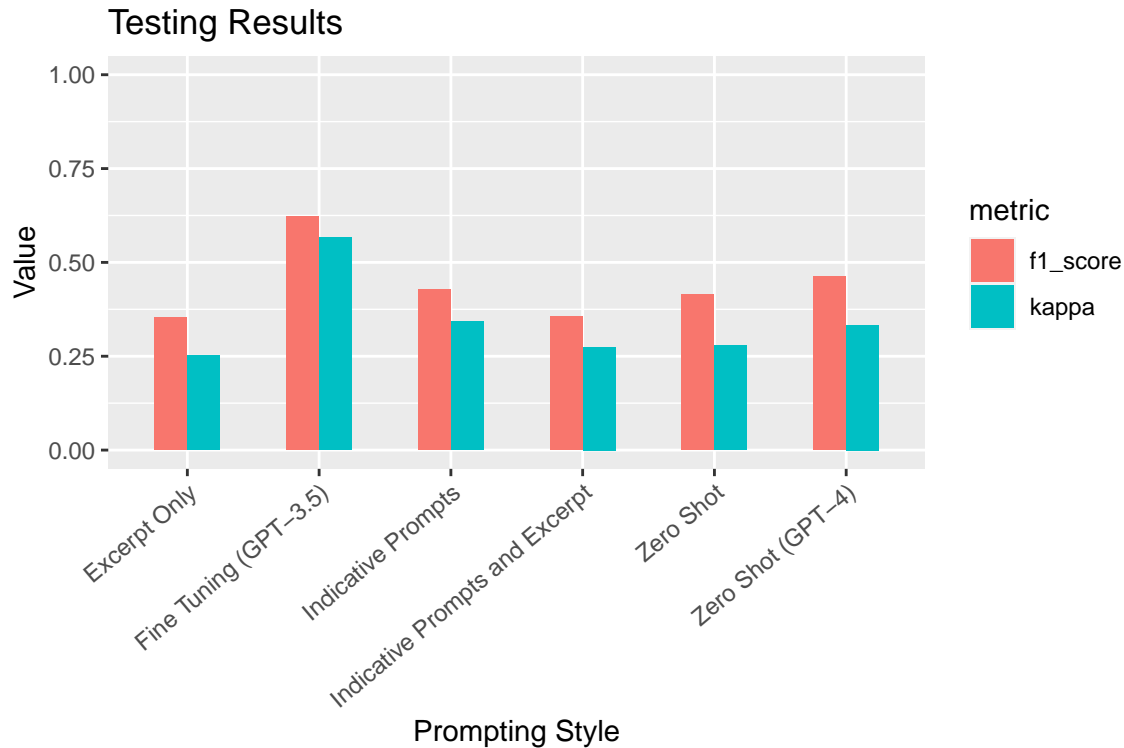


# Automated Discourse Analysis via Generative Artificial Intelligence

Ryan Garg      Jaeyoung Han      Yixin Cheng      Zheng Feng      Zachari Swiecki

The following report outlines the results obtained by each method for each code. Each method has three metrics that are reported: Cohen’s Kappa, Shaffer’s Rho, and F1 Score. Each code also includes a summary graph and table that compares all relevant methods. Additionally, every method has a corresponding confusion matrix to indicate the predictions made by the Generative Artificial Intelligence model. All methods use the GPT-3.5-Turbo model unless specified otherwise.

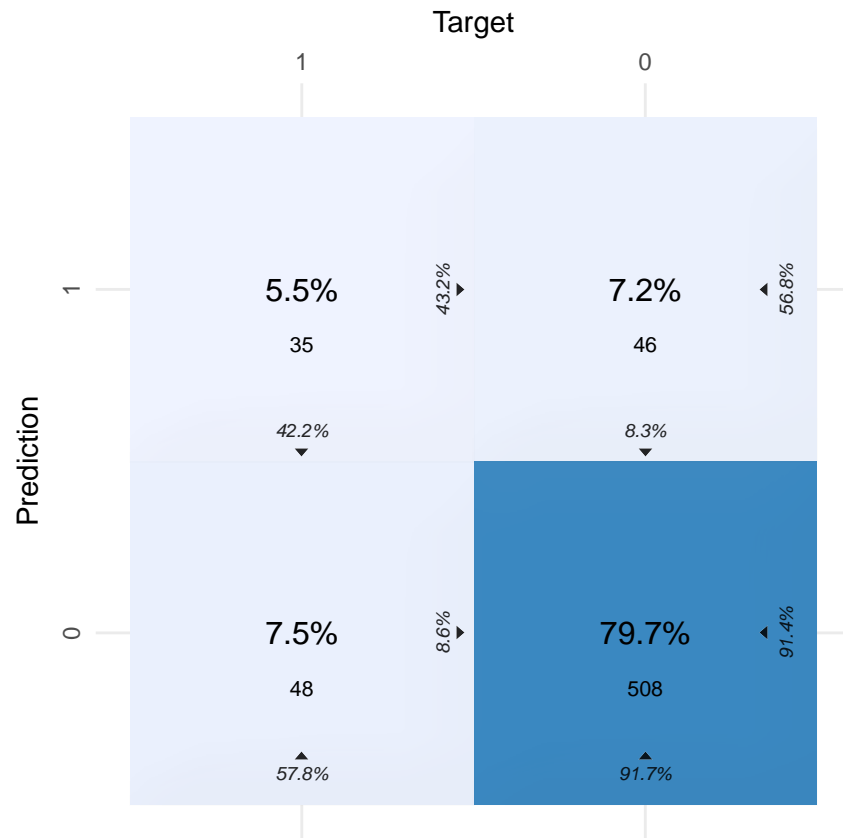
## Critic



Summary Table

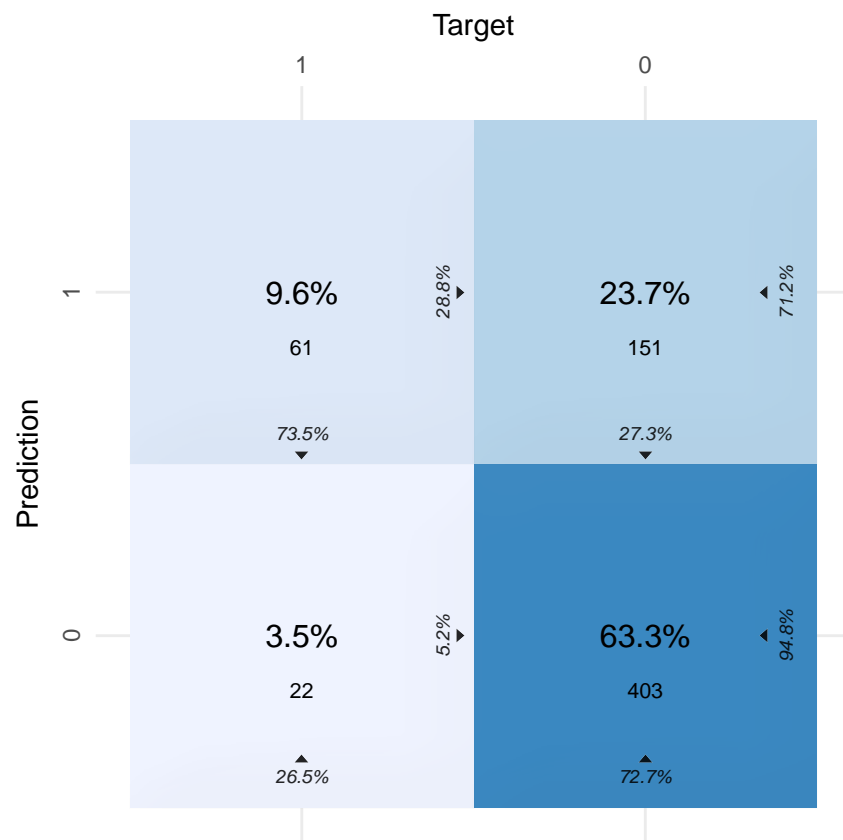
test	kappa	rho	f1_score
Indicative Prompts	0.3421590	1.00000	0.4268293
Zero Shot	0.2784256	1.00000	0.4135593
Zero Shot (GPT-4)	0.3334473	1.00000	0.4625000
Excerpt Only	0.2517801	1.00000	0.3542857
Indicative Prompts and Excerpt	0.2745929	1.00000	0.3561644
Fine Tuning (GPT-3.5)	0.5655972	0.37375	0.6219512

# Testing Results For Each Prompting Method Indicative Prompts Only



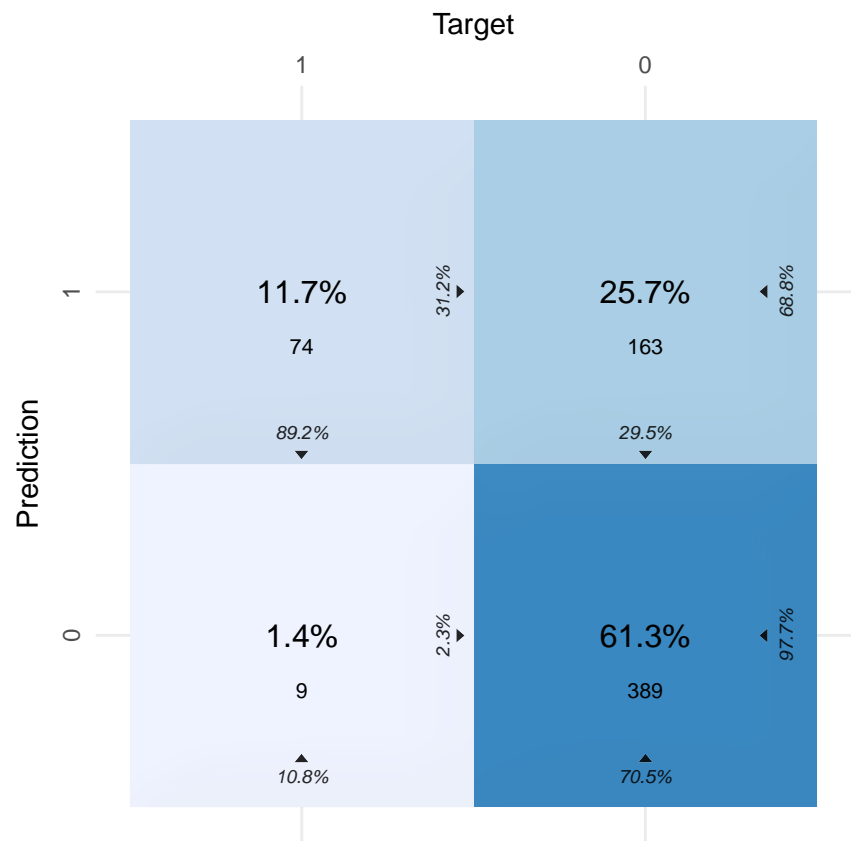
The F1 Score is 0.4268293. The kappa is 0.342159 and the rho value is 1.

## Zero Shot



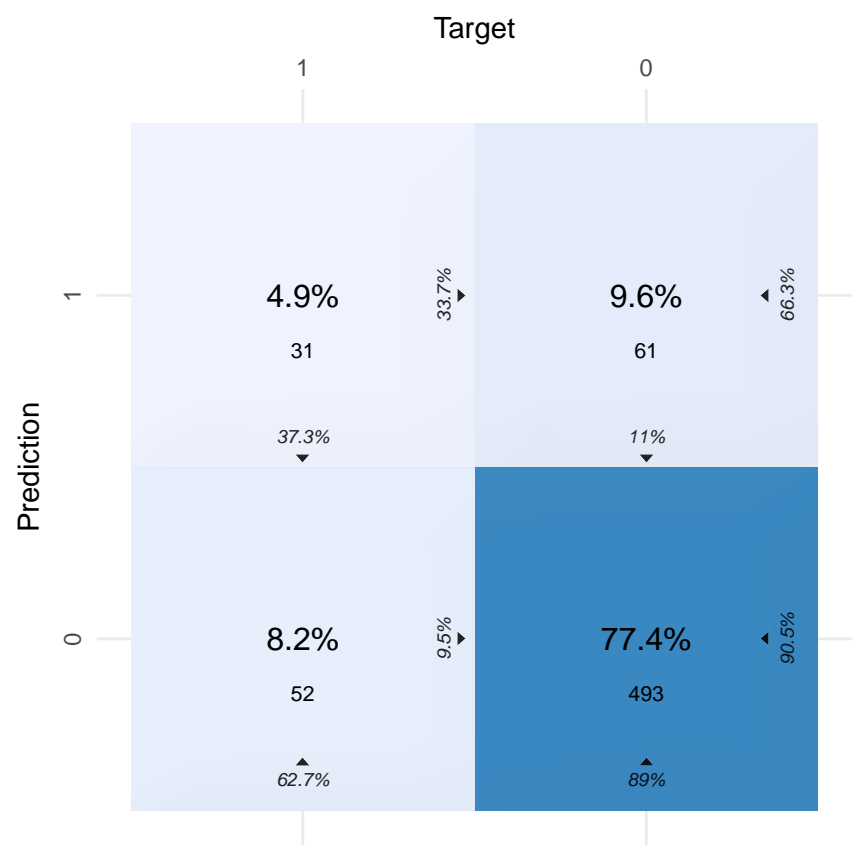
The F1 Score is 0.4135593. The kappa is 0.2784256 and the rho value is 1.

Zero Shot (GPT-4)



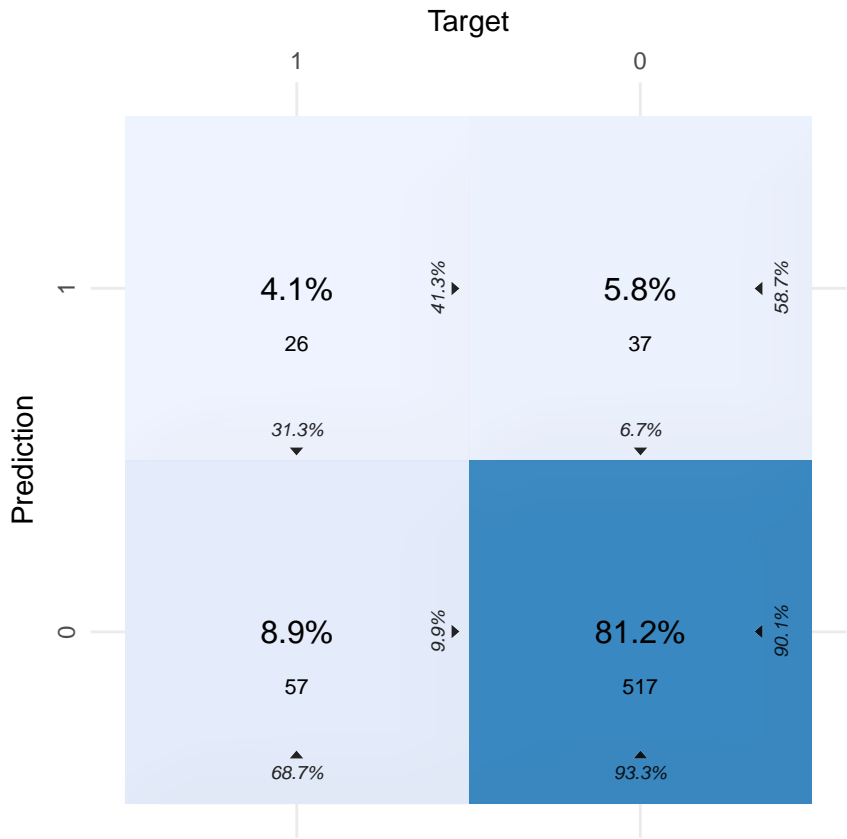
The F1 Score is 0.4625. The kappa is 0.3334473 and the rho value is 1.

