Differences in Reaction Time between Bing Five traits and likes and dislikes of personality trait.

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Keywords: personality, reaction time, Yes/No reaction

Measure Reaction Time at the time of personality self-rating on a PC

Personality refers to individual differences in characteristic patterns of thinking, feeling and behaving (APA,2000). Behavioral traits related to personality are expressed in personality trait terms, which can describe the behavioral tendencies and impressions of one's own or another's personality. The Big Five theory has been constructed based on the personality trait terms research, and a questionnaire has been created to measure people's behavioral traits. In order to examine whether the personality pattern of a certain behavior could reveal personality traits and individual differences, this study was measured the RT at personality self-rating.

Reaction Time(RT) is an approximate value that signifies the complex sum of biological responses and psychological effects(Chocholle,1963). The RT in the performance of personality rating may indicate a particular behavioral tendency. This experiment uses the performance of RT to examine whether a certain tendency appears in the personality traits and the reaction key when rating Yes / No on a PC.

Purpose

The purpose of this study is to measure the RT at the time of personality self-rating by dividing it into two conditions, and to examine what RT at the time of personality evaluation represents using Big Five inventory.

Our hypotheses
(1) RT differs by the Big Five's personality traits.
(2) Yes / No key reaction in personality rating on PC is a likes and dislikes of terms.
(3) The RT of the Yes / No key reaction in the PC rating indicates the degree of confidence in each individual's rating.

Method

Participants 53 university students, aged 18 to 30 years.
Experiment period May-July 2013
Equipment a laptop computer (Dell-Vostro 3360), E-prime 2.0 (psychology software tool), Headphone.
Experiment stimulus We used twenty personality trait terms extracted from the Big Five Personality Inventory.

Table 1. Stimulus terms of personality traits used in experiment

	Positive terms		Negative terms	
Agreeableness	kindly	affable	headstrong	tightwad
Conscientiousness	capable	conscientious	sloppy	unreliable
Extroversion	active	sociable	passive	restrained
Neuroticism	easygoing	sedate	irascibleness	worrier
Openness to experience	intelligent	clever	conservative	naivete

Procedure

After performing personality self-rating on the PC, participants performed Big Five with paper and pen as a questionnaire.

1. Interview & Questioner 1:POMS from Japanese Version; 'Profile of Mood States-Brief Form Japanese Version' (Douglas M. McNair & Maurice Lorr,2005).
2. PC condition1: Simple response session.
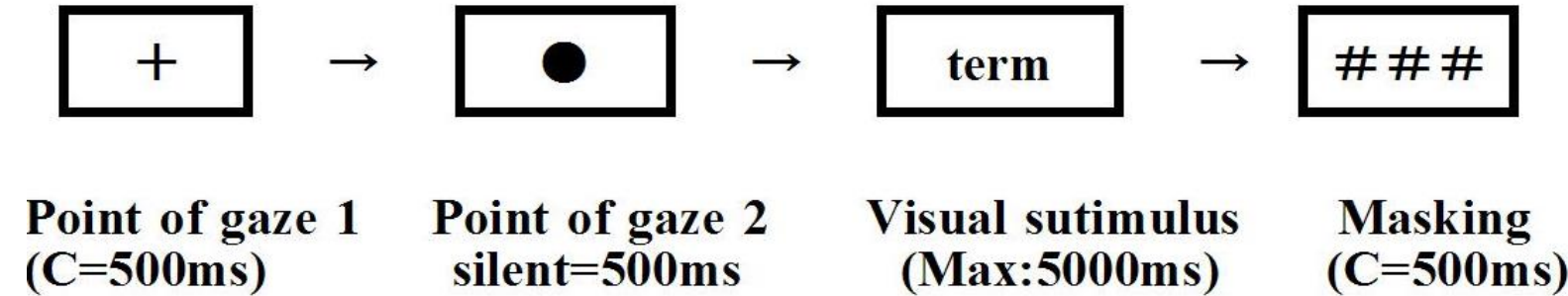3. **PC condition2**: Personality self-rating session by-trait term.

+	→	●	→	term	→	###

Point of gaze 1 (C=500ms)   **Point of gaze 2** silent=500ms   **Visual sutimulus** (Max:5000ms)   **Masking** (C=500ms)

Fig. 1. Personality self-rating session on PC condition2,3.

4. **PC condition3**: Personality self-rating session by sentence.
5. Questioner 2: 'Scale construction of a "Big five" personality inventory.' (Murakami&Murakami,2001).

