

Stylistic and Contextual Effects in Irony Processing

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Abstract

Irony is perceived through a complex interaction between an utterance and its context and serves many social functions such as to be sarcastic and to be humorous. The purpose of this paper is to explore what role linguistic style and contextual information play in the recognition of irony (i.e., assessing the degree of irony) and in the appreciation of ironic functions (i.e., assessing the degree of sarcasm and humor). Two experiments demonstrated that the degree of irony and sarcasm was affected primarily by linguistic style (i.e., sentence type and politeness), while the degree of humor was affected by both linguistic style and contextual information (i.e., context negativity and ordinariness of negative situation). These results are almost consistent with the predictions by the implicit display theory, a cognitive theory of verbal irony. Discussion of the findings also suggests that the implicit display theory can account for an indirect effect of context on the degree of irony.

Introduction

Irony is an interesting pragmatic phenomenon whose processing involves complex interaction between linguistic style and contextual information. There are also good reasons for probing the mechanism of irony processing in cognitive science. First, irony offers an effective way of accomplishing various communication goals for maintaining and modifying social and interpersonal relationships that are difficult to do literally. Second, irony processing requires higher-order mindreading ability (Happé, 1993), which has been argued to play an important role in the interpretation of ordinary utterances (Wilson and Sperber, 2004). Third, as Gibbs (1994) argues, an ironic way of talking about experiences reflects our figurative foundation for everyday thought.

Recently, many studies have paid much attention to irony processing (e.g., Gibbs, 1994; Sperber and Wilson, 1995; Attardo, 2000; Colston, 2002; Giora, 2003). However, most of these studies focus only on the difference of processing between ironic utterances and literal ones, in spite of the fact that irony is communicated by various kinds of expression (Kumon-Nakamura, Glucksberg, and Brown, 1995; Utsumi, 2000). For example, to your partner who stepped on your feet many times during a dance, you can say ironically in various ways: not only an opposition statement like “You’re really a good dancer”, but also a true assertion “I love good dancers”, a rhetorical question “Could you step on your own two feet?”, a circumlocutory utterance “I guess you have a broken leg”, and so on. The purpose of this study is to empirically examine how irony processing differs among different kinds of ironic utterances and what role style and context play in causing such differences.

The issue of controversy in irony research is according to what features of irony people distinguish irony from non-irony. Beyond the fallacious view that irony is a meaning opposition or a mere violation, a number of studies have proposed a variety of views of irony: Irony is an echoic interpretation of an attributed thought (Sperber and Wilson, 1995), joint pretense (Clark, 1996), relevant inappropriateness (Attardo, 2000), or indirect negation (Giora, 2003). However, these theories suffer from the same problem that they have attempted to provide necessary and/or sufficient properties for distinguishing irony from nonirony; there appear to be no such properties shared by all ironic utterances. To overcome this difficulty, I have proposed a more comprehensive view of irony, *implicit display theory of verbal irony* (Utsumi, 2000). The implicit display theory takes a comparative view that irony is a prototype-based category, which is the idea underlying cognitive linguistic research. Another point in which the implicit display theory radically differs from the previous views is that it claims a differential role of style and context, whereas the previous theories do not address such a difference or they confuse the different roles. According to the implicit display theory, style of an ironic expression is used to assess to what degree a specific ironic utterance is similar to the prototype of irony, while context motivates the addressee to interpret an expression ironically. The study I present in this paper empirically examined to what degree people perceive an utterance as ironic depending on style of the utterance and its context, and tested whether the claims of the implicit display theory can explain the observed result.

Another heated topic in irony research is the social function of irony, which provides a plausible answer to why people use irony. The functions are divided into negative ones such as to be sarcastic and to criticize, and positive ones such as to be humorous. Previous studies (e.g., Dews and Winner, 1995; Colston, 2002) have compared the degrees of negative effect between ironic utterances and literal equivalent utterances. However, these studies have not addressed how various kinds of ironic utterances differ in negative and positive functions. My study thus examined both negative and positive effects of various ironic utterances by asking people to rate the degree of sarcasm and humor, and tested whether the obtained finding can be explained by the implicit display theory.