Excerpt Only

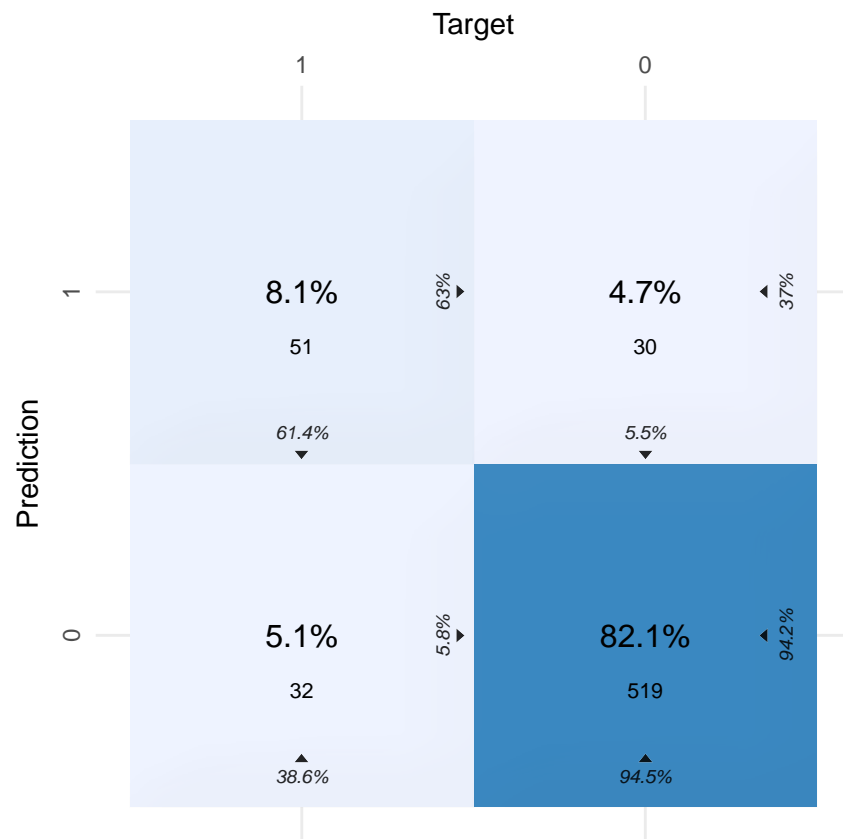


The F1 Score is 0.3542857. The kappa is 0.2517801 and the rho value is 1.

Indicative Prompts and Excerpt

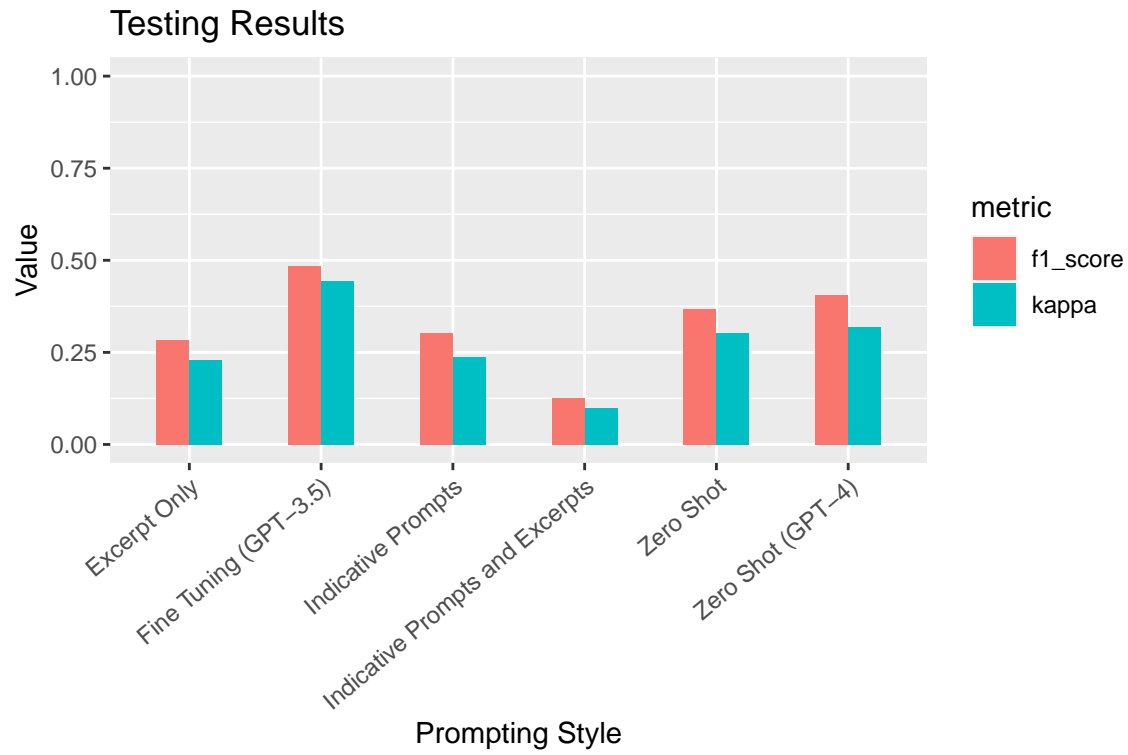


## Fine Tuning (GPT-3.5)



The F1 Score is: 0.6219512. The kappa is 0.5655972 and the rho value is 0.37375.

## Designer



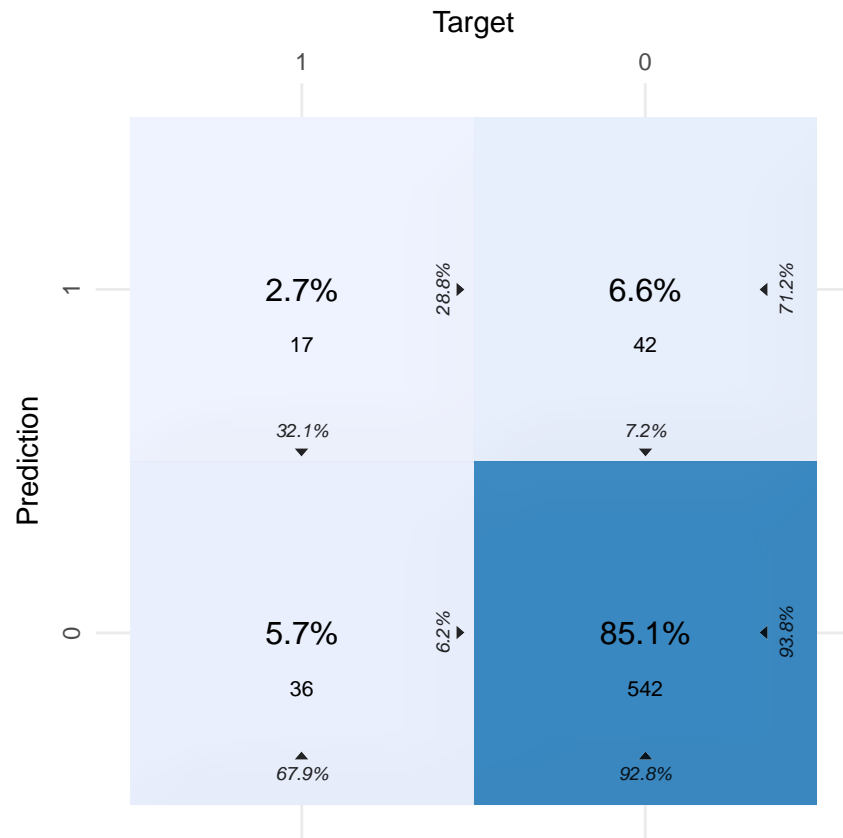
Summary Table

test	kappa	rho	f1_score
Indicative Prompts	0.2366569	1	0.3035714
Zero Shot	0.3017970	1	0.3666667
Zero Shot (GPT-4)	0.3184157	1	0.4067797
Excerpt Only	0.2281623	1	0.2826087
Indicative Prompts and Excerpts	0.0992374	1	0.1250000
Fine Tuning (GPT-3.5)	0.4429013	1	0.4842105



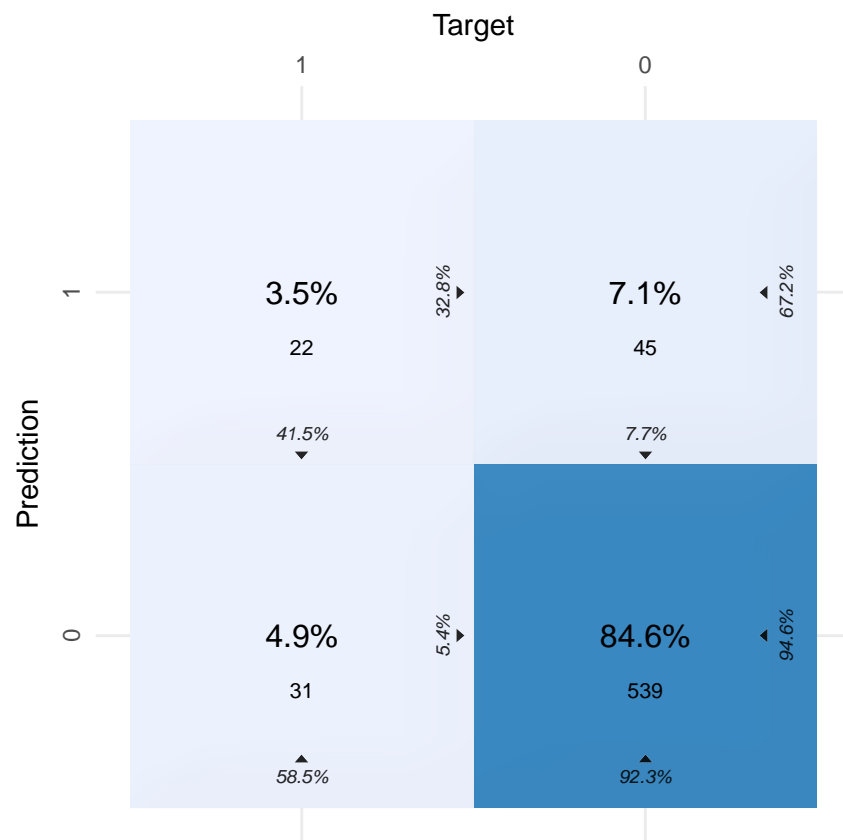
## Individual Testing Results

Indicative Prompts Only



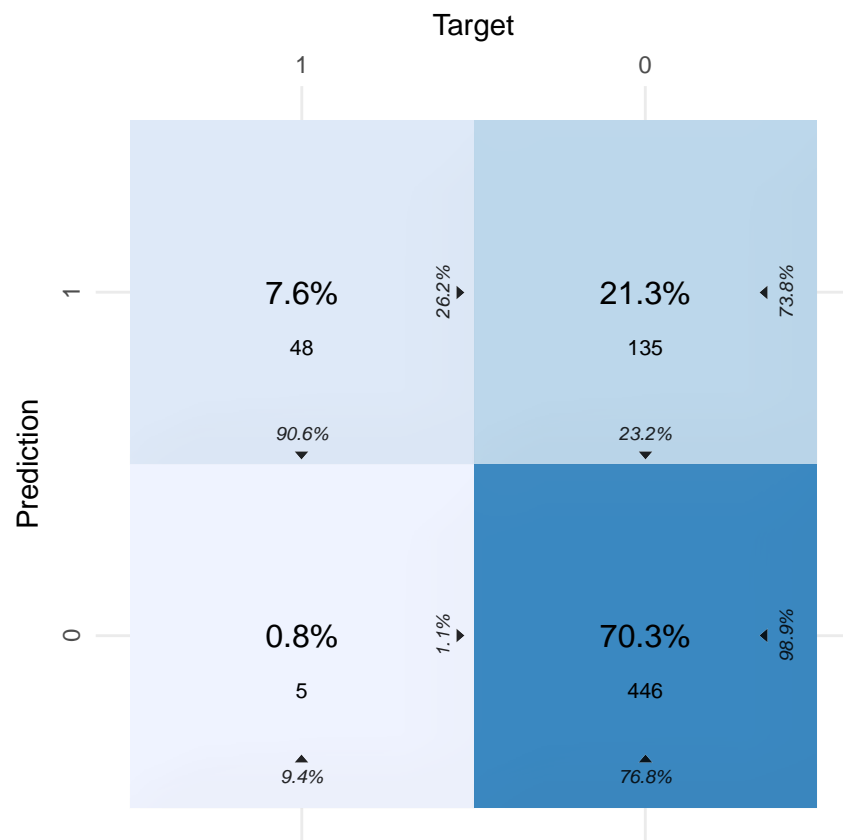
The F1 Score is 0.3035714. The kappa is 0.2366569 and the rho value is 1.

## Zero Shot



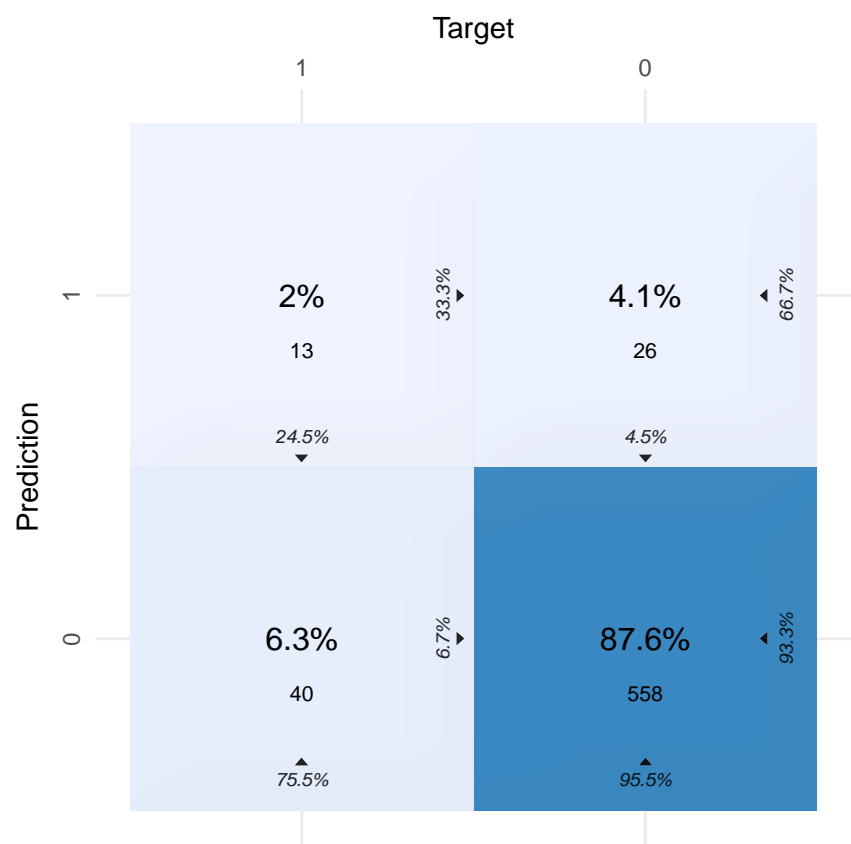
The F1 Score is 0.3666667. The kappa is 0.301797 and the rho value is 1.