Analysis

We calculated the Means and SD of the reaction times of personality self-rating in PC conditions2 and 3. To examine whether the Big 5 and PC personality ratings match, we calculated the deviation values for the participants' Big Five. Then, the stimulus terms of the twenty terms(Table1) on the PC were divided into Positive and Negative terms, and classified according to whether Yes or No key was pressed.

"Yes Match"=For example, a participant answered that the score of Big Five inventory was 55 or more (extroversion), and pressed "Yes" for the positive term of Extraversion on the personality rating.

Table2.Classification of conformity in Big Five inventory and PC personality rating

	BIG Five scores	Yes/No Key in PC conditions
Yes Match	55 or more	Reacted Yes key to Positive term
	45 or less	Reacted No key to Positive term
	45 or less	Reacted Yes key to Negative term
	55 or more	Reacted No key to Negative term
No Match	45 or less	Reacted Yes key to Positive term
	55 or more	Reacted No key to Positive term
	55 or more	Reacted Yes key to Negative term
	45 or less	Reacted No key to Negative term
? Match	46-54	Undecidable because Big Five score was in the middle.

Result and Discussion

1. Difference in reaction time for each Big Five traits under self-rating conditions

- Examining the difference in reaction time between by-terms and sentence self-rating, as a result of *ANOVA,* a significant difference was indicated for traits by Big Five the in by-terms $(F(4,5282)=8.29,p<.01)$. A significant difference was indicated for traits by Big Five the in and by-sentence $(F(4,5282)=8.13,p<.01)$.

- It was cleared that The RTs varied depending on the trait terms of Big Five traits, not self-rating conditions on PC.
- Agreeableness and Openness to experience had RTs of about 900ms in both ratings, which was faster than other traits. Extraversion and Conscientiousness had RTs of about 1000ms in both ratings. Neuroticism was divided by rating.
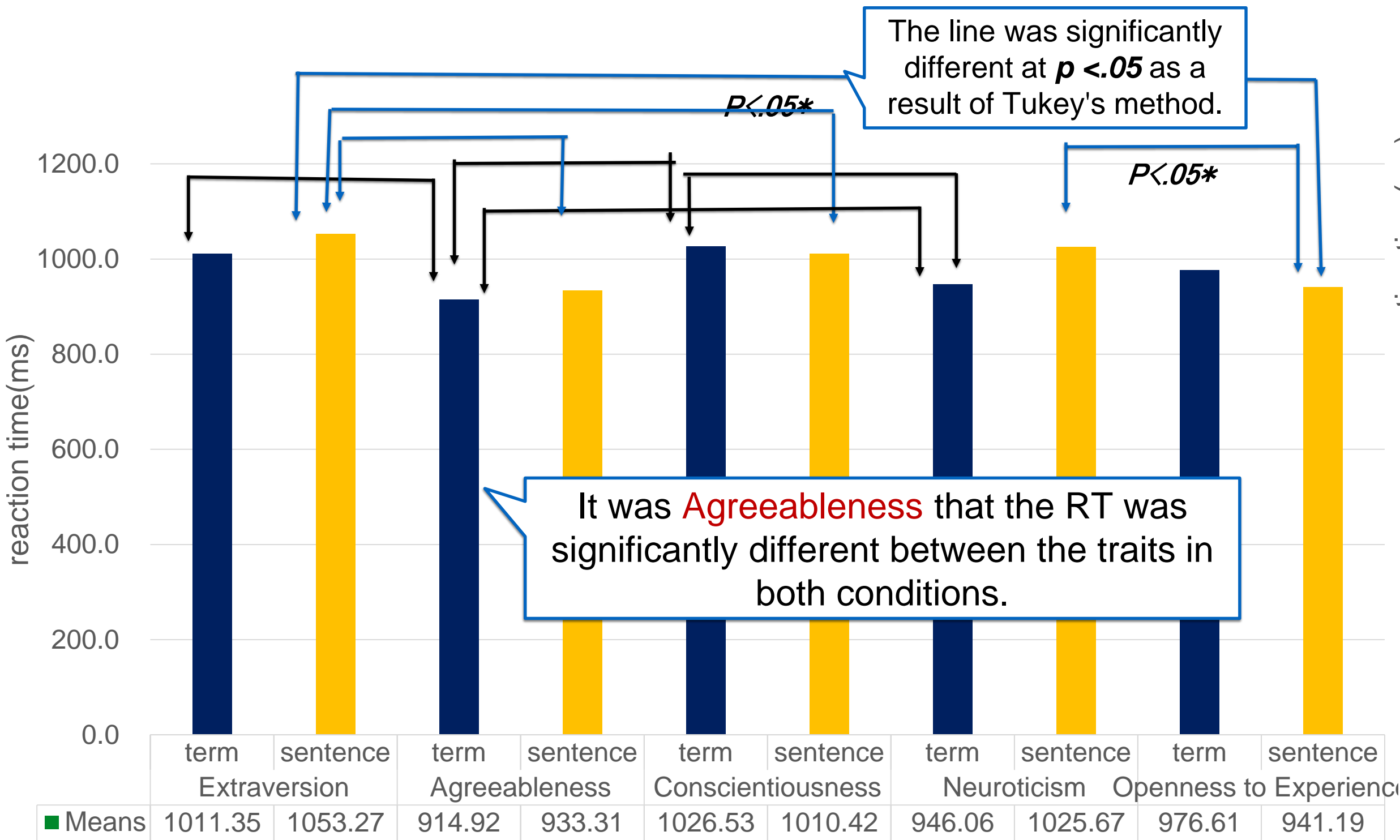
The line was significantly different at ***p <.05*** as a result of Tukey's method.

