Differences between estimating protagonists' emotions and evaluating readers' emotions in narrative comprehension

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We examined the differences between estimating the emotions of protagonists and evaluating those of readers in narrative comprehension. Half of the participants read stories and rated the emotional states of the protagonists, while the other half of the participants rated their own emotional states while reading the stories. The results showed that reading comprehension was facilitated when highly extraverted participants read stories about, and rated the emotional experiences of, extraverted protagonists, with personalities similar to their own. However, the same facilitative effect was not observed for less extraverted participants, nor was it observed for either type of participants under the condition in which participants rated their own emotional experiences. Thus, at least for highly extraverted participants, readers both facilitated the construction of a situation model and correctly estimated the emotional states of protagonists who were similar to themselves, perhaps due to empathy.

During the process of reading and attempting to comprehend narratives, readers often focus on several aspects described in stories, such as the protagonists, settings, actions, and events, and accordingly construct their situation models (e.g., Gernsbacher, 1990; Graesser, Singer, & Trabasso, 1994; Kintsch, 1998; Komeda & Kusumi, 2007; van Dijk & Kintsch, 1983; Zwaan & Radvansky, 1998). Readers may represent and update a character's emotional state in narrative comprehension (de Vega, Leon, & Diaz, 1996; Gernsbacher, Goldsmith, & Robertson, 1992; Komeda & Kusumi, 2006) and also automatically make inferences about the emotions of protagonists (Gernsbacher, Hallada, & Robertson, 1998). Moreover, the emotional reactions of characters are important for establishing global coherence in the situation model. Emotions experienced during comprehension may be involved in establishing coherent representations. De Vega et al. (1996) suggested that readers must establish the difference between representing others' emotions and representing or experiencing their own emotions.

Inference of the protagonists' emotional states

Readers infer the emotional states experienced by a character that are caused by or in response to an event or action (Graesser et al., 1994). Inferences are of several types: backward, or bridging, and forward, especially elaborative inferences (van den Broek, 1994; Zwaan & Rapp, 2006). Bridging inferences connect two continuous statements in stories. An elaborative inference is active knowledge that augments the mental representation of the described situation, although it is not necessary to integrate statements. A predictive inference is a type of elaborative inference. Recent studies have shown that reader preference also influences the construction of inferences (Rapp & Gerrig, 2002, 2006). We assumed the emotional inference that we targeted in this study to be a type of elaborative inference.

The casting of characters is also crucial. Zillmann and Knobloch (2001) assessed readers' reactions to nonfictional narratives about a character's bad or good fortune. They found that readers take the misfortune of a character they dislike as good news, and also enjoy the good fortune of a person they like. Readers feel happy when the villain is hurt and experience negative feelings when the villain feels happy after a crime.

Evaluation of readers' emotional states

The emotions that readers experience during narrative comprehension depend upon psychological processes, such as identification with a protagonist and sympathy for story characters (Oatley, 2002). Komeda and Kusumi (2002) used a word association method to investigate the emotions that readers experienced. They found that a reader's experience of "surprise" decreased toward the end of the story, while the experience of

"relief" increased. Readers' own emotional experiences were found to be related to the reading process and to readers' evaluations of the story protagonists.

Reader's emotion plays an important role in directing the reading of literary narratives (Miall, 1989). For example, the reader's emotional experience can help to overcome difficulties in narrative comprehension. Komeda, Nihei, and Kusumi (2005) examined feelings of anticipation, empathy, and sense of strangeness, using a rereading method to assess emotions related to narrative comprehension. They found that the reader's empathy increased and the sense of strangeness decreased toward the end of a story. However, these studies depend on the structure and content of the stories used in the experiments.

Interaction between personalities and emotions

The reader's personality appears to influence the reading processes. For example, inferences predictive of threat were investigated in participants with high and low levels of the trait of anxiety based on response latencies to target words (Calvo & Castillo, 2001a). The high-anxiety group made inferences predictive of threatening, but not of nonthreatening, outcomes, whereas the low-anxiety group displayed the opposite pattern. In addition, Calvo and Castillo (2001b) suggested that inferences were not facilitated by an anxiety–threat congruence, as the predictive inference bias was delayed and involved strategic, not automatic, processes. A separate study also found that trait anger scores on the Multidimensional Anger Inventory (MAI; Siegel, 1986) were negatively correlated with the reading time of a passage describing an angry reaction, thus suggesting that a higher tendency to experience anger facilitates a processing advantage when reading about angry reactions (Wingrove & Bond, 2005). These studies showed that the reader's personality interacts with both his or her own emotions and the reading process.