## Zero Shot GPT-4

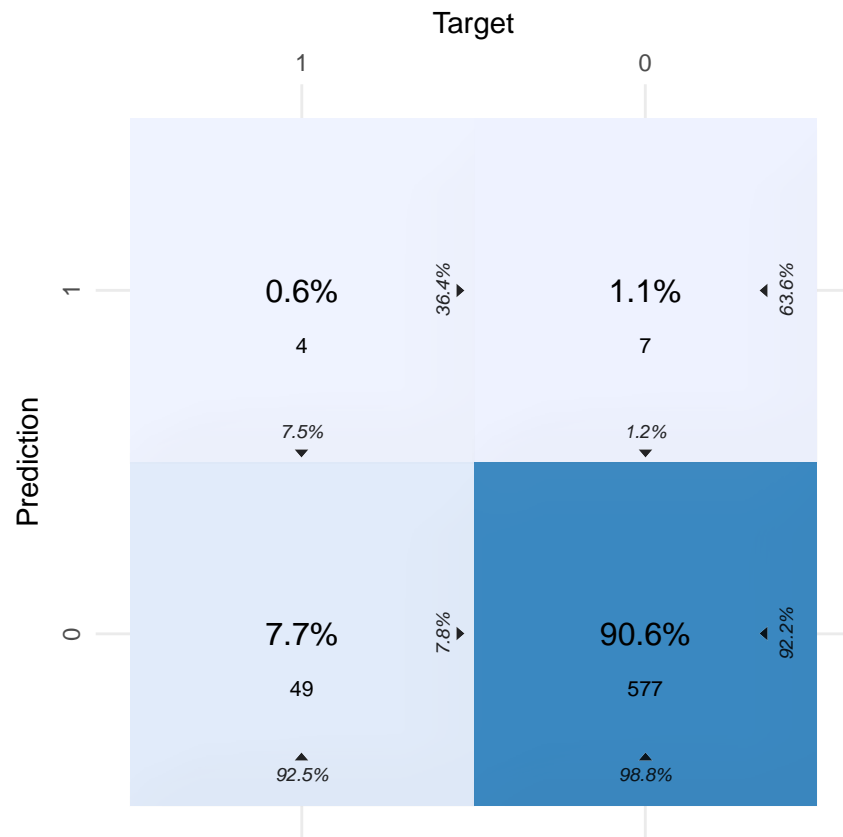


The F1 Score is 0.4067797. The kappa is 0.3184157 and the rho value is 1.

Excerpt Only

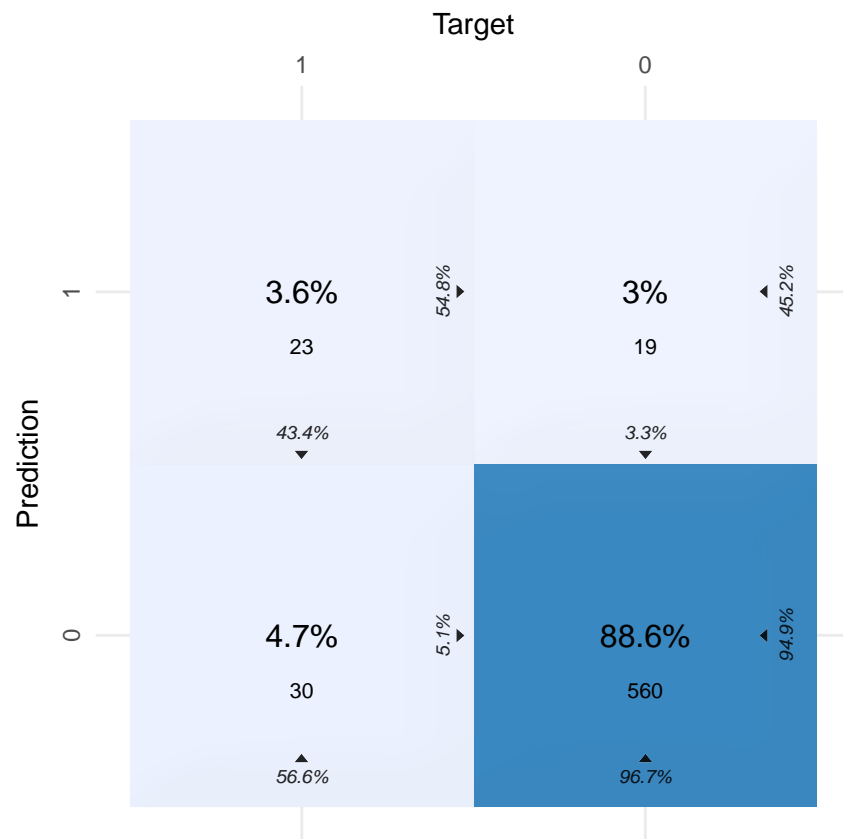


## Indicative Prompts and Excerpt



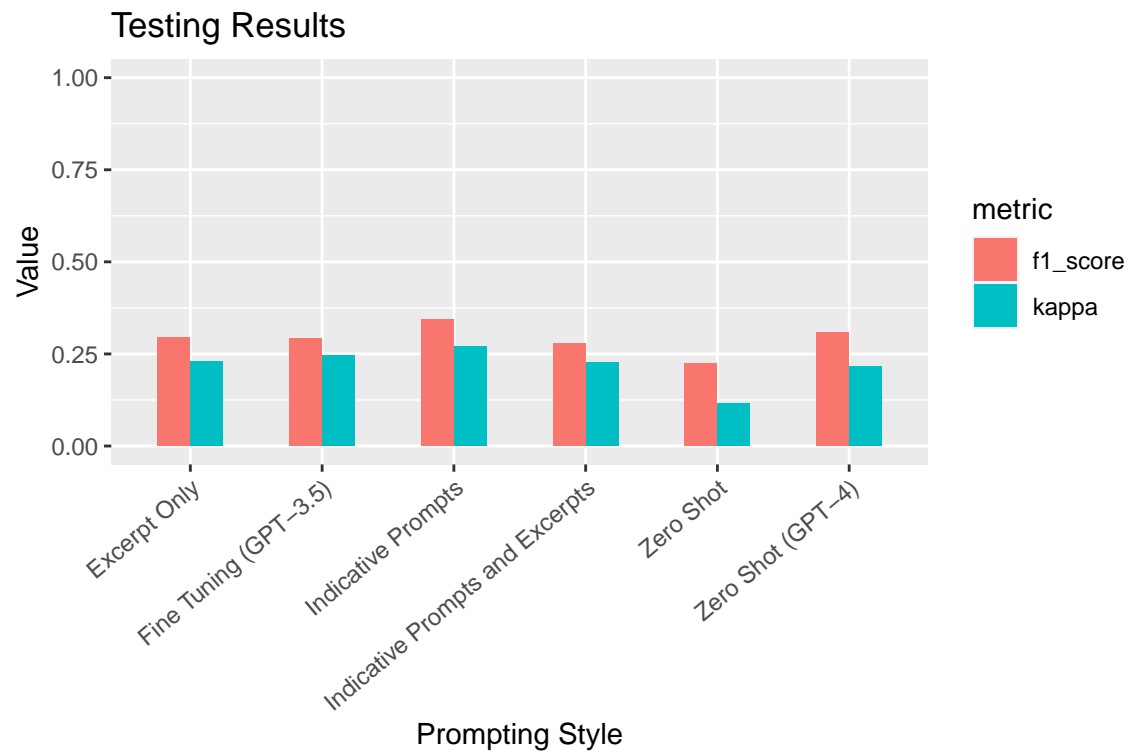
The F1 Score is 0.125. The kappa is 0.0992374 and the rho value is 1.

## Fine Tuning (GPT-3.5)



The F1 Score is 0.4842105. The kappa is 0.4429013 and the rho value is 1.

## Innovator

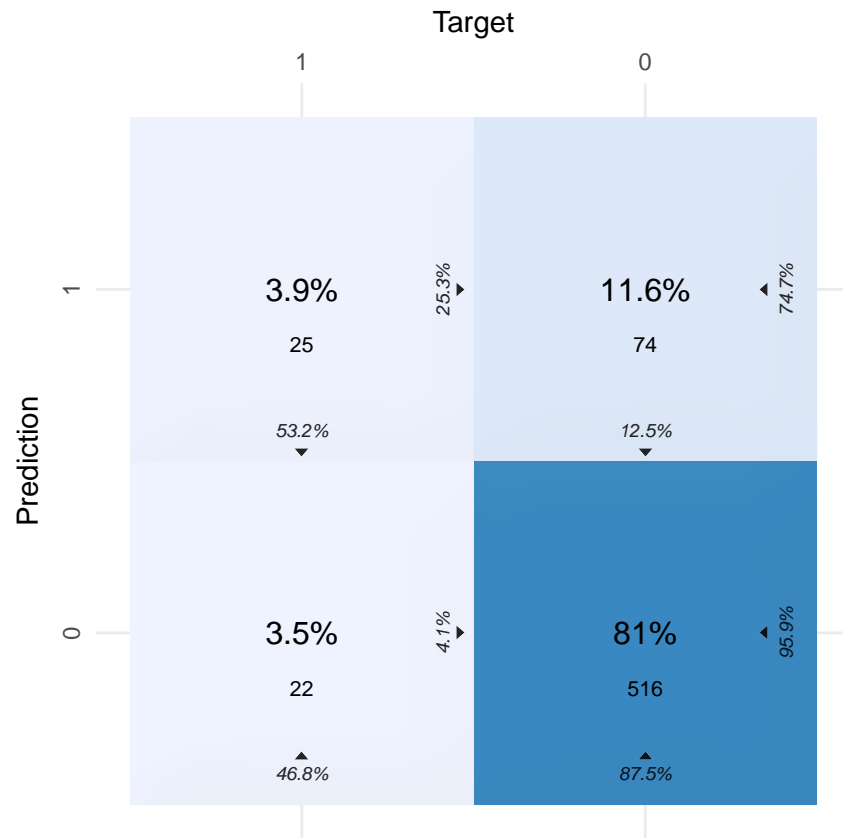


Summary Table

test	kappa	rho	f1_score
Indicative Prompts	0.2693558	1	0.3424658
Zero Shot	0.1144350	1	0.2230216
Zero Shot (GPT-4)	0.2162502	1	0.3090129
Excerpt Only	0.2283176	1	0.2956522
Indicative Prompts and Excerpts	0.2273652	1	0.2790698
Fine Tuning (GPT-3.5)	0.2447356	1	0.2926829

## Individual Testing Results

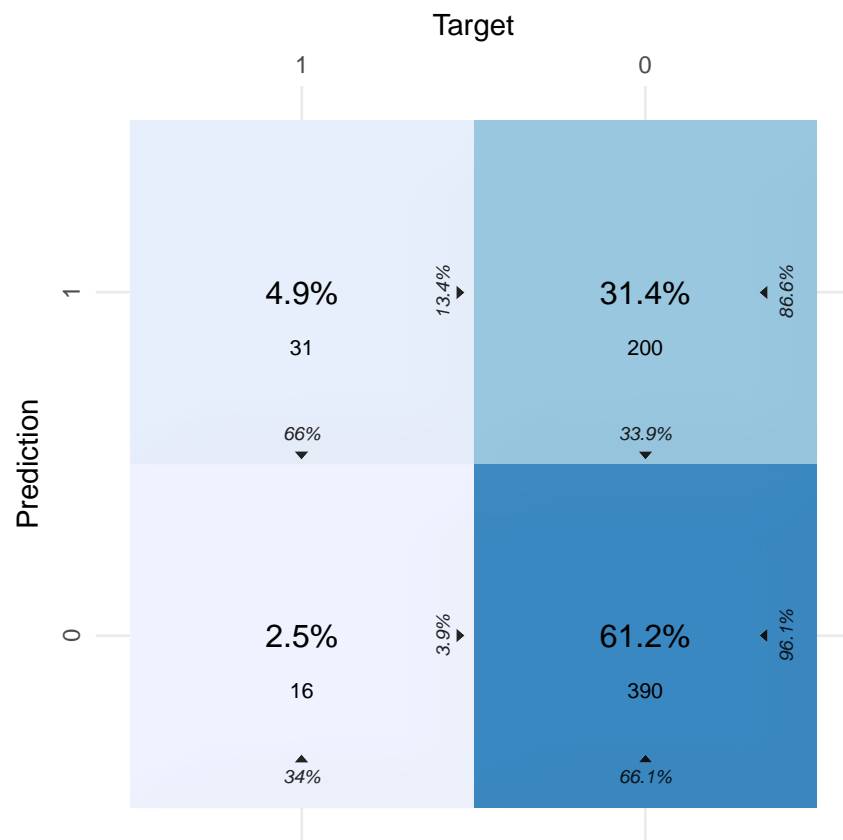
Indicative Prompts Only



The F1 Score is 0.3424658. The kappa is 0.2693558 and the rho value is 1.

