

4.2 RQ1: Generating Personality-Aware Explanations at Scale

Table 3 summarizes the best-performing target trait within each explanation condition. Table 4 reports the full set of precision, recall, and F1-scores for all explanation-trait and target-trait combinations.

Explanation trait	Best target trait (by F1)	Precision	Recall	F1-score
Agreeableness	Agreeableness	0.156	0.147	0.152
Neuroticism	Neuroticism (Low)	0.237	0.360	0.286
Openness	Openness	0.273	0.265	0.269
Conscientiousness	Conscientiousness	0.143	0.132	0.137
Extraversion	Extraversion	0.095	0.133	0.111

Note: The table reports the highest F1-score observed within each explanation-trait condition. Neuroticism is shown as two target classes (High, Low) because the metrics were computed separately by class.

Table 3. Best-performing target trait within each explanation-trait condition

Target trait	Precision	Recall	F1-score
Explanation trait: Agreeableness			
Openness	0.062	0.059	0.061
Conscientiousness	0.000	0.000	0.000
Extraversion	0.062	0.067	0.065
Agreeableness	0.156	0.147	0.152
Neuroticism (High)	0.031	0.028	0.029
Neuroticism (Low)	0.000	0.000	0.000
Explanation trait: Neuroticism			
Openness	0.000	0.000	0.000
Conscientiousness	0.000	0.000	0.000
Extraversion	0.026	0.033	0.029
Agreeableness	0.079	0.088	0.083
Neuroticism (High)	0.053	0.056	0.054
Neuroticism (Low)	0.237	0.360	0.286
Explanation trait: Openness			
Openness	0.273	0.265	0.269
Conscientiousness	0.000	0.000	0.000
Extraversion	0.000	0.000	0.000
Agreeableness	0.000	0.000	0.000
Neuroticism (High)	0.000	0.000	0.000
Neuroticism (Low)	0.000	0.000	0.000
Explanation trait: Conscientiousness			
Openness	0.086	0.088	0.087
Conscientiousness	0.143	0.132	0.137
Extraversion	0.000	0.000	0.000
Agreeableness	0.000	0.000	0.000
Neuroticism (High)	0.000	0.000	0.000
Neuroticism (Low)	0.057	0.080	0.067
Explanation trait: Extraversion			
Openness	0.000	0.000	0.000
Conscientiousness	0.000	0.000	0.000
Extraversion	0.095	0.133	0.111
Agreeableness	0.048	0.059	0.053
Neuroticism (High)	0.000	0.000	0.000
Neuroticism (Low)	0.000	0.000	0.000

Note: Precision, recall, and F1-score are reported per target trait within each explanation-trait condition. Neuroticism is reported as two target classes (High, Low) because the evaluation outputs were class-specific.

Table 4. Precision, recall, and F1-score by explanation-trait condition and target trait