Ortony, Clore, and Collins (1988) differentiated among emotions, moods, and personality traits. The effects of general moods are more pervasive than those of particular emotions. Emotions tend to be short lived, whereas moods are pervasive. Furthermore, emotion-based feelings require causal awareness, whereas the causes of mood-based feelings are unclear. Moods are likely to be less salient than emotional causes. Extraversion is an important personality component and is related to emotion (e.g., Rusting, 1998). Extraversion as a personality trait is associated with positive mood states, such as a warm, fun-loving disposition. Extraverts were found to be significantly happier than introverts in six mood-induction studies and a meta-analysis of previous studies (Lucas & Baird, 2004). Thus, extraverts most likely have higher levels of positive emotions, regardless of the

situation. Some neuroimaging studies support a positive relationship between extraversion and positive emotion. For example, amygdala activation during the perception of happy expressions was found to be positively correlated with the perceiver's degree of extraversion (Canli, Sivers, Whitfield, Gotlib, & Gabrieli, 2002).

Simulation theory

Simulation theory suggests that perceivers mentally place themselves in the other person's shoes, attempting to simulate what the other person thinks (Goldman, 2001). People commonly report the experience of mentally trading places with others in order to imagine their emotions (Van Boven & Loewenstein, 2003). People can use their own knowledge to infer the mental states of others during the simulation process. Thus, it is easier to infer protagonists' emotion and simulate their mental states when readers feel similar to them.

To explain the emotional recognition of others, Van Boven and Loewenstein (2005) proposed a model of emotional perspective taking related to two processes: the first is a prediction of others' reactions to emotional situations and the second is the biased judgements of their own reactions to emotional situations that people make. These biased self-predictions then lead to biased predictions of others' reactions to emotional situations. Estimating a protagonist's emotional states is related to both processes because readers must not only predict their own reactions but also adjust gaps between the predictions for self and others. However, the evaluation of one's own emotional state is related only to self-prediction.

General overview of the experiment

We investigated possible differences between how readers rate the protagonist's emotions and their own emotions when reading stories that describe protagonists with similar or dissimilar personalities to their own. Under one condition, participants rated the emotional states of the protagonist as one of anger, disgust, anxiety, sadness, and happiness while reading. Under the other condition, they rated their own emotional states. Similar rating results from both conditions would imply that readers felt emotions similar to those of the story protagonists. Alternatively, different ratings would indicate that the difference in the perception of emotions between self and others was clear.

EXPERIMENT

We examined the differences between estimating protagonists' emotional states and evaluating readers' emotional states in narrative comprehension. Participants read stories and rated the emotional states of the protagonists in estimating protagonists' emotional conditions. In contrast, in evaluating readers' own emotional conditions, participants rated their own emotional states.

We predicted the following outcomes based on simulation theory. If Van Boven and Loewenstein's (2003) two-stage model of emotional perspective taking is supported, estimating protagonists' emotions would be related to both stages. However, evaluating readers' emotions is related to only the first stage and the results of estimating how protagonists' emotions differ from those of the evaluating readers' own emotions. This is due to the concept that the model explains not only the perceivers' emotional states but also the estimation of others' mental state based on simulation theory. Therefore, we predicted the following two points. First, readers would be able to construct situation models more easily when reading stories with protagonists who appeared similar to the readers themselves. If this prediction were supported, participants would understand stories with similar protagonists more quickly than stories with dissimilar protagonists. This facilitation effect arises when the reader's personality is congruent with the character's personality because it is easier for readers to comprehend using their own experience. We assessed the difference in situation model construction by measuring the reading time of target sentences concerning the protagonist's personality. Second, we predicted that readers would feel empathy with protagonists who appeared similar to themselves and would, therefore, assign higher ratings to the emotional states of similar protagonists than to those of dissimilar protagonists.