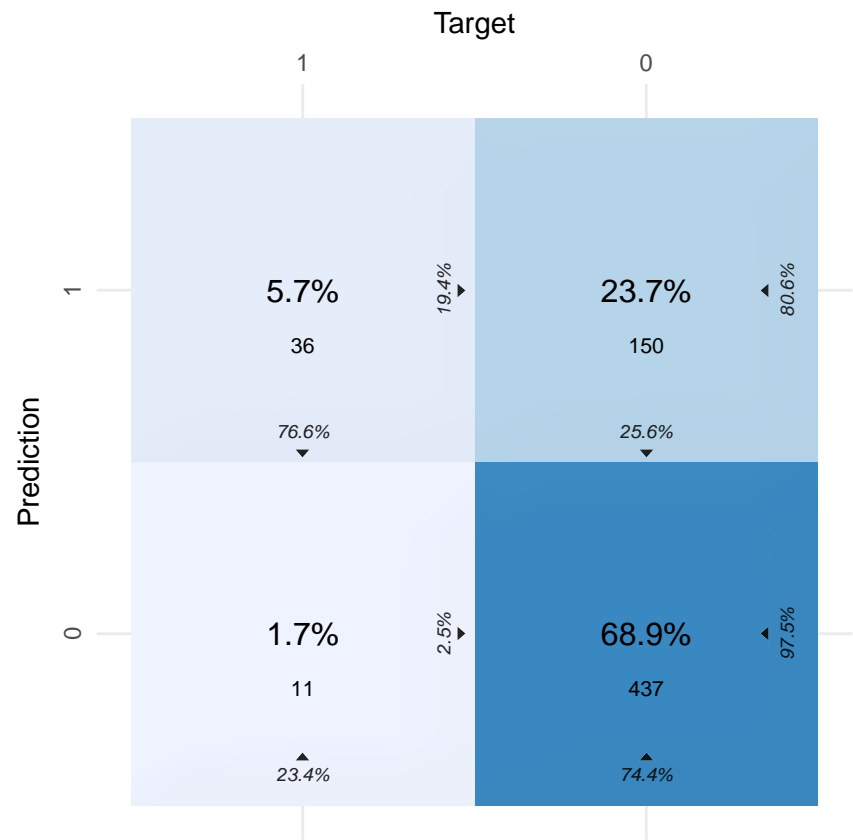


## Zero Shot



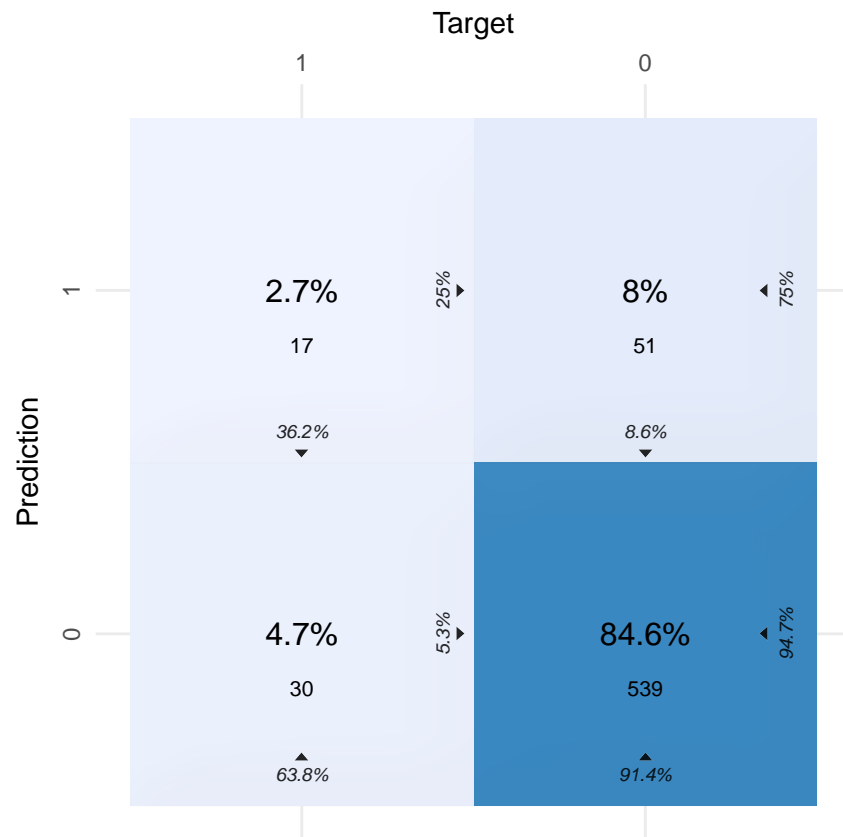
The F1 Score is 0.2230216. The kappa is 0.114435 and the rho value is 1.

Zero Shot GPT-4



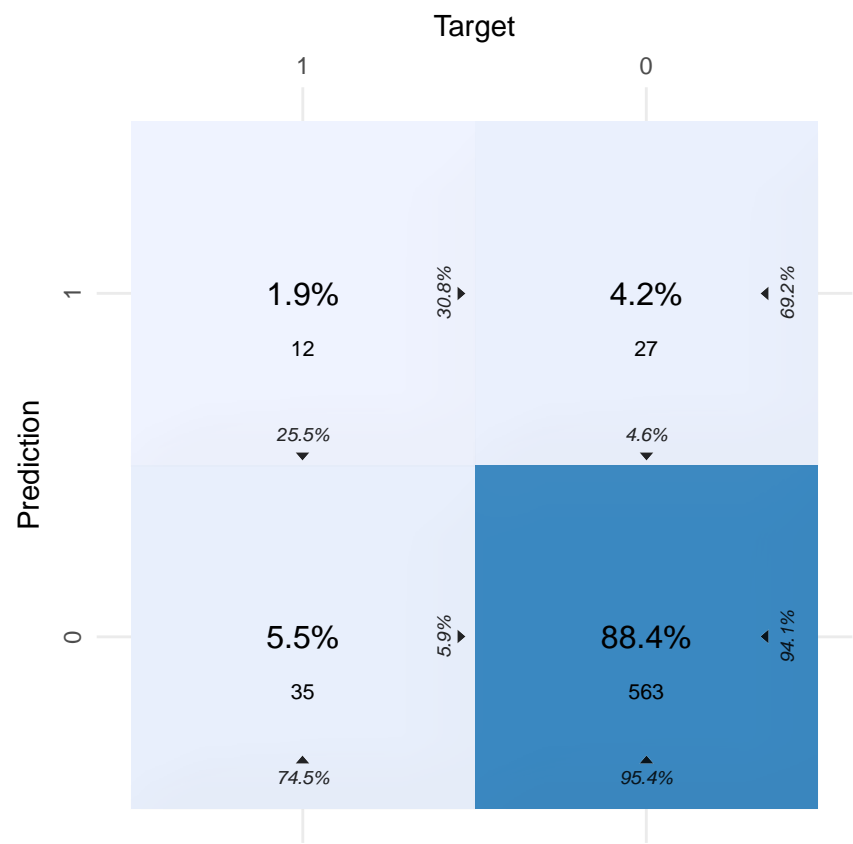
The F1 Score is 0.3090129. The kappa is 0.2162502 and the rho value is 1.

## Excerpt Only



The F1 Score is 0.2956522. The kappa is 0.2283176 and the rho value is 1.

Indicative Prompts and Excerpt



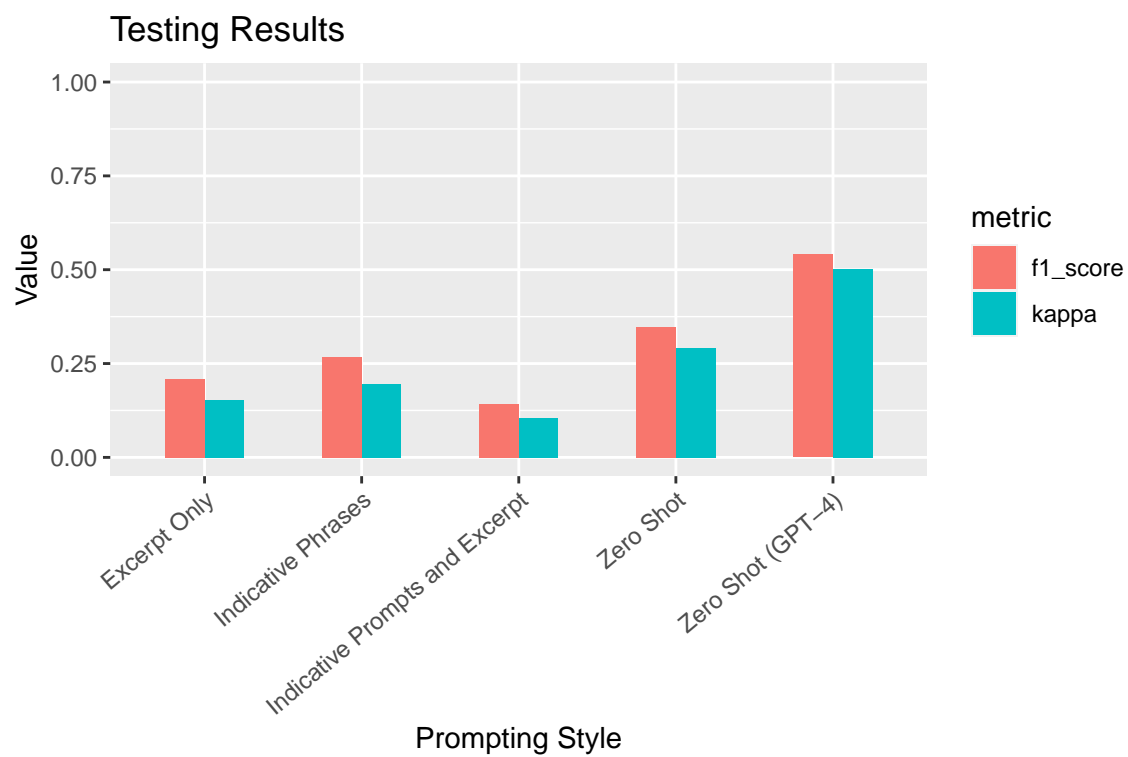
The F1 Score is 0.2790698. The kappa is 0.2273652 and the rho value is 1.

## Fine Tuning (GPT-3.5)



The F1 Score is 0.2926829. The kappa is 0.2447356 and the rho value is 1.

## Leader

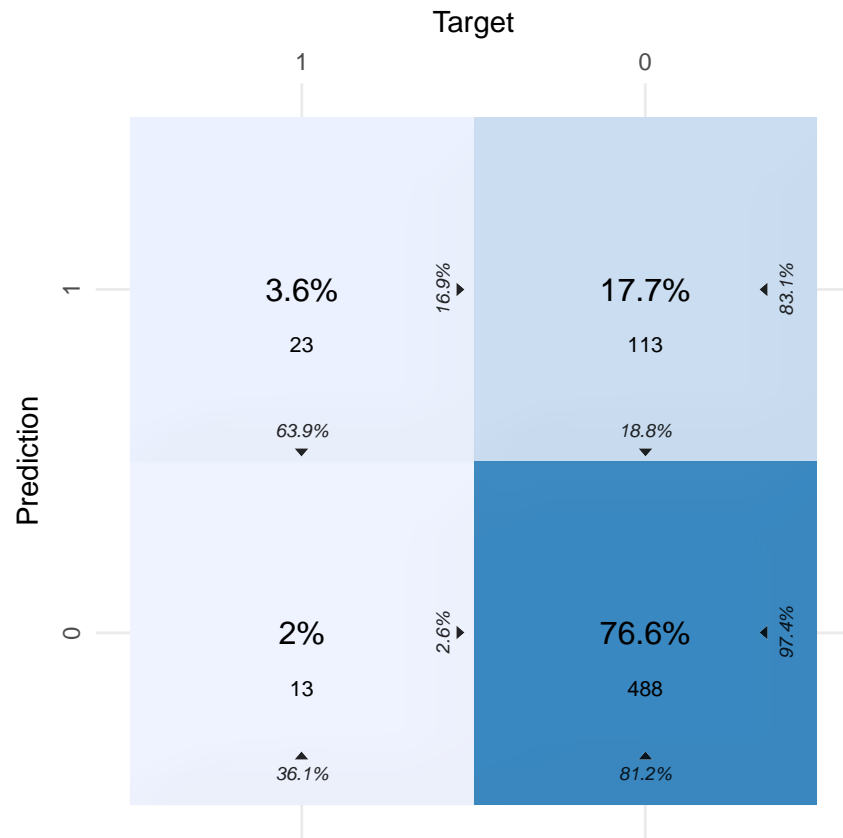


Summary Table

test	kappa	rho	f1_score
Indicative Phrases	0.1955458	1	0.2674419
Zero Shot	0.2907958	1	0.3471074
Zero Shot (GPT-4)	0.5024199	1	0.5405405
Excerpt Only	0.1536868	1	0.2093023
Indicative Prompts and Excerpt	0.1055901	1	0.1428571

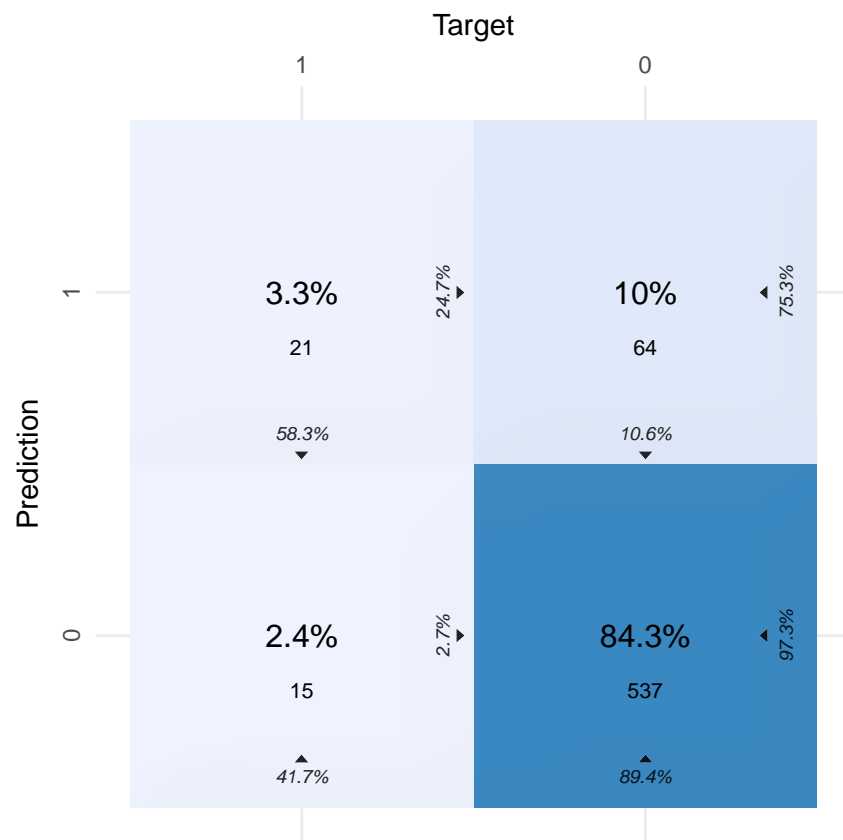
## Individual Testing Results

Indicative Prompts Only



The F1 Score is 0.2674419. The kappa is 0.1955458 and the rho value is 1.

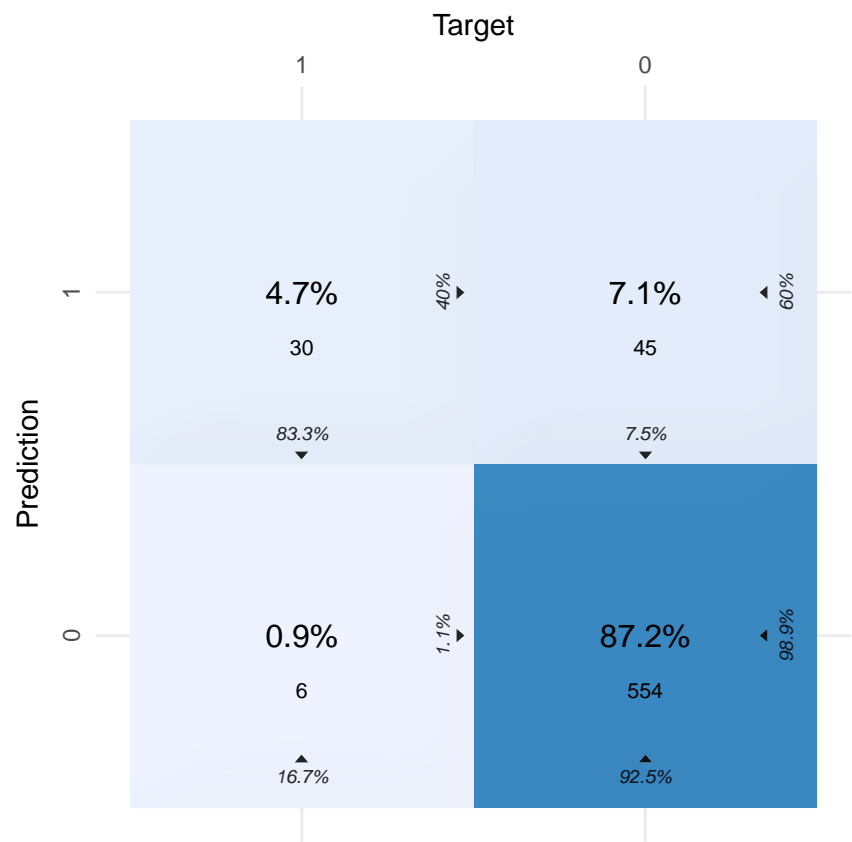
## Zero Shot



The F1 Score is 0.3471074. The kappa is 0.2907958 and the rho value is 1.