Implicit Display Theory

The main claim of the implicit display theory is threefold (Utsumi, 2000). First, irony presupposes *ironic environment*,

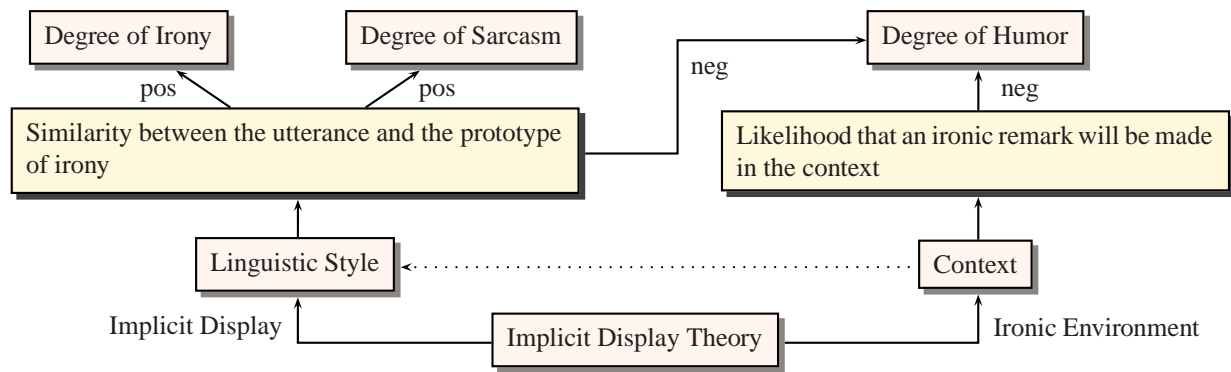


Figure 1: General hypothesis for irony processing elicited from the implicit display theory.

a proper situational setting in the discourse context. Ironic environment consists of (a) speaker's expectation, (b) incongruity between the expectation and the reality, and (c) speaker's negative attitude toward the incongruity. In order for an utterance to be interpreted ironically, the implicit display theory argues, the discourse situation must be identified as ironic environment through the process of checking or inferring these constituents. In the 'dance' example presented above, you have expected that your partner dances well with you but your expectation is not fulfilled, and you gets disappointed or angry at the result. That situation is thus identified as ironic environment.

Second, irony is an utterance that *implicitly displays* ironic environment. Implicit display of ironic environment is achieved by an utterance which (d) alludes to the speaker's expectation, (e) includes pragmatic insincerity by violating one of pragmatic principles, and (f) expresses indirectly the speaker's negative attitude by being accompanied by ironic cues. For example, your utterance "You're really a good dancer" in the above situation satisfies the three conditions of implicit display. First, it mentions, and thus alludes to, your expectation of the partner dancing well. Second, it is a literally false statement that violates the maxim of quality. Third, the hyperbolic word "really" is used to exaggerate the ironic attitude.

Third, as I mentioned in the introduction, irony is a prototype-based category characterized by the notion of implicit display. The prototype of irony is an abstract exemplar which completely meets all the three conditions for implicit display. The degree of irony can be assessed by the similarity between the prototype and a given utterance with respect to the three conditions. Let us consider again the 'dance' example. A circumlocutory statement "I guess you have a broken leg" can be interpreted ironically, but its degree of ironicalness may be much smaller than the typical type of irony "You're really a good dancer". This difference can be explained in terms of to what degree an utterance achieves the implicit display. The circumlocutory statement is only weakly related to the speaker's expectation by a number of coherence relations, whereas the opposition statement directly refers to the expectation. Furthermore, the circumlocutory statement is pragmatically insincere to a much lesser degree than the opposition statement including an apparent violation.

General Hypothesis

The implicit display theory posits the hypothesis for irony processing, which is summarized in Figure 1. On the one hand, style of an ironic sentence, which corresponds to properties of implicit display, governs how similar it is to the irony prototype, i.e., the degree of irony. On the other hand, context determines how likely one is to make an ironic remark, i.e., likelihood of irony, based on to what degree each of the three constituents for ironic environment holds in that context.

This differential role of style and context allows us to draw a general hypothesis about the degree of irony: *The degree of irony is affected by linguistic choice, not by contextual setting, and it is high to the extent that the properties of implicit display are satisfied.* Furthermore, it is reasonably assumed that the degree of sarcasm of ironic utterances proportionally depends on the degree of irony because sarcasm is often conveyed in the form of irony. It is therefore hypothesized that *the degree of sarcasm of an ironic utterance is affected only by linguistic style and it is high to the extent that the properties of implicit display are satisfied.* Note that the hypothesis on the degree of sarcasm does not hold true for victimless irony, which are often perceived as nonsarcastic (Kreuz and Glucksberg, 1989). Because this study attempts to explore the negative function toward a victim of irony, I did not use victimless ironies in the experiments.