If the two-stage model is not supported, the effects of simulation will not be different between both stages, and readers' estimations of emotions will be similar to their evaluations of their own emotions. This means that the reading time and emotional rating results of evaluating readers' emotional conditions would replicate their estimations of the protagonists' emotional conditions. Alternatively, similarities between readers and protagonists would not influence reading time or emotional results for both estimating and evaluating emotional conditions, when the two-stage mode is not supported.

Methods

Participants.   The participants were 69 Japanese speakers (32 females and 37 males) studying at Kyoto University. The participants were given

compensation equivalent to 200 yen (about US$2.00) for participating in the study. We randomly assigned 37 people (16 females and 21 males) to the condition of estimating protagonists' emotions and 32 people (16 females and 16 males) to the condition of evaluating readers' own emotional states.

Materials.   The first author constructed four stories, which included 2 themes × 2 protagonists (extraverted or introverted). The themes of the stories were familiar to university students. Appendices 1 and 2 contain samples of the experimental stories, demonstrating the structure of the stories with respect to plot, setting, and characters.

The pronoun "I" was not used as a subject in the experimental stories, as subjects are often omitted in Japanese sentences, especially in narrative texts. One advantage of using Japanese as the language of the experimental materials was that the story protagonist could be interpreted as either "I" or "you". Thus, under the condition of estimating protagonists' emotion, readers could regard the subject as the story protagonist, and then as the reader under the evaluation of reader emotion condition. Both stories had one protagonist to make it easier for readers to empathise with the protagonist and to control for the effects of other characters. Three judges reviewed the validity of the materials prior to the experiments.

Participants read about both an extraverted and an introverted protagonist. For example, the extraverted protagonist stories included actions describing extraverted traits. Thus, the personalities of the protagonist and reader were similar, when highly extraverted participants read the story involving an extraverted protagonist, and when low extraversion participants read the story involving introverted protagonists. Our manipulations of extraversion were based on the extraversion scale of the Japanese Big Five Scale (Wada, 1996), which uses adjectives to construct the degree of extraversion. Because it does not include sentences and does not influence story-reading tasks, the effect of reading the personality questionnaire is eliminated.

Each story contained 50 Japanese sentences. Sentences 10, 20, 30, 40, and 50 were target sentences about the protagonist's personality. We constructed the stories so that the number of Japanese characters was the same in both personality versions. The number of characters is an indication of sentence length and corresponds to the number of syllables used in English language studies. The presentation of the story versions was counterbalanced with a 2 × 2 Latin square design. Each participant read two stories, with different personalities and themes and did not read stories with similar personalities and themes twice. While reading the story, participants rated the emotional states of the protagonist as anger, disgust, anxiety, sadness, and happiness, based on the research of Oatley and Johnson-Laird (1987).

Procedures.   First, participants completed the extraversion scale, which is a subscale of the Japanese Big Five Scale (Wada, 1996). Before the test session, participants read a short story to familiarise themselves with the reading procedure. The texts were presented sentence by sentence on a computer display. Participants pressed the space bar to bring up the next sentence, and the computer collected reading times for each sentence. Readers rated the protagonist's emotional state on five 7-point scales (anger, disgust, anxiety, sadness, and happiness) immediately after reading each target sentence in estimating the protagonists' emotional condition. The emotional state ratings were an off-line task, and response times were not collected. The same procedure was then followed for the presentation of the other version of the story. The experiment lasted approximately 30 minutes.

The procedure of evaluating readers' emotional conditions was similar to that used in estimating the protagonists' emotional conditions. Participants were, however, instructed to rate their own emotional states instead of the protagonist's emotional states.

Results and discussion

Reading times

The participants were divided into two groups based on their extraversion scores under each condition. Participants scoring in the top third of the extraversion scores were classified as highly extraverted ($M = 66.2$; $SD = 5.3$; range = 58–73; $n = 12$) and those in the lowest third as low extraverted ($M = 35.3$; $SD = 4.2$; range = 29–40; $n = 12$) in estimating protagonists' emotional conditions. Subjects scoring in the highest one-third of the extraversion scores were classified as highly extraverted ($M = 61.6$; $SD = 4.1$; range = 58–72; $n = 12$) and those in the lowest one-third were classified as low extraverts ($M = 38.5$; $SD = 6.2$; range = 27–48; $n = 11$) in the evaluation of readers' own emotional conditions. The middle score group under both conditions was dismissed.