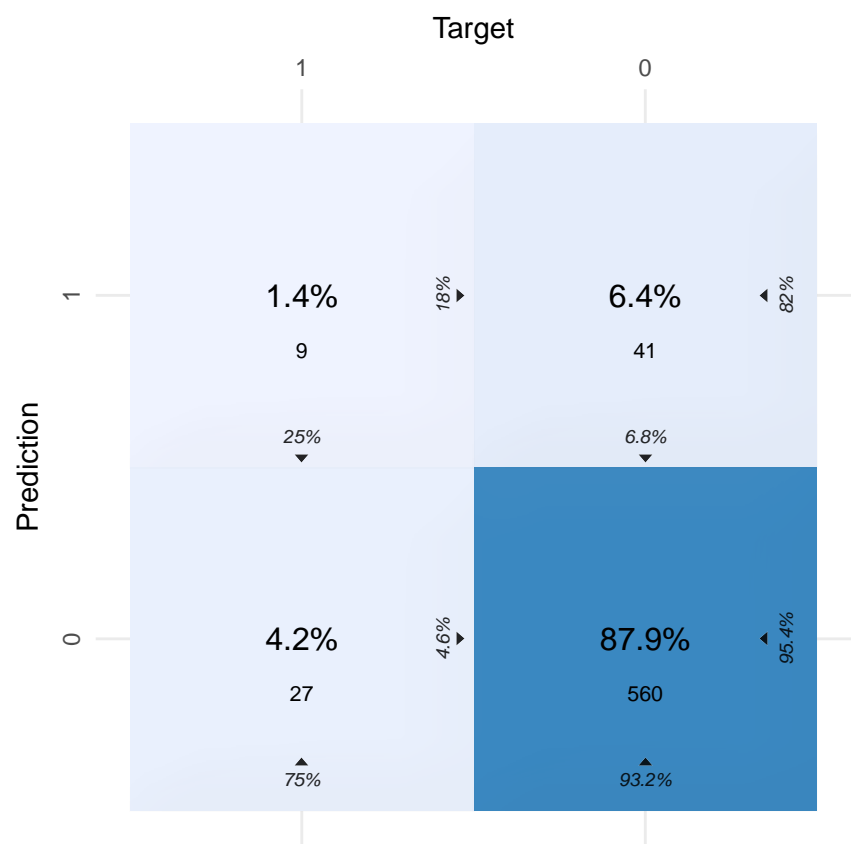


Zero Shot GPT-4



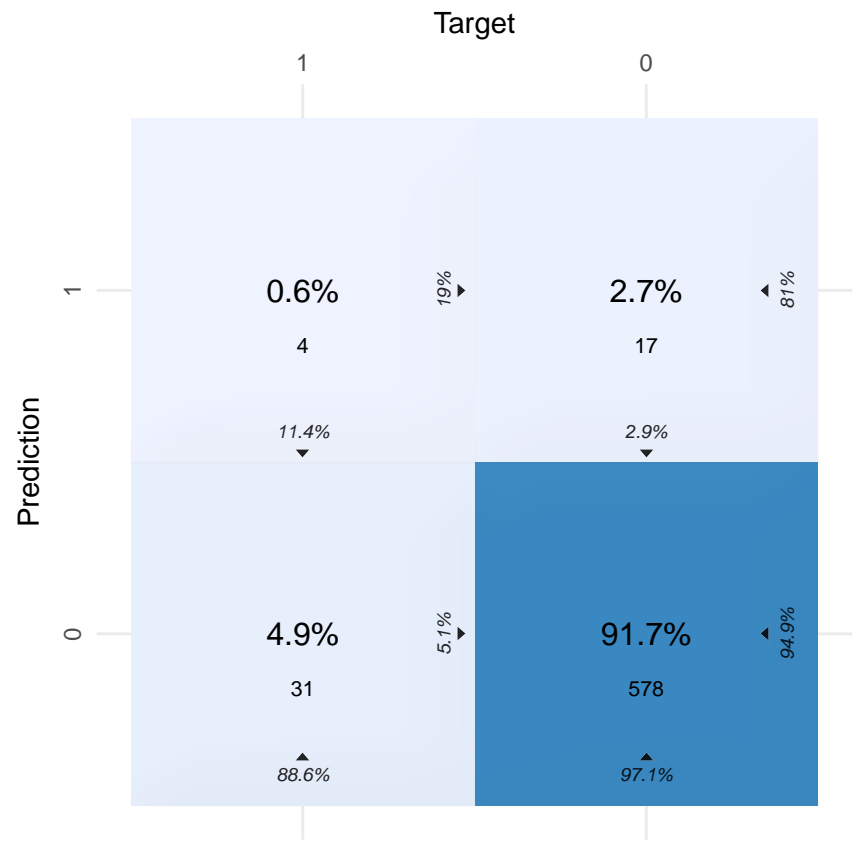
The F1 Score is 0.5405405. The kappa is 0.5024199 and the rho value is 1.

Excerpt Only



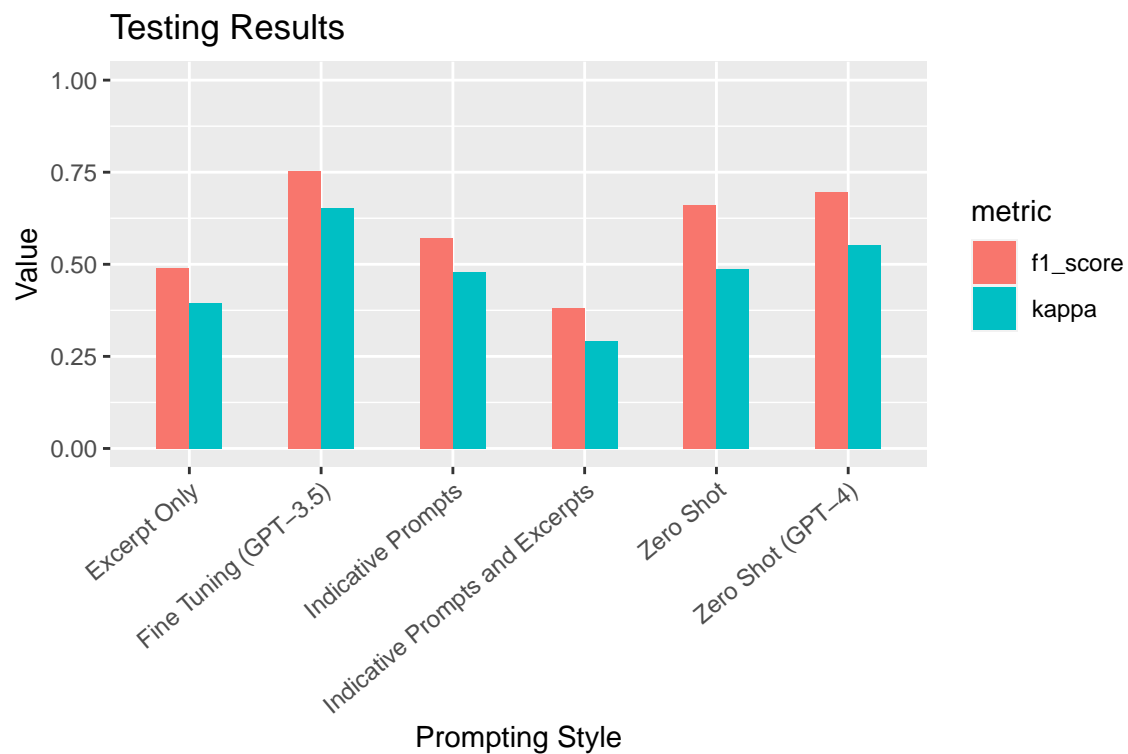
The F1 Score is 0.2093023. The kappa is 0.1536868 and the rho value is 1.

Indicative Prompts and Excerpt



The F1 Score is 0.1428571. The kappa is 0.1055901 and the rho value is 1.

## Relationship Manager

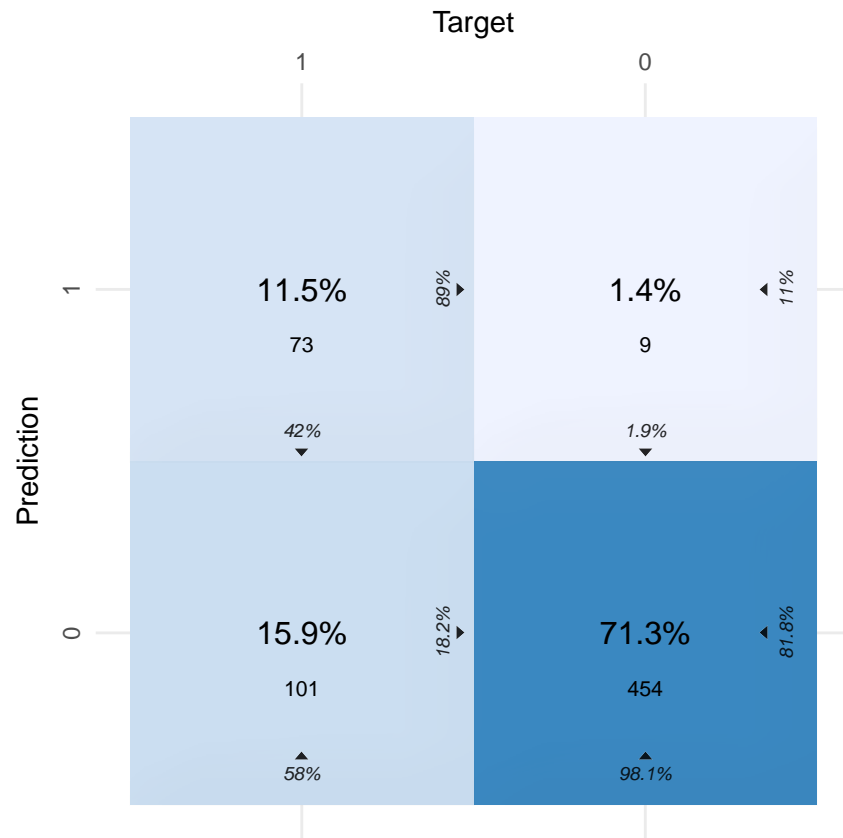


Summary Table

test	kappa	rho	f1_score
Indicative Prompts	0.4791729	1.0000	0.5703125
Zero Shot	0.4874238	1.0000	0.6608315
Zero Shot (GPT-4)	0.5515007	0.4100	0.6952381
Excerpt Only	0.3938275	1.0000	0.4897959
Indicative Prompts and Excerpts	0.2914687	1.0000	0.3805310
Fine Tuning (GPT-3.5)	0.6538755	0.0475	0.7520891

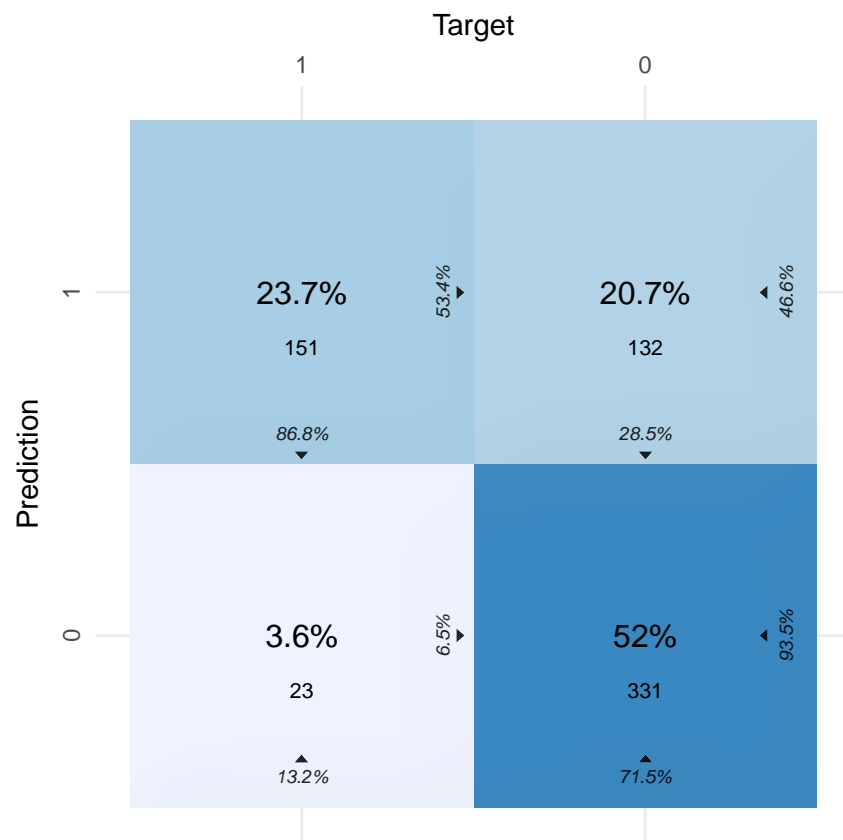
## Individual Testing Results

### Indicative Prompts Only



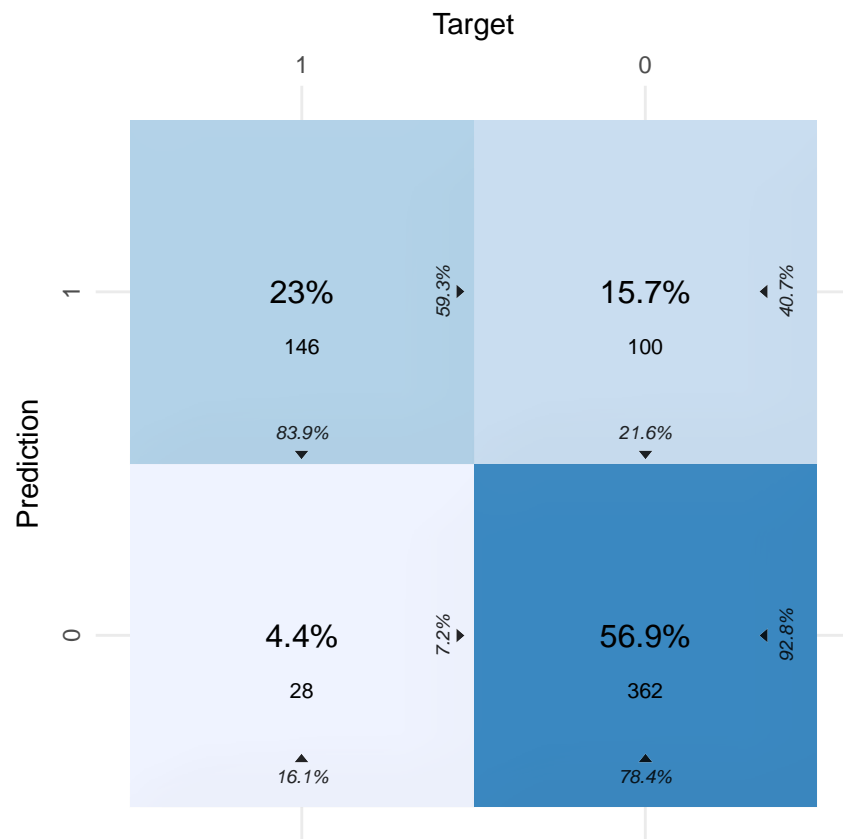
The F1 Score is 0.5703125. The kappa is 0.4791729 and the rho value is 1.