Unlike irony and sarcasm, how the degree of humor is determined cannot be directly explained by the implicit display theory. I thereby adopt an incongruity-resolution model of humor (Attardo, 1997), a cognitive model widely accepted in humor research. The incongruity-resolution model argues that humor involves an incongruity between what was expected based on our conceptual pattern and what occurred in the humorous event, which is often expressed by a punch line in humorous texts. When such incongruity is resolved immediately by generating a reinterpretation of a humorous expression, humorous effect takes place. Since we are concerned with interpretable ironic utterances (i.e., they are assumed to be equally resolvable), it is hypothesized that the degree of humor proportionally depends on the degree of incongruity involved in ironic utterances. According to the implicit display theory, ironic utterances involve two kinds of incongruity: (a) incongruity between an expected type of utterance (e.g., ironic or literal) and the actual type of a given utterance (i.e., irony in this paper), degree of which is inversely related

to the likelihood of irony; and (b) incongruity (i.e., dissimilarity) between the irony prototype and a given ironic utterance. If the incongruity-resolution model and the implicit display theory are plausible, a general hypothesis about the degree of humor is as follows: *The degree of humor of an ironic utterance is affected by both linguistic style and context, and it is high to the extent that a discourse context is incongruous to the ironic environment or that the utterance is dissimilar to the irony prototype.*

Experiment 1

The purpose of Experiment 1 is to test the implicit display theory by examining how linguistic style affects the degree of irony, sarcasm and humor. Linguistic style of irony was manipulated by two factors: sentence type and politeness level.

Three sentence types were used in Experiment 1: opposition, rhetorical question and circumlocution. An opposition is a statement whose positive literal meaning is the opposite of the negative situation and thus includes the speaker's expected event or state. A rhetorical question is an interrogative statement by which the speaker rhetorically asks for the obvious fact to the addressee. A circumlocution is a kind of understatement which is weakly related to the speaker's expectation by a number of coherence relations. It is reasonably assumed that an opposition is more related to, and thus more alludes to, the speaker's expectation than a rhetorical question and a circumlocution, and that an opposition and a rhetorical question are pragmatically more insincere than a circumlocution. It follows that an opposition would be the most similar to the prototype of irony and that a rhetorical question would be more similar than a circumlocution.

Politeness is also an important linguistic property which can signal irony. Some experimental studies (Kumon-Nakamura et al., 1995; Okamoto, 2002) found that overpolite utterances are perceived as more ironic. In Experiment 1, politeness level was manipulated by the combination of the use or nonuse of Japanese honorifics (i.e., a system of politeness expressions incorporated into the grammar) and the relationship between the speaker and the addressee (good or bad). The reason for considering speaker-addressee relationship is that whether the use of honorifics shows overpoliteness is determined according to the speaker-addressee relationship (Okamoto, 2002). Generally speaking, when the speaker and the addressee are intimate or on good terms, an utterance with honorifics would be overpolite and unnatural. On the other hand, when they are not intimate or on bad terms, honorifics are usually used for an utterance to be appropriately polite; an utterance without honorifics would be impolite or rude. According to the implicit display theory, overpolite utterances are pragmatically insincere because they can be seen as violating the convention in linguistic politeness. Therefore, other things being equal, overpolite utterances are more similar to the prototype of irony than appropriately polite or impolite utterances.

Prediction

The general hypothesis by the implicit display theory makes the following predictions on the stylistic effect.

- (1) Oppositions are the most ironic and the most sarcastic, and rhetorical questions are more ironic and more sarcas-

tic than circumlocutions. On the other hand, circumlocutions are the most humorous, and rhetorical questions are more humorous than oppositions.

- (2) Overpolite utterances, i.e., utterances with honorifics by the speaker who is on good terms with the addressee, are more ironic, more sarcastic and less humorous than appropriately polite or impolite utterances.

Method

Participants One hundred and twenty undergraduate students participated for this experiment. All were native Japanese speakers.