Table 1 shows the reading times of target sentences for each personality type. We performed a three-way analysis of variance (ANOVA), with the reader's personality and emotional rating conditions as between-subject factors and protagonist's personality as the within-subject factor. The three-way interaction was significant, $F(1, 43) = 7.40$, $p < .01$. Post hoc Bonferroni tests revealed that the effect of protagonist extraversion by highly extraverted readers in estimating protagonists' emotional condition was significant, $F(1, 43) = 8.40$, $p < .01$, and that effect of protagonist extraversion by low extraverted readers was not significant, $F(1, 43) = 1.36$, $p = .25$. Thus, in estimating protagonists' emotional condition, highly extraverted participants were faster at reading the target sentences in stories with extraverted protagonists (1592.0 ms) than in stories with introverted protagonists

TABLE 1

Differences in reading times for high and low extraverted groups (in milliseconds) in the experiment, with standard deviations (in parentheses)

Protagonist	Estimation of protagonists' emotion		Evaluation of readers' emotion	
	High extraverted (n = 12)	Low extraverted (n = 12)	High extraverted (n = 12)	Low extraverted (n = 11)
Extraverted	1592.0 (583.2)	1849.1 (552.9)	1708.4 (775.4)	1821.4 (623.7)
Introverted	1953.1 (659.5)	1704.0 (450.3)	1582.7 (653.7)	1874.9 (574.1)

(1953.1 ms). However, the effect of protagonists by highly extraverted readers in evaluation of readers' emotion condition was not significant, $F(1, 43) = 1.02$, $p = .32$, and the effect of protagonists by low extraverted readers was not significant, $F(1, 43) = 0.17$, $p = .68$. Thus, no significant differences between a reader's personality and the protagonist's personality were observed in evaluations of readers' emotional condition.

The results indicate that it is easy for highly extraverted readers to read stories with an extraverted protagonist, whose personality is similar to their own, as highly extraverted readers can easily infer the emotional states of the protagonist when estimating the extraverted protagonists' emotional condition. This effect was observed for highly extraverted but not for less extraverted readers. This finding partially supports our first prediction that readers can more easily construct situation models when reading about a protagonist whose personality appears similar to their own than when reading about an protagonist who appears dissimilar. Highly extraverted readers may be more sensitive to the personalities of such protagonists than the less extraverted readers, and this could facilitate inference of the story involving the extraverted protagonist.

We think that our first prediction applied to highly extraverted participants only because a low level of this quality is not equivalent to introversion. Our material consisted of story with protagonists who were manipulated to be extraverted or introverted. Future research might consider other dimensions of personality in the Big Five Scale, such as neuroticism. We speculate that highly neurotic readers may have facilitated inferences with a neurotic protagonist.

Emotional ratings

Table 2 shows the difference in estimating protagonists' emotional states for high and low extraverted readers and Table 3 shows the difference in readers' evaluations of their own emotional states. Each value was calculated as the average of five emotional ratings. We performed a four-way ANOVA

TABLE 2

Differences in estimating protagonists' emotional states for high and low extraverted groups, with standard deviations (in parentheses)

Emotional states	High extraverted (n=12)		Low extraverted (n=12)	
	Extraverted protagonists	Introverted protagonists	Extraverted protagonists	Introverted protagonists
Anger	1.7 (0.7)	3.1 (1.1)	2.9 (0.9)	3.6 (1.0)
Disgust	2.1 (0.7)	4.2 (0.9)	3.5 (0.9)	4.4 (0.7)
Anxiety	2.0 (0.9)	3.5 (0.9)	3.0 (0.8)	3.9 (1.1)
Sadness	1.5 (0.6)	3.2 (1.4)	1.9 (0.7)	2.9 (0.8)
Happiness	5.1 (0.8)	2.8 (0.8)	4.2 (0.8)	2.9 (0.7)

Note: The numbers indicate the mean rating on a 7-point scale (1 = "not at all" to 7 = "extremely") of the likelihood that the protagonist would feel each emotion.