## Zero Shot



The F1 Score is 0.6608315. The kappa is 0.4874238 and the rho value is 1.

## Zero Shot (GPT-4)



The F1 Score is 0.6952381. The kappa is 0.5515007 and the rho value is 0.41.

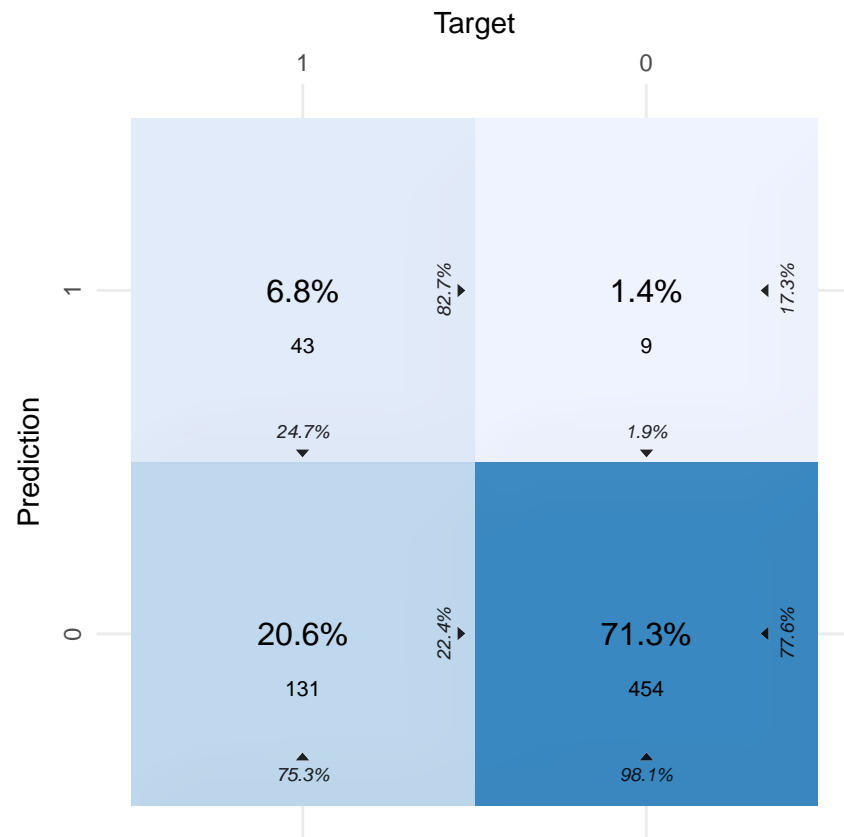
## Excerpt Only



The F1 Score is 0.4897959. The kappa is 0.3938275 and the rho value is 1.



## Indicative Prompts and Excerpt



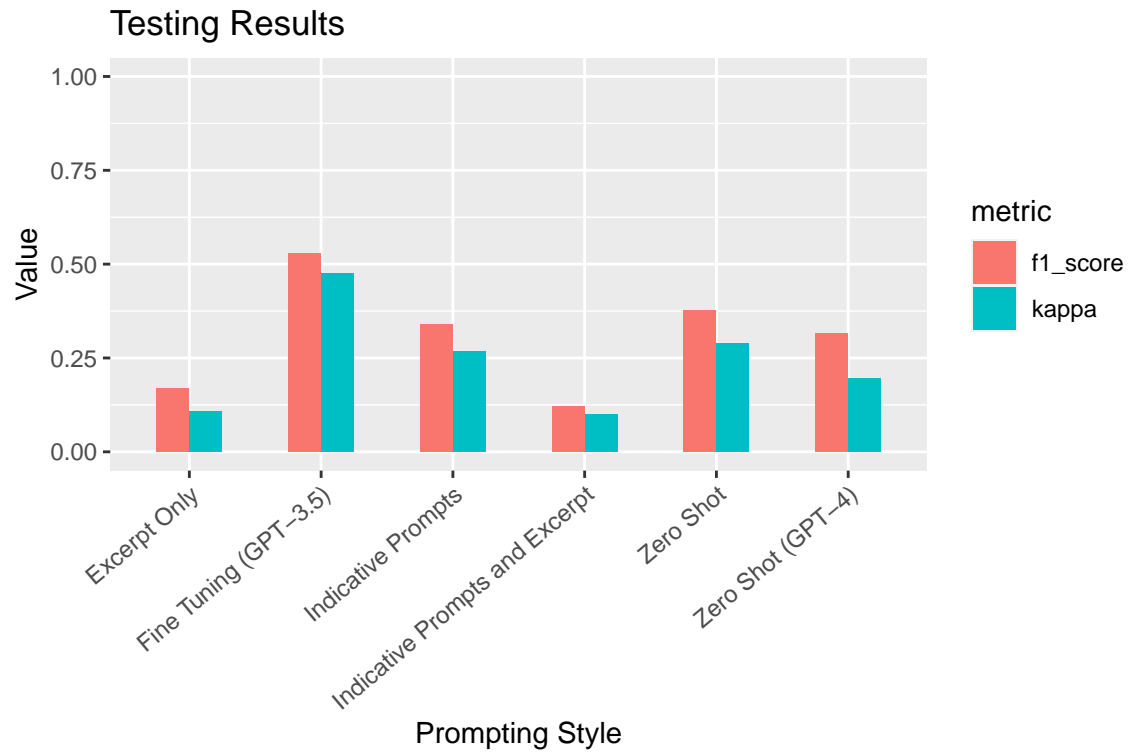
The F1 Score is 0.380531. The kappa is 0.2914687 and the rho value is 1.

## Fine Tuning (GPT-3.5)



The F1 Score is 0.7520891. The kappa is 0.6538755 and the rho value is 0.0475.

## Student Expert

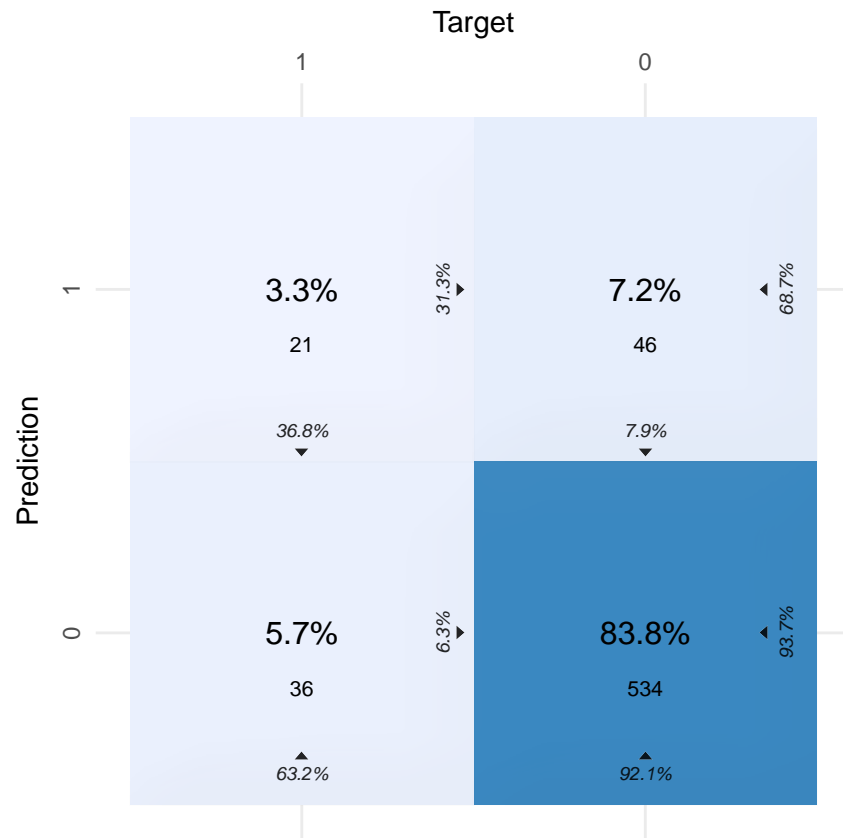


Summary Table

test	kappa	rho	f1_score
Indicative Prompts	0.2679187	1	0.3387097
Zero Shot	0.2879664	1	0.3763441
Zero Shot (GPT-4)	0.1963681	1	0.3167155
Excerpt Only	0.1073302	1	0.1702128
Indicative Prompts and Excerpt	0.0992296	1	0.1212121
Fine Tuning (GPT-3.5)	0.4766450	1	0.5280000

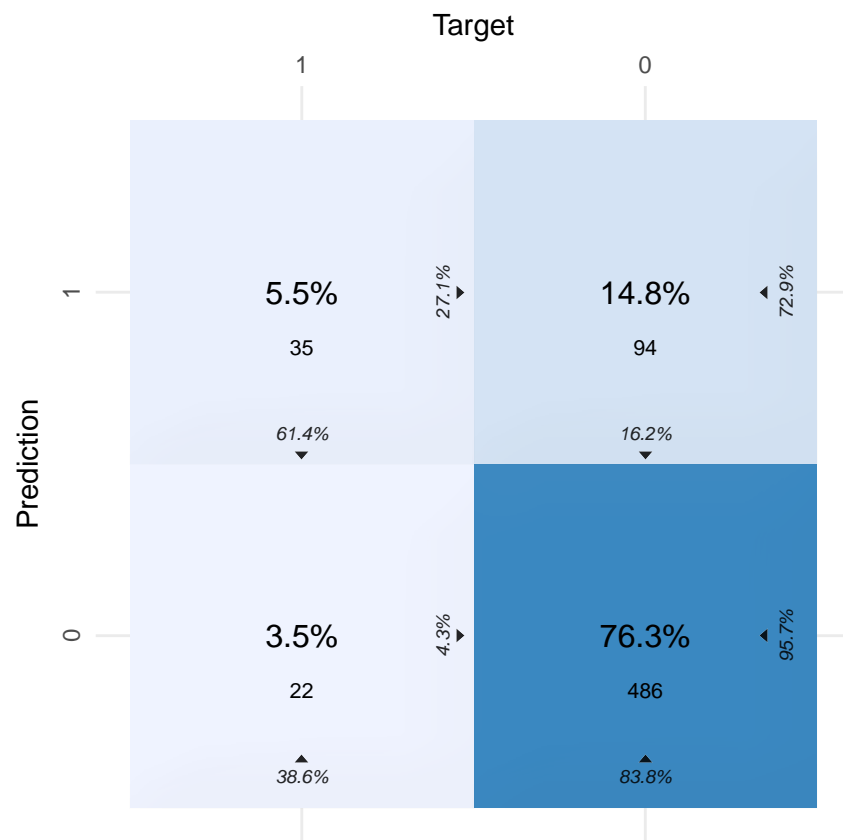
## Individual Testing Results

Indicative Prompts Only



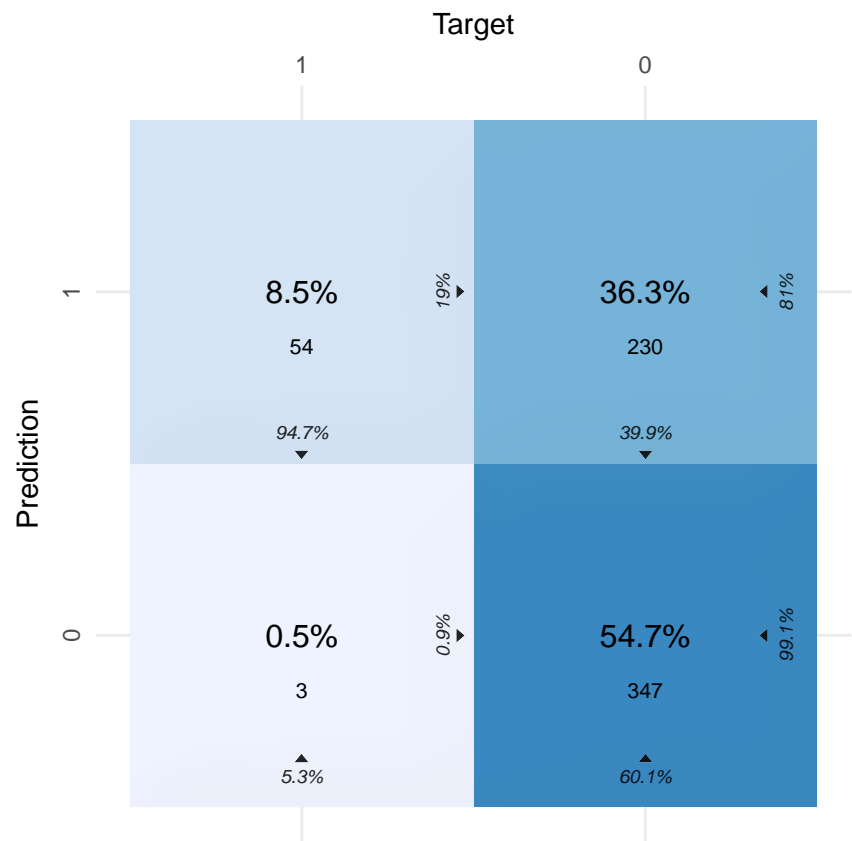
The F1 Score is 0.3387097. The kappa is 0.2679187 and the rho value is 1.