Materials and Design Twelve stories were constructed in which the addressee was responsible for the negative situation (and thus a victim) and in which the speaker gave a remark toward the addressee. Each of the stories had two versions: Speaker-addressee relationship is good or bad. Each story was followed by one of the six versions of the final utterance (three sentence types \times with/without honorifics). An example of the stories and the final remarks is as follows¹:

In the restaurant, the customer was not served the ordered dishes for a while. He said to the master of the restaurant, who is on {good / bad} terms with him:

Opposition: "This restaurant serves the dishes quickly."
(*Kokoha ryouri wo dasunoga hayai {ne / desu ne}.*)

Question: "Do you know the recipe for the dishes?"
(*Ryouri no tsukurikata wo shitteiru {no? / no desuka?}*.)

Circumlocution: "I think you are just going to buy recipe ingredients."

(*Ima zairyou wo kai ni itteiru kato {omotta / omoimashita} yo.*)

Procedure Each participant was assigned to 12 different stories involving 12 combinations of conditions. The participants read each story and rated the final utterance at the end of the story on the following two 7-point scales: "How sarcastic is the speaker's remark?" (1 = not at all sarcastic; 7 = extremely sarcastic) and "How humorous is the speaker's remark?" (1 = not at all humorous; 7 = extremely humorous). After reading and rating all stories, they read the stories again and rated the degree of irony ("Do you feel the speaker's remark is ironic?") of all the final utterances on a 7-point scale (1 = not at all ironic; 7 = extremely ironic).

Results and Discussion

Type (opposition, rhetorical question, circumlocution) \times Honorifics (with honorifics, without honorifics) \times Relationship (good, bad) repeated-measures ANOVAs were conducted. In all analyses, the data were analyzed by subjects (F_1) and by items (F_2).

Irony and Sarcasm Ratings The main effect of sentence type was significant both for the degree of irony (only by subject analysis), $F_1(2, 238) = 5.30, p < .01$, and for the degree of sarcasm, $F_1(2, 238) = 16.18, p < .001, F_2(2, 22) = 5.39, p < .05$. Post-hoc pairwise comparisons ($p < .05$) revealed that oppositions were significantly more ironic and more sarcastic than circumlocutions, and more sarcastic than rhetorical questions, as shown in Figure 2. Moreover, rhetorical

¹The original Japanese remarks used in the experiment are indicated by italics and honorific words are indicated by underlines.

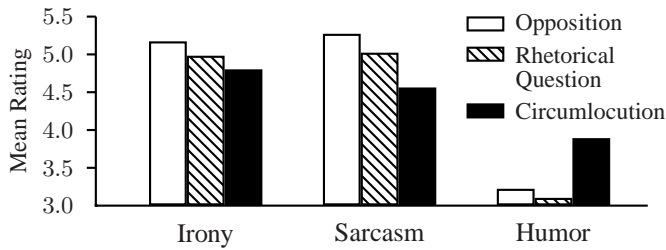


Figure 2: Mean ratings of irony, sarcasm and humor by sentence type.

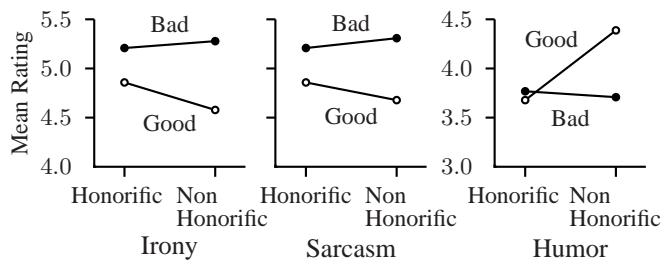


Figure 3: Mean irony and sarcasm ratings for honorific and nonhonorific utterances and mean humor ratings for honorific and nonhonorific circumlocutions in different speaker-addressee relationships.

questions were found to be significantly more sarcastic than circumlocutions. These findings are almost consistent with Prediction (1).

There was also a significant Honorifics \times Relationship interaction only by subject analysis for the degree of irony, $F_1(1, 119) = 5.44, p < .05$; and for the degree of sarcasm, $F_1(1, 119) = 7.85, p < .01$. As shown in Figure 3, when the speaker was on good terms with the addressee, honorific utterances were rated as significantly more ironic and sarcastic than nonhonorific ones, but such difference disappeared when the speaker was on bad terms with the addressee. This result is consistent with Prediction (2) in that overpolite utterances are more ironic and sarcastic than appropriately polite utterances. However, the observed higher degrees of irony and sarcasm for the utterances by the speaker who is on bad terms with the addressee are not compatible with the prediction.