of Reader's Personality (high or low extraversion) × Protagonist (extraverted or introverted) × Emotional State (anger, disgust, anxiety, sadness, or happiness) × Emotional Rating Condition (estimating the protagonist's emotion or evaluation of the reader's own emotion). Factors of emotional rating condition and reader's personality were between-subject variables and those of protagonist and emotional states were within-subject variables. The four-way interaction was significant, $F(4, 172) = 2.79$, $p < .05$. Post hoc Bonferroni tests revealed that participants in the low extraverted group rated the anger, disgust, and anxiety ($Ms = 2.9, 3.5, 3.0$) of extraverted protagonists to be greater than did participants in the high extraverted group ($Ms = 1.7, 2.1, 2.0$). Participants in the high extraverted group rated extraverted protagonists' happiness ($Ms = 5.1$) to be higher than participants in the

TABLE 3

Differences in readers' evaluation of their own emotional states between high and low extraverted groups, with standard deviations (in parentheses)

Emotional states	High extraverted (n=12)		Low extraverted (n=11)	
	Extraverted protagonists	Introverted protagonists	Extraverted protagonists	Introverted protagonists
Anger	2.2 (1.1)	2.9 (1.3)	2.0 (0.6)	2.6 (1.0)
Disgust	2.6 (1.3)	3.7 (1.2)	2.4 (1.0)	3.4 (0.6)
Anxiety	1.9 (1.0)	3.0 (1.1)	2.2 (0.9)	2.7 (1.1)
Sadness	1.4 (0.5)	2.4 (1.1)	1.8 (0.7)	2.4 (1.1)
Happiness	4.2 (1.5)	2.2 (0.6)	3.6 (1.0)	2.4 (1.1)

Note: The numbers indicate the mean rating on a 7-point scale (1 = "not at all" to 7 = "extremely") for the degree to which readers felt each emotion.

low extraverted group ($Ms = 4.2$). As to extraverted protagonists, the highly extraverted participants highly rated positive emotion, while the less extraverted participants highly rated negative emotions. The difference between high and low extraverted groups was not different when rating introverted protagonists' emotions under the estimation of the protagonists' emotional condition. In addition, the difference between high and low extraverted groups when rating both extraverted and introverted protagonists' emotions under the evaluation of readers' emotion condition was also not significant.

The results of the evaluation of readers' emotional conditions indicated that differences in the degree of extraversion had no effect, in contrast to the results in estimating protagonists' emotional conditions. Because the emotions that readers experience are different from their representations of the protagonist's emotions, similarities between readers and protagonists may not influence situation model construction when evaluating readers' own emotions. The results from readers evaluating their own emotions support findings that the readers' emotions do not seem to be included in situation model construction in stories (Graesser et al., 1994).

Because the versions of materials involving extraverted versus introverted protagonists were different as affective stimuli, it is difficult to interpret the comparison between extraverted and introverted protagonists in terms of emotional rating. Thus, in this study, we acknowledge that it is not important that both types of reader assigned higher ratings to negative emotions (anger, disgust, anxiety, and sadness) in introverted protagonist stories than in extraverted protagonist stories and rated positive emotion (happiness) higher in extraverted protagonist stories than in introverted protagonist stories under both conditions. Readers may feel pleased when positive events occur to protagonists and displeased when protagonists feel sad or depressed, based on the property of the stories in which introverted protagonists engage with negative goals and extraverted protagonists engage with positive goals in this study.

GENERAL DISCUSSION

We examined how participants estimated the emotional states of protagonists and how they evaluated their own emotional states while reading. The results of estimating protagonists' emotional states suggest that reading comprehension is facilitated when extraverted participants estimate the emotions of extraverted protagonists, who are similar to themselves. However, no such facilitation was observed for less extraverted participants, or for either type of participant when they evaluated their own emotions while reading stories. We suggest two possibilities to explain the difference

between the two conditions. First, Van Boven and Loewenstein (2003) proposed a two-stage model for judgements of another's emotions. The first stage is a prediction of how a person would feel in the other's situation. The second stage is a person's adjustments to accommodate the perceived differences between the individual and others. Estimating the emotions of protagonists while reading involves both stages, whereas reading while evaluating one's own emotions involves only the first stage, as readers do not need to accommodate differences between themselves and others. Second, different reading strategies may have influenced narrative comprehension. Assessing the protagonist's emotions was related to understanding the story itself, while the evaluation of the reader's own emotions focused on understanding the self.