P<.05*

P<.05*

It was Agreeableness that the RT was significantly different between the traits in both conditions.

Means	term Extraversion	sentence Extraversion	term Agreeableness	sentence Agreeableness	term Conscientiousness	sentence Conscientiousness	term Neuroticism	sentence Neuroticism	term Openness to Experience	sentence Openness to Experience
	1011.35	1053.27	914.92	933.31	1026.53	1010.42	946.06	1025.67	976.61	941.19

Figure2. Difference in Reaction Time for each Big Five traits under self-rating conditions

Result2. Change in RT in Yes / No key reaction classification on PC rating conditions

In by-term condition, a significant difference was indicated for traits by Yes/No response to terms $(F(2,5268)=19.12,p<.01)(Figure.3)$. In by-sentence condition ,A significant difference was indicated for traits by yes/No response to terms $(F(2,3155)=14.41,p<.01).(Figure4)$
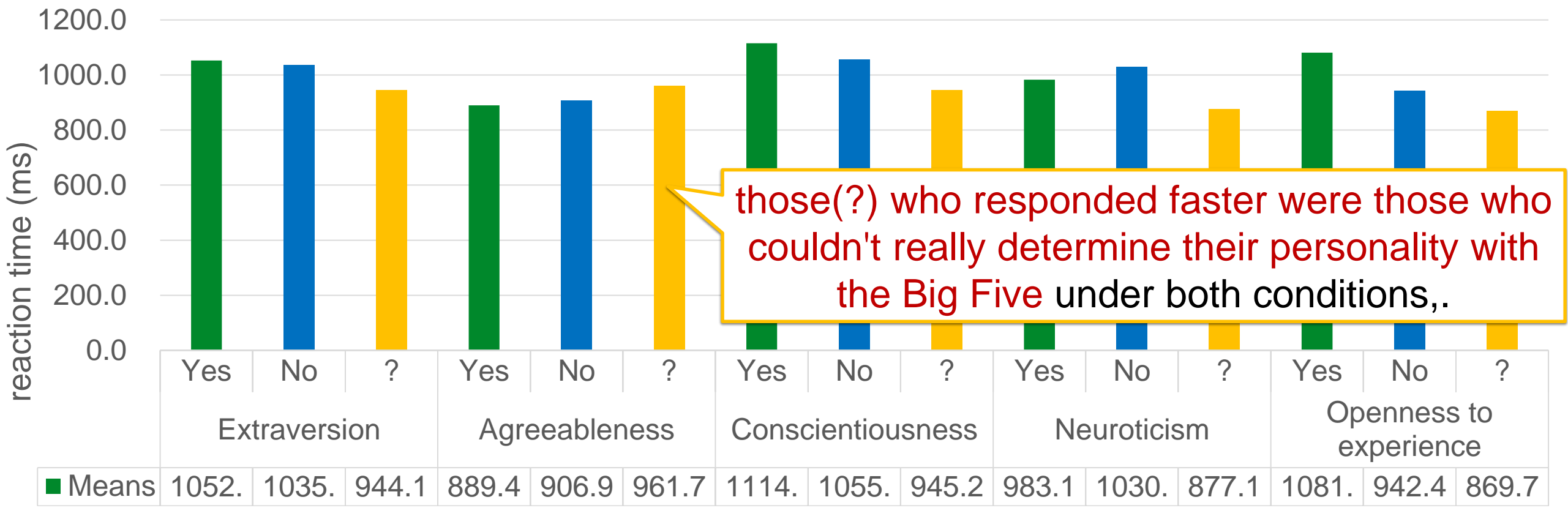
those(?) who responded faster were those who couldn't really determine their personality with the Big Five under both conditions,.