This finding against Prediction (2) was due to the significant main effect of speaker-addressee relationship. The final utterances were rated as more ironic and sarcastic when the relationship was bad than when the relationship was good, $F_1(1, 119) = 21.73, p < .001, F_2(1, 11) = 17.26, p < .01$ for the degree of irony; $F_1(1, 119) = 60.55, p < .001, F_2(1, 11) = 41.60, p < .001$ for the degree of sarcasm. This finding can be explained as an effect of contextual information (in this case, speaker-addressee relationship) on judgment whether an utterance indirectly expresses the negative attitude, i.e., condition (f) for implicit display. Information about the speaker-addressee relationship may provide an indirect cue to the speaker's negative attitude; the speaker is more likely to have a negative attitude, and thus his/her utterance is perceived as including more indirect cues and as more typical of irony when they have a bad relationship than when they have a good relationship. A number of empirical findings

suggest that this explanation is plausible. Especially, in order to explain the finding that the speaker's occupations affected sarcasm ratings, Pexman and Olineck (2002) stated a similar view based on the implicit display theory: "The occupation stereotype influences interpretation because it contributes to the ironic environment. It contributes to that environment by indicating that the speaker is likely to have a negative attitude (tendency to be critical) and that such an attitude is likely to be indirectly expressed" (*ibid.*, 268).

Humor Ratings There was a significant interaction of Type \times Honorifics \times Relationship, $F_1(2, 238) = 4.11, p < .05, F_2(2, 22) = 4.42, p < .05$. The nature of this interaction was that the simple interaction of Honorifics \times Relationship was observed for circumlocutions, $F_1(1, 357) = 7.64, p < .01, F_2(1, 33) = 7.51, p < .01$, but such interaction was not observed for oppositions and rhetorical questions. When the speaker and the addressee had a good relationship, circumlocutions without honorifics were rated as more humorous than those with honorifics but this difference was not observed when the relationship was bad, as shown in Figure 3. This result is consistent with Prediction (2).

There was a significant main effect of sentence type, $F_1(2, 238) = 28.55, p < .001, F_2(2, 22) = 19.14, p < .001$. Pairwise comparisons ($p < .05$) indicated that circumlocutions were significantly more humorous than oppositions and rhetorical questions, as shown in Figure 2. This result is compatible with Prediction (1).

The main effect of speaker-addressee relationship was also significant, $F_1(1, 119) = 22.93, p < .001, F_2(1, 11) = 37.14, p < .001$, showing that the utterances were rated as more humorous when the relationship was good than when the relationship was bad. We can consider two possible explanations for why good interpersonal relationship increases the degree of humor. One possible explanation may be that speaker-addressee relationship affects judgment for implicit display and thus the degree of humor, as I described above. Another explanation can be elicited from the motivational condition in which humor is experienced. Wyer and Collins (1992) stated that when the objective of the reader is to understand and enjoy humorous expressions, humor is more likely to be elicited. Therefore, a good relationship may motivate the addressee to enjoy ironic remarks, while a bad relationship may interfere with the addressee's enjoyable attitude toward them.

Experiment 2

The purpose of Experiment 2 is to test the implicit display theory with respect to contextual effect on the degree of irony, sarcasm and humor. In Experiment 2 two independent variables were considered: situational negativity (the situation is weakly or strongly negative) and ordinariness of negative situation (the negative situation is usual or unusual).

Situational negativity manipulates the degree of incongruity between the expectation and the reality, i.e., condition (b) of ironic environment, in such a way that the incongruity is perceived more easily, and thus irony may be more likely to be made, in the strongly negative context than in the weakly negative context. Ordinariness manipulates the manifestness of speaker's expectation, i.e., condition (a) of ironic environment. The expectation is more manifest in the context where an unexpected negative event occurs than in the

context where the same negative event repeatedly happens. Therefore, irony is more likely to be elicited from an unusual context than from an usual context.

Prediction

The general hypothesis by the implicit display theory makes the following predictions on the effect of context.

- (3) Neither negativity nor ordinariness has an effect on the degree of irony and sarcasm.
- (4) Ironic utterances in a weakly negative context are more humorous than those in a strongly negative context. In the same way, ironic utterances in an usual context are more humorous than those in an unusual context.

Method

Participants Forty-eight undergraduate students participated for this experiment. All were native Japanese speakers. None of them participated Experiment 1.