The emotion rating tasks also revealed differences between the two conditions. The difference in the degree of participants' extraversion influenced only their estimation of the protagonist's emotional states, not that of their own emotional states. Estimating the emotional state of a protagonist corresponds to representing the state of another's mind, or "mind reading" (Baron-Cohen, 1995), while evaluating one's own emotions corresponds to self-monitoring. The task of evaluating their own emotional states corresponds to the first stage in the model of Van Boven and Loewenstein (2003). Readers predicted how they would feel in the protagonist's situation. However, when estimating protagonist emotional states, readers accommodated differences between themselves and others (second stage), in addition to predicting how they would feel (first stage). The accuracy of the "other" prediction depends on the accuracy of self-prediction (Van Boven & Loewenstein, 2003). The difficulty involved in the second stage during the process of reading about dissimilar protagonists may have influenced the results of estimating protagonists' emotional states.

Theory of mind (ToM) is broadly relevant for thinking about others' intentions, desires, and beliefs (see, e.g., Hughes, 2005; Wimmer & Perner, 1983). Brain-imaging studies of ToM have used many different tasks (e.g., Amodio & Frith, 2006) and one of the most important is the story task (e.g., Ferstl, Rinck, & von Cramon, 2005; Ferstl & von Cramon, 2002; Fletcher et al., 1995). The task of estimating protagonist emotions was analogous to story tasks in ToM, such as the one in which subjects are asked to explain the behaviour of the characters or choose an appropriate emotional state. Our study assessed the emotional states of both the other and the self, whereas traditional ToM tasks focus on the mental states of others. We found a difference between the estimation of the other's and the evaluation of the reader's own emotional states. Note that the similarity between readers and protagonists influenced the estimation of protagonist emotion, which might suggest that a reader's empathy with a similar protagonist leads to the reader estimating emotional states correctly. According to the

simulation theory account of mental inference (Goldman, 2001), when imagining the input that the other person experiences, a person tries to experience the same mental states, such as emotions. The results of this simulation, which involves empathy, are attributable to the other. Empathy, or feelings of general similarity with the other, may prompt attempts at simulation (Reeder & Trafimow, 2005). When reading while estimating protagonists' emotions, highly extraverted readers found it easier to read stories with extraverted protagonists who had personalities similar to their own. This result might have arisen from the facilitation of simulation by readers' empathy to similar protagonists.

Among the limitations of this study is the generality of our findings. The results are based on only two different scenarios: an extraverted protagonist achieves a desirable goal, whereas an introverted protagonist does not. Second, the problem of emotional evaluation exists. To assess emotional states, we used just five emotions, of which only one was positive. To address this methodological problem, additional studies using other questionnaires are needed to compare those results with ours. One such instrument that measures the emotional states of participants is Izard's Differential Emotions Scale (DES), in which participants use a 5-point intensity or frequency scale to rate the extent to which each word describes how a participant feels at the moment (Izard, 1977).

Recently, several neuroimaging studies have examined the relation between narrative comprehension and ToM (e.g., Ferstl & von Cramon, 2002; Ferstl et al., 2005; Fletcher et al., 1995; see Mar, 2004, for a review). Our data support an imaging study that found that the estimation of a protagonist's emotional information involved the reader's empathy with the story characters (Ferstl et al., 2005). Future narrative comprehension and ToM studies should examine the difference between representing the other's emotions and experiencing one's own emotions. In this study, we examined the perception of emotions that can be distinguished between the other (story protagonist) and the self (reader). This paradigm can be applied to both behavioural and neuroimaging studies.

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APPENDIX 1

Translation of experimental material into English

(This story describes the situation while the protagonist is shopping.) It is a clear autumn day. It is sunny with a beautiful sky. I (story protagonist) am in a great mood to attend the first period of school. It is a splendid morning. I arrive at school in an hour, in time for the start of class. The atmosphere in the classroom is strange. Few students are present. Some talk to each other in the corner.

Sentence 10. Extraverted Protagonist (Introverted Protagonist)
I speak to an acquaintance, who tells me that today's class has been cancelled. (I do not have the courage to speak to the other students, but I learn that the class has been cancelled by overhearing their conversation.)

I decide to go shopping because I got up early and it is a fine day. I have plenty of money because yesterday was payday. I ride the train and turn up the volume on my Walkman. After shopping for a long time, I leave to go to my favourite clothing store. I enter the shop without taking my headphone off because I do not want to talk to the proprietor. I immediately see new dresses. The assistant approaches with a smile.