## Zero Shot



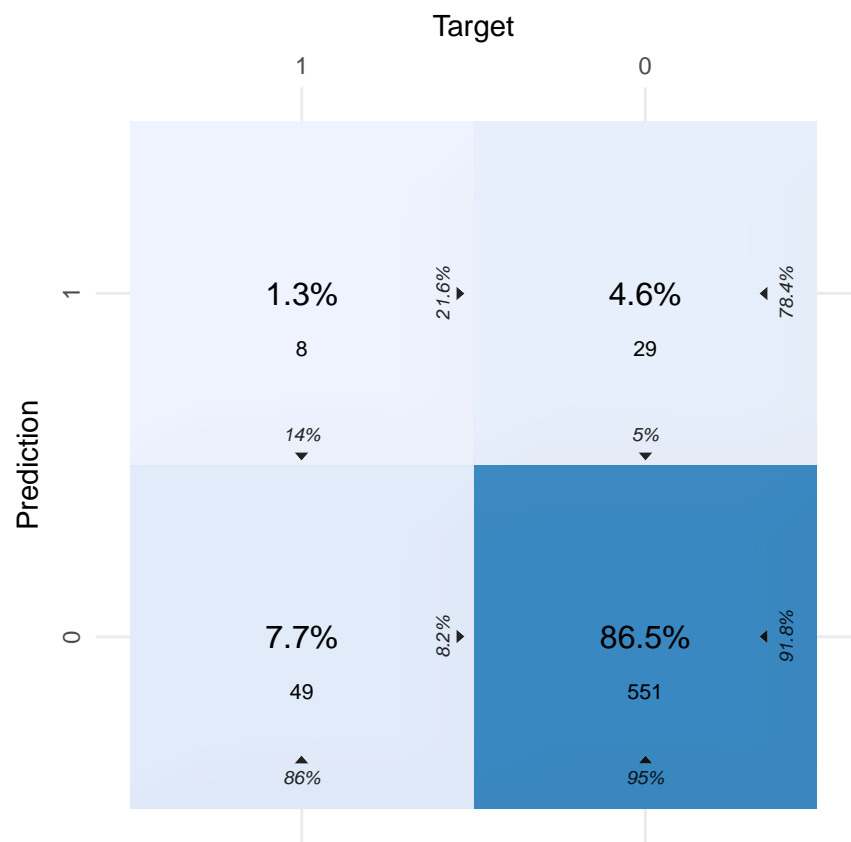
The F1 Score is 0.3763441. The kappa is 0.2879664 and the rho value is 1.

Zero Shot (GPT-4)



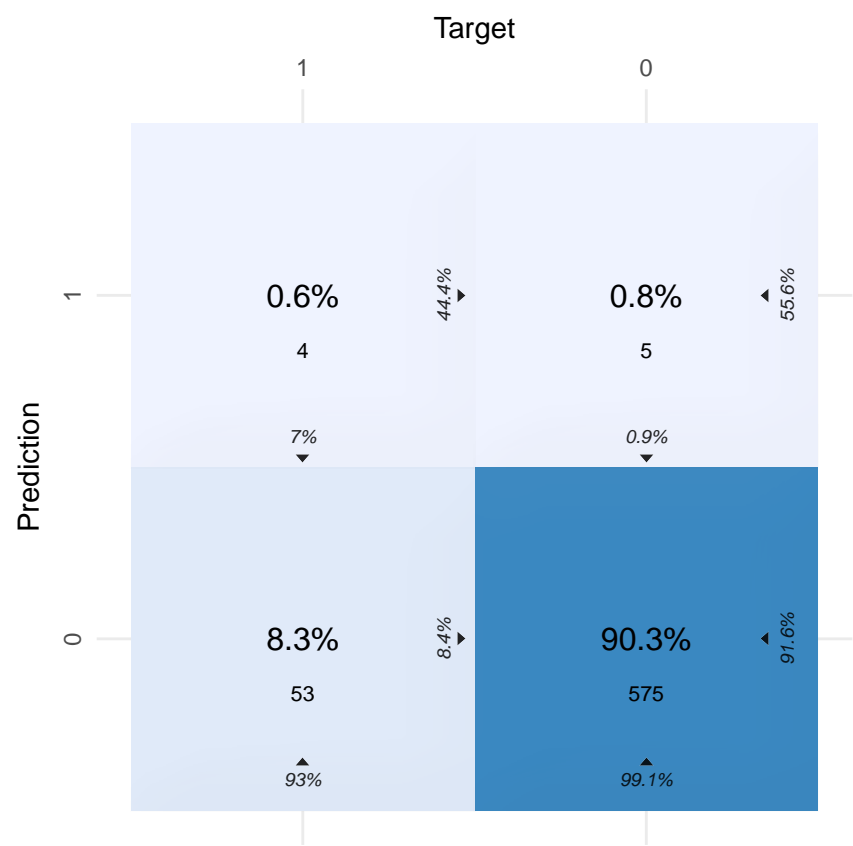
The F1 Score is 0.3167155. The kappa is 0.1963681 and the rho value is 1.

Excerpt Only



The F1 Score is 0.1702128. The kappa is 0.1073302 and the rho value is 1.

Indicative Prompts and Excerpt



The F1 Score is 0.1212121. The kappa is 0.0992296 and the rho value is 1.

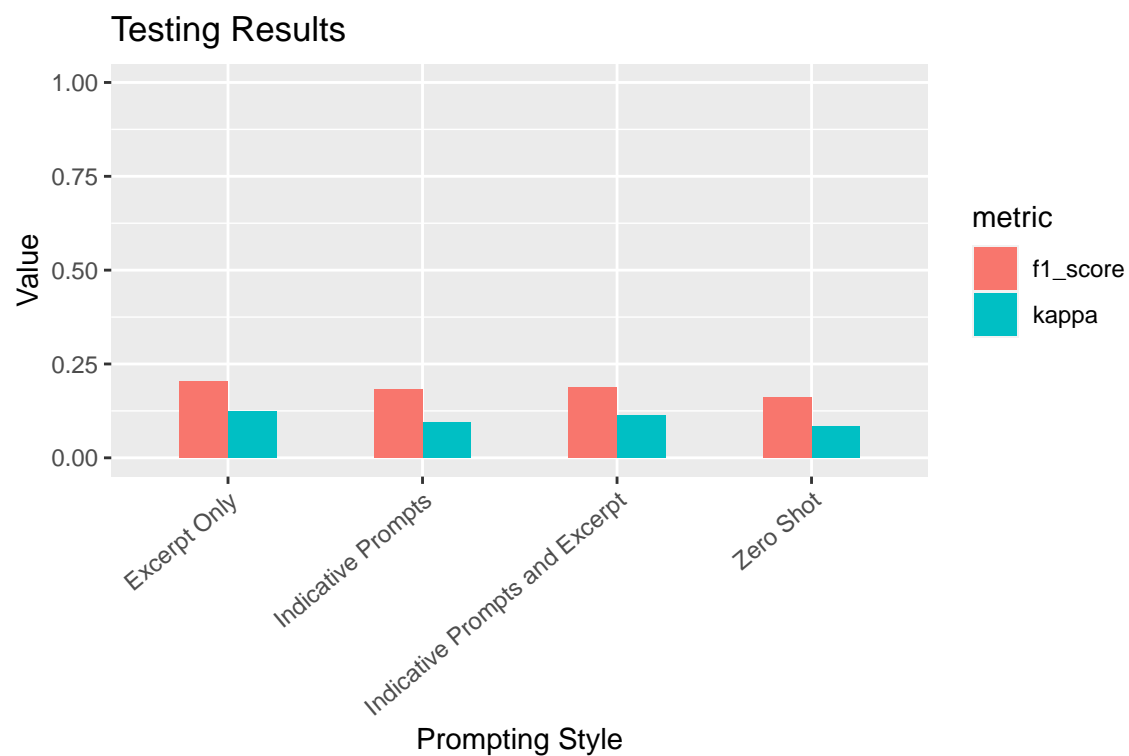


## Fine Tuning (GPT-3.5)



The F1 Score is 0.528. The kappa is 0.476645 and the rho value is 1.

## Workload Manager

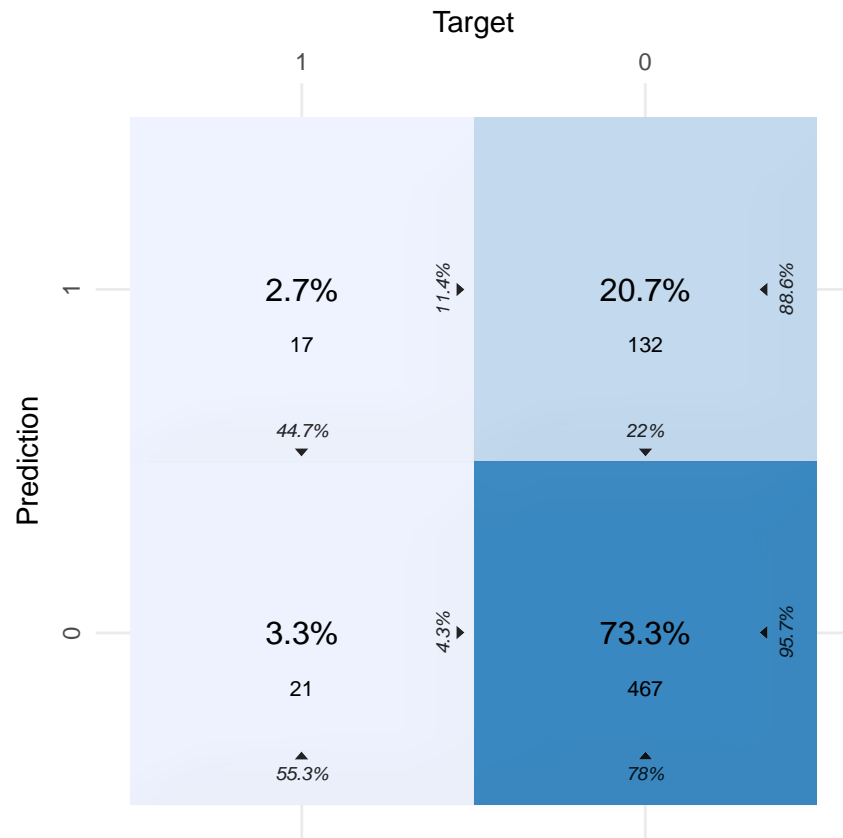


Summary Table

test	kappa	rho	f1_score
Indicative Prompts	0.0958672	1	0.1818182
Zero Shot	0.0829208	1	0.1617647
Excerpt Only	0.1242527	1	0.2048193
Indicative Prompts and Excerpt	0.1130984	1	0.1875000

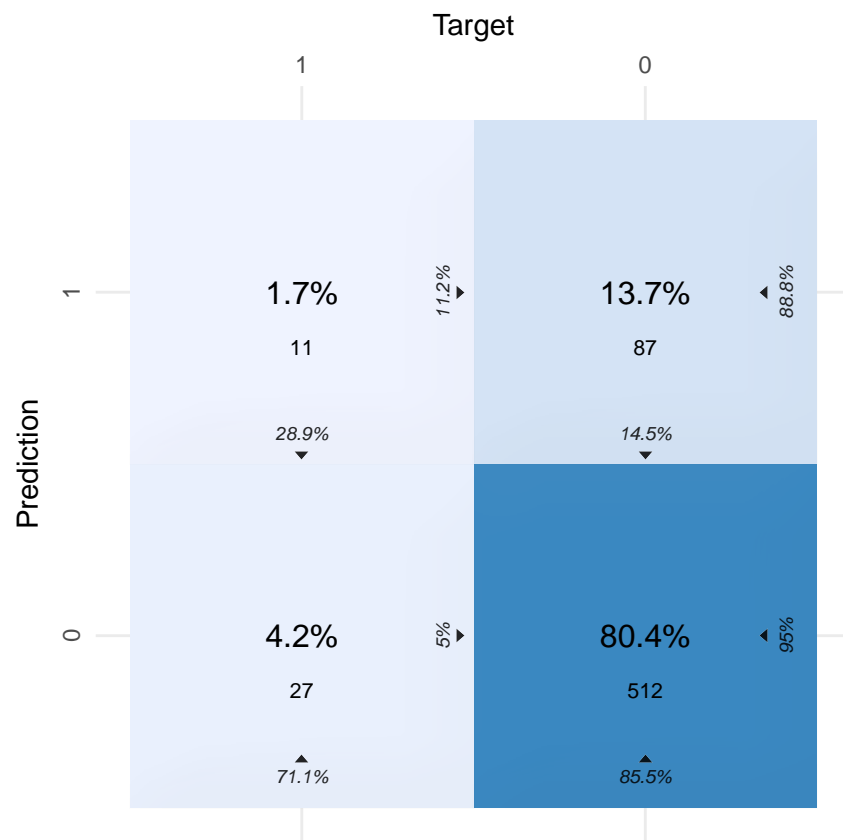
## Individual Testing Results

Indicative Prompts Only



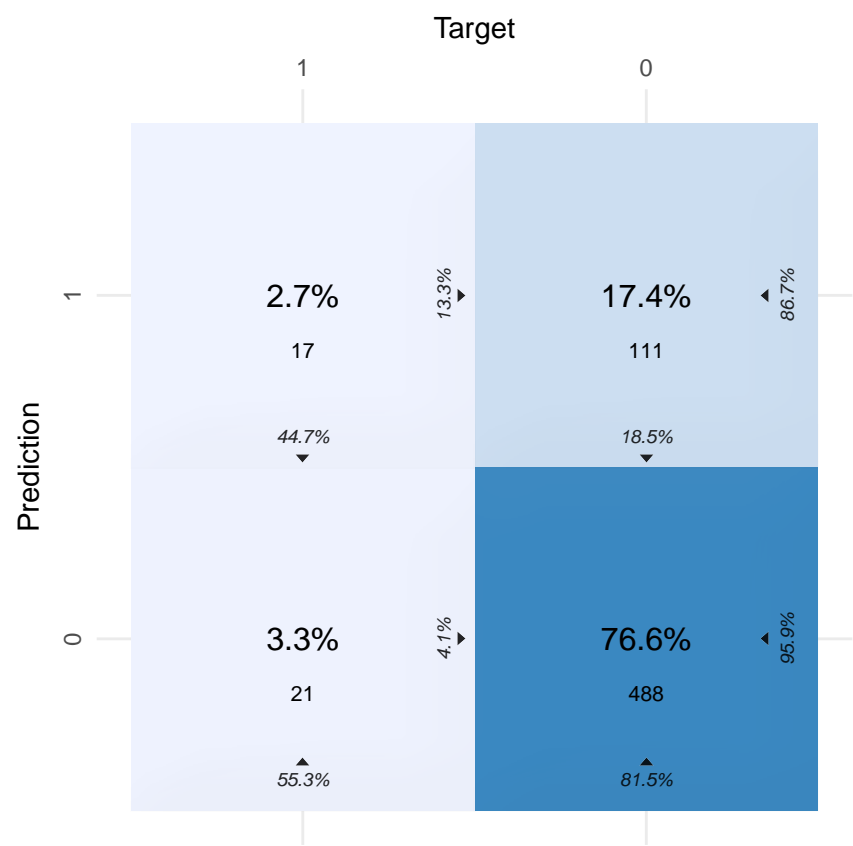
The F1 Score is 0.1818182. The kappa is 0.0958672 and the rho value is 1.