	Extraversion			Agreeableness			Conscientiousness			Neuroticism			Openness to experience		
	Yes	No	?	Yes	No	?	Yes	No	?	Yes	No	?	Yes	No	?
Means	1052.	1035.	944.1	889.4	906.9	961.7	1114.	1055.	945.2	983.1	1030.	877.1	1081.	942.4	869.7

Figure 3. Change in Reaction Time in by-term rating on PC condition

"Yes", which is considered to be suitable for one's personality, had the longest RT under both conditions,.

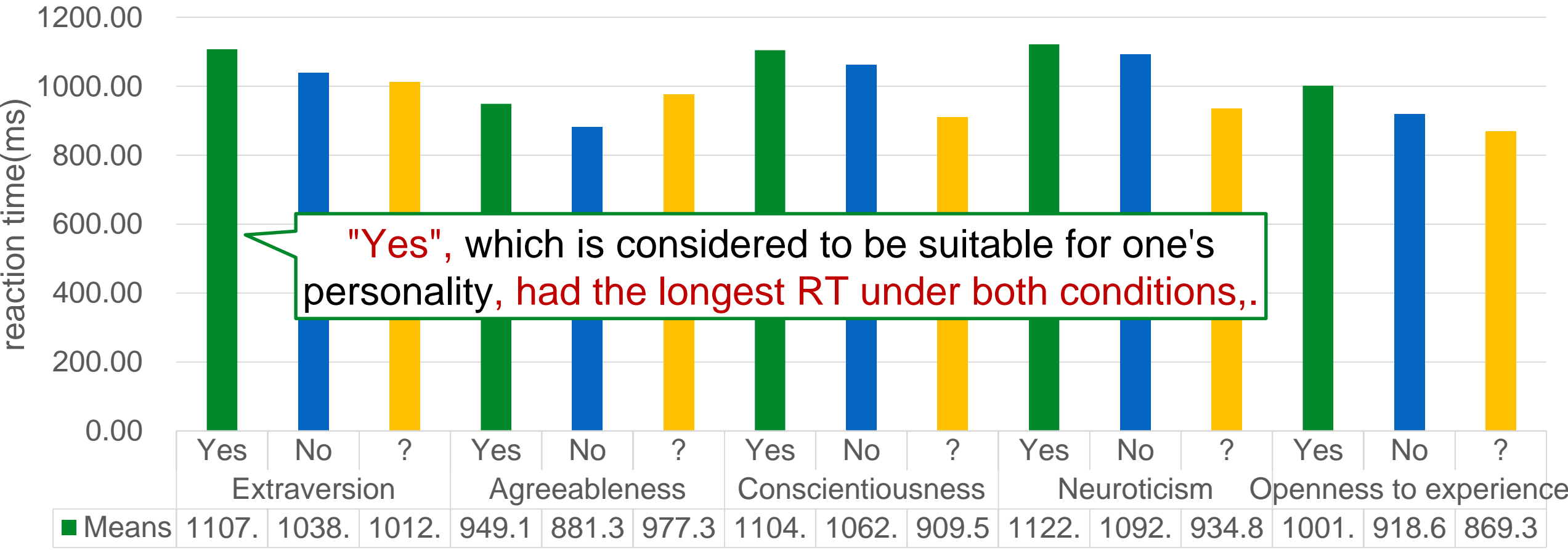|	Extraversion			Agreeableness			Conscientiousness			Neuroticism			Openness to experience		
	Yes	No	?	Yes	No	?	Yes	No	?	Yes	No	?	Yes	No	?
Means	1107.	1038.	1012.	949.1	881.3	977.3	1104.	1062.	909.5	1122.	1092.	934.8	1001.	918.6	869.3

Figure4. Change in Reaction Time in sentence rating on PC condition

Conclusions

As a result of examining at the time of the RT personality self-rating, three hypotheses were clarified, that 1) the RT at the time of personality self-rating differed by the Big Five's personality traits, not conditions.2) Yes / No key reaction in personality rating was not a likes and dislikes of terms.3) The RT of the Yes / No key reaction indicated the degree of confidence in each individual's rating.