Sentence 20. Extraverted Protagonist (Introverted Protagonist)
I tell the assistant that I am just looking around. (In any case, I just take off my headphones.)

The assistant talks to me. I give up on ignoring her and decide that mere greetings are all right. We are incompatible, as I expected. I want to browse around the shop by myself. The assistant goes away. I am a little relieved. After a while, the assistant returns, holding some dresses. The assistant keeps smiling because she wants to make a sale. She encourages me to try on a dress that I dislike.

Sentence 30. Extraverted Protagonist (Introverted Protagonist)
I unhesitatingly refuse to try on the dress because I do not like it. (Even though I do not like the dress, I cannot refuse to try it on.)

The shop gradually becomes crowded, although it was not initially. It is time to close for lunch. After I return the dress that I was handed, I look around. I leave the shop to go to an ATM to withdraw money. I think that I need to get up the nerve to spend money, even though I have plenty. As soon as I return to the shop, the assistant approaches. She seems determined to sell that dress to me. I suddenly wonder if she has a sales quota to meet.

Sentence 40.   Extraverted Protagonist (Introverted Protagonist)

I do not buy the dress that the sales assistant is trying to sell; instead, I buy one that I really like. (I cannot resist the assistant's sales pitch, so I buy a dress that I do not really like.)

The sales assistant wraps up the dress that I bought. I look around the shop while waiting. I see this remarkable accessory, which I buy quite impulsively. After paying, I leave the shop. I spent a lot more money than I had intended. The city is gradually becoming crowded. It is already lunchtime.

Sentence 50.   Extraverted Protagonist (Introverted Protagonist)

I go home, feeling pleased that I was able to buy a great dress after such a long time. (I go home, regretting having bought a dress that I know I will not wear.)

APPENDIX 2

Translation of experimental material into English

(This story describes a situation in which the protagonist is thinking of giving an old person his or her seat on the bus.)

It has been raining since this morning. I awake quietly and enjoy a quiet doze lying on the bed. After turning over in bed several times, I get up and prepare to leave. It's time to leave, but the rain does not seem to be letting up. However, I do not have that peculiar, low, rainy-day feeling because I managed to meet the deadline for an important assignment. Today is a long-awaited day off. I decide to watch a movie that I've been wanting to see.

Sentence 10.   Extraverted Protagonist (Introverted Protagonist)

I feel relaxed about being alone, although I usually hang out with friends. (I prefer being alone to hanging out with friends on a day off.)

Few people are at the bus stop. It's a weekday, but a holiday for me. The bus comes quickly and is not crowded. All the passengers are seated. I seat myself near the handrail in the middle of the bus. The bus suddenly becomes crowded half way to my destination. The new passengers seem to be students on a school trip. They are very noisy and are holding guidebooks.

Sentence 20.   Extraverted Protagonist (Introverted Protagonist)

I think the students are delightful. (Their noise depresses me.)

The bus becomes very noisy. The students seem to be enjoying themselves, and don't care about the rain. I recall my school trip. I wonder if we were

such a noisy bunch. I think that we may not be so different. More people board the bus at the next stop. An old woman holds the handrail just in front of my seat. She seems to be having a hard time because of the crowding.

Sentence 30.   Extraverted Protagonist (Introverted Protagonist)
I think that I should give her my seat. (I am really embarrassed.)
To tell the truth, I am very tired because I've been working on my assignments, without sleeping at all until yesterday. I take a look around. The person seated in front of me is fast asleep. The person behind me is also elderly. Nobody moves to give the old woman a seat. She remains standing, just in front of me. I make a decision.

Sentence 40.   Extraverted Protagonist (Introverted Protagonist)
I stand up, saying, "Have a seat". (I pretend to be asleep, with my eyes closed.)
It seems to be raining outside. It smells mouldy on the bus, like it does on rainy days. Maybe the smell comes from old trees. The students are their usual noisy selves. Suddenly, I hear a faint announcement that we are arriving at my destination. The exit is pretty far away, and the bus is crowded. I prepare to exit in a hurry.

Sentence 50.   Extraverted Protagonist (Introverted Protagonist)
The old person says, "Thank you very much" with a smile. (I am troubled about getting off because I cannot say "Excuse me".)