Materials and Design Eight out of 12 stories used in Experiment 1 were selected, because natural manipulation of negativity and ordinariness was not possible in the other four stories. Each story had four versions: a situation where a weakly negative event is usual or not, and a situation where a strongly negative event is usual or not. The stories of the weakly negative and unusual version were identical to the stories used in Experiment 1 except that the descriptions of the speaker-addressee relationship were deleted. Each story was followed by the final remark identical to the opposition utterance without honorifics used in Experiment 1. An example of the stories is as follows:

{In the restaurant/In the restaurant where it usually takes a while to serve dishes}, the customer was not served the ordered dishes {for a while/at all even after a very long time}. He said to the master of the restaurant,

Procedure Each participant was assigned to eight different stories involving the four versions equally. The procedure was identical to that of Experiment 1.

Results and Discussion

The data was subjected to Negativity (weakly negative, strongly negative) \times Ordinariness (usual, unusual) repeated-measures ANOVAs.

Irony and Sarcasm Ratings There were no significant main effects and no interactions for both ratings, which favors Prediction (3).

However, as I discussed in the result section of Experiment 1, there is a possibility that context (i.e., negativity and ordinariness) has an indirect influence on the degree of irony and sarcasm through its effect on judgment for implicit display. Especially, judgment on allusion to the speaker's expectation highly depends on manifestness of the expectation, because when the addressee does not know the speaker's expectation before interpreting an utterance the expectation must be inferred from the literal meaning of the utterance and contextual information (Utsumi, 2000). It is thus predicted that, other degrees of implicit display being equal, the degree of irony would be affected by context, primarily by ordinariness,

when the speaker's expectation is implicit, but that it would not be affected by context when the expectation is explicit.

This prediction was tested by reanalysis of the data of Experiment 2. The stories used in Experiment 2 include two kinds of speaker's expectation: an expectation about a desirable event/state and an expectation about the addressee's belief. Because the speaker's expectation about the addressee's belief presupposes that the addressee does not notice it beforehand, it is assumed to be less manifest to the addressee than other types of expectation. Hence, the eight stories could be divided into two groups — explicit expectation version ($n=4$) and implicit expectation version ($n=4$) — according to whether the speaker's expectation is about the addressee's belief or not. An example of the texts including an implicit expectation is as follows:

To a friend who eats sweets though she is on a diet:

"You eat nothing at all today, are you?."

(Kyou ha zenzen tabenai nee.)

In this case, the speaker's expectation is something like that the addressee (the speaker's friend) should know that her behavior is undesirable for a diet. Then the data of irony and sarcasm was subjected to Negativity \times Ordinariness \times Expectation (explicit, implicit) ANOVAs with repeated measures on the first two factors.

Concerning the degree of irony, there was a significant interaction of all the three factors, $F_2(1, 6) = 8.94, p < .05$. The nature of this interaction was that the simple interaction of Negativity \times Ordinariness was significant for the implicit expectation context where the speaker's expectation was about the addressee's belief, $F_2(1, 6) = 6.44, p < .05$, but such interaction was not observed in the explicit expectation context. This finding is consistent with the prediction that context has an indirect effect on the degree of irony when the speaker's expectation is implicit.

The observed simple interaction of Negativity \times Ordinariness for the implicit expectation was that in the weakly negative contexts the final utterances were rated as more ironic when the negative behavior was unusual ($M = 5.11$) than when it was usual ($M = 4.54$), but that in the strongly negative contexts the final utterances were rated as more ironic when the negative behavior was usual ($M = 5.21$) than when it was unusual ($M = 4.58$). This result can be interpreted as follows: The addressee is less likely to notice the speaker's expectation about his/her own belief, and thereby perceives an utterance as less ironic when his/her own negative behavior is usual than when it is not usual because of habituation effect. However, once the addressee's usual negative behavior becomes worse, he/she is more likely to be aware of the speaker's expectation because of dishabituation effect.

For the degree of sarcasm, however, there were no significant effects and interactions in the reanalysis. This result suggests that the speaker's expectation may be an important property which distinguishes irony from sarcasm; sarcasm may not need the speaker's expectation.

Humor Ratings Only the main effect of ordinariness was significant by item analysis, $F_2(1, 7) = 7.81, p < .05$. Ironic utterances in the expected contexts in which the addressee's negative behavior was usual ($M = 3.23$) were rated as more humorous than the same sentences in the unexpected context

in which the negative behavior was unusual ($M = 3.06$). This result is consistent with Prediction (4). However, the result