## Zero Shot

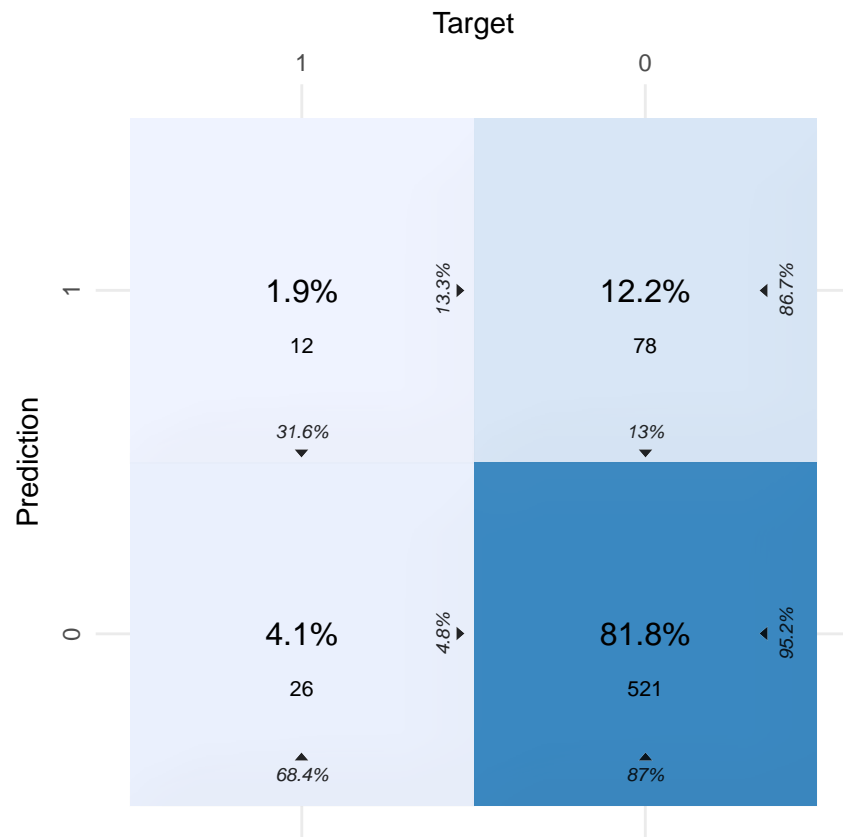


The F1 Score is 0.1617647. The kappa is 0.0829208 and the rho value is 1.

Excerpt Only

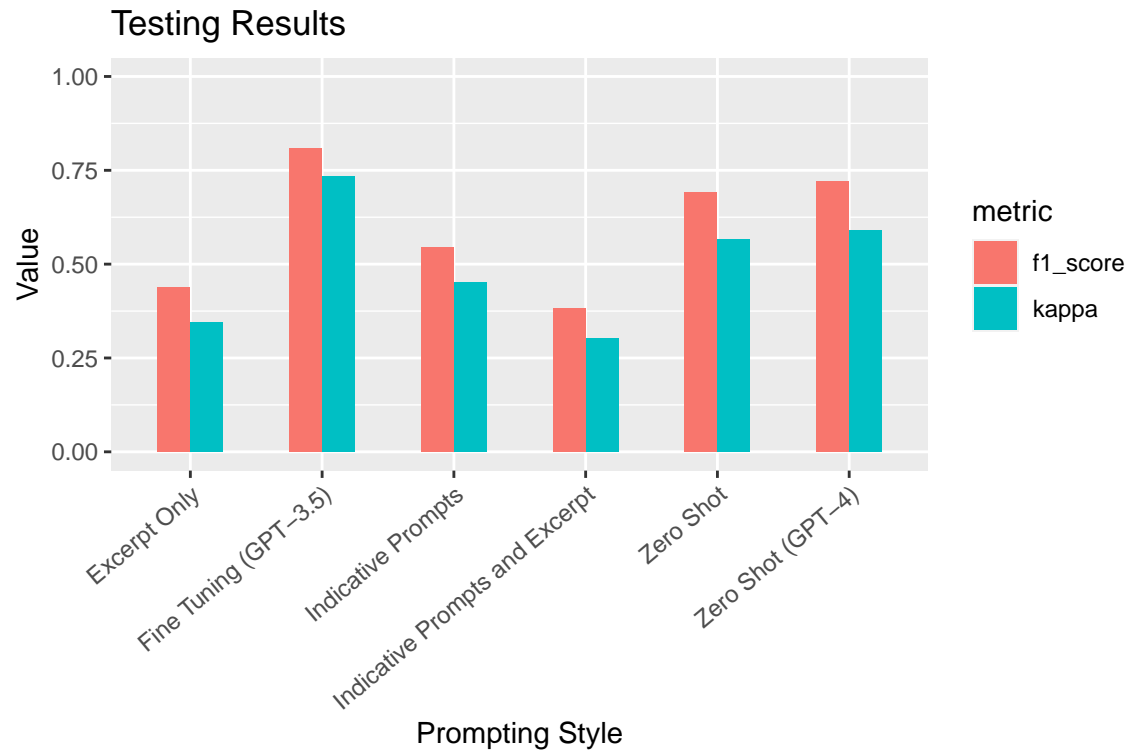


## Indicative Prompts and Excerpt



The F1 Score is: 0.1875. The kappa is 0.1130984 and the rho value is 1.

## Technology User

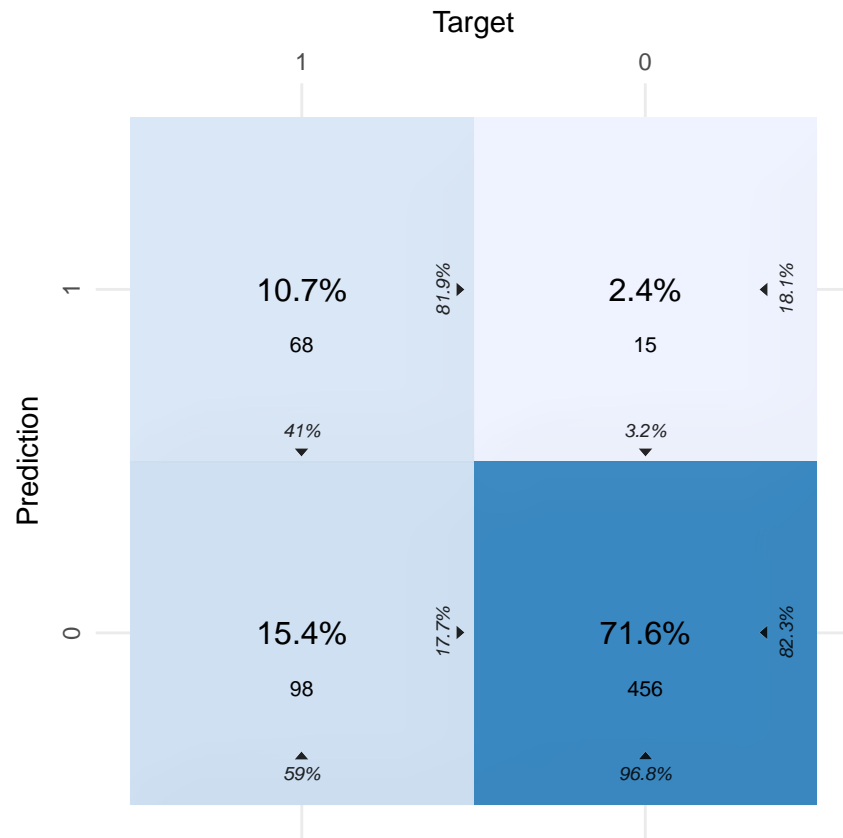


Summary Table

test	kappa	rho	f1_score
Indicative Prompts	0.4507657	1.00000	0.5461847
Zero Shot	0.5648087	0.31375	0.6914894
Zero Shot (GPT-4)	0.5907961	0.23250	0.7203791
Excerpt Only	0.3458910	1.00000	0.4385965
Indicative Prompts and Excerpt	0.3015235	1.00000	0.3831776
Fine Tuning (GPT-3.5)	0.7331408	0.00000	0.8088643

## Individual Testing Results

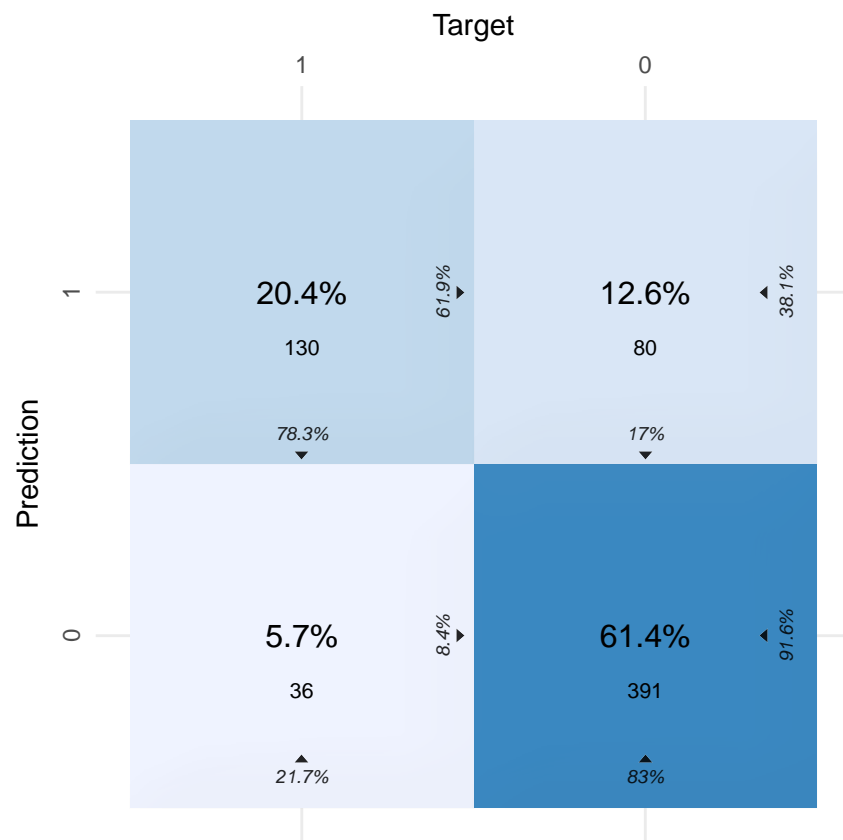
### Indicative Prompts Only



The F1 Score is 0.5461847. The kappa is 0.4507657 and the rho value is 1.



## Zero Shot



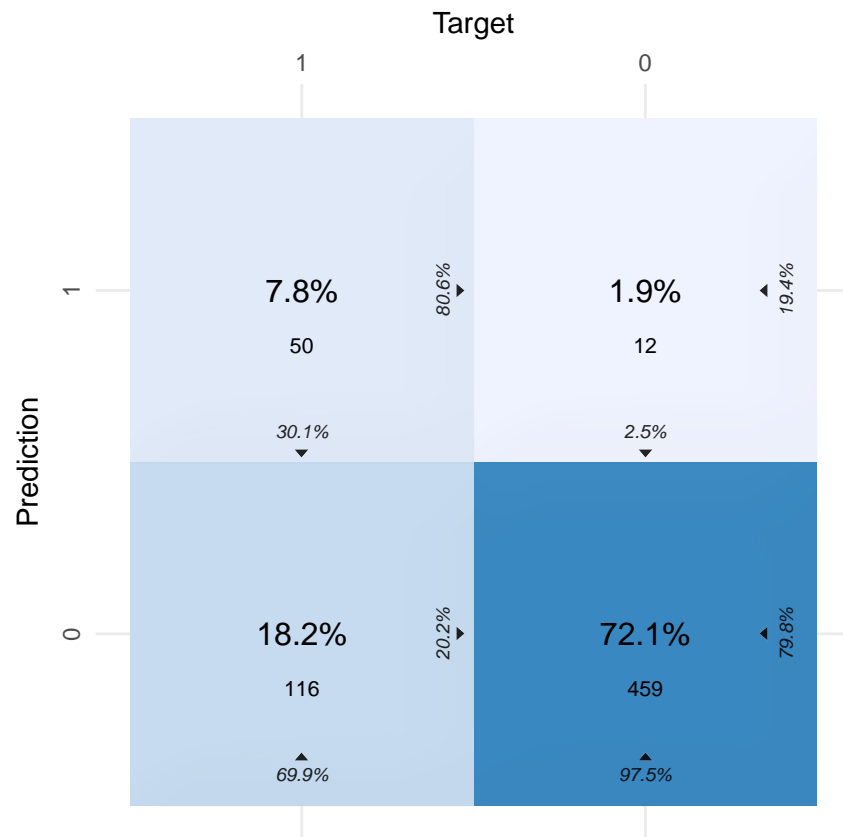
The F1 Score is 0.6914894. The kappa is 0.5648087 and the rho value is 0.31375.

## Zero Shot (GPT-4)



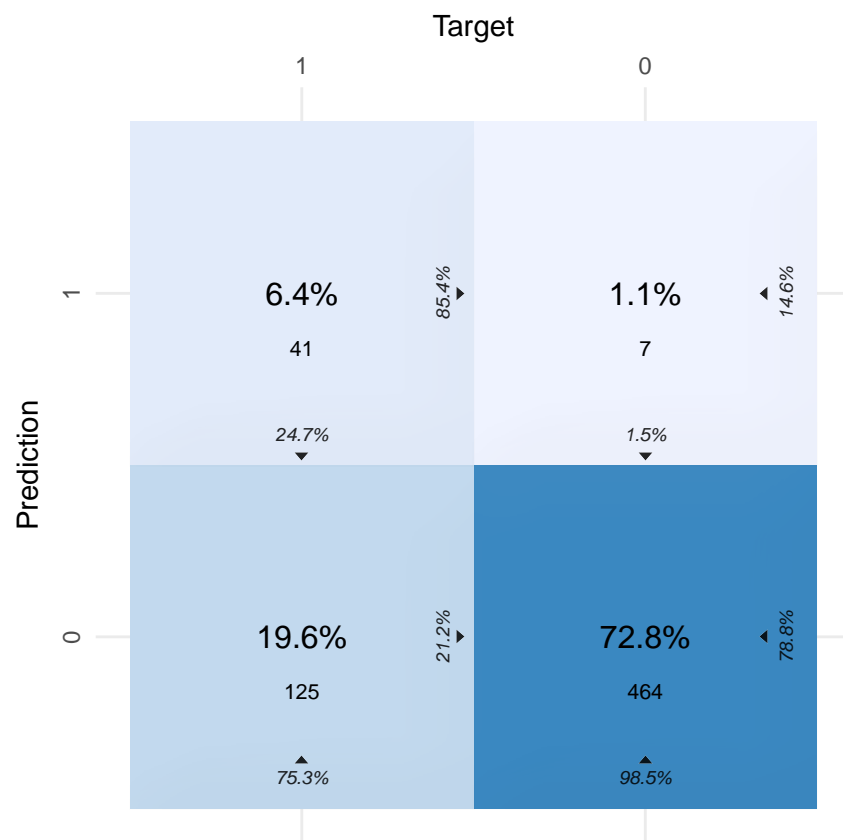
The F1 Score is 0.7203791. The kappa is 0.5907961 and the rho value is 0.2325.

## Excerpt Only



The F1 Score is 0.4385965. The kappa is 0.345891 and the rho value is 1.

## Indicative Prompts and Excerpt



The F1 Score is 0.3831776. The kappa is 0.3015235 and the rho value is 1.

## Fine Tuning (GPT-3.5)



The F1 Score is 0.8088643. The kappa is 0.7331408 and the rho value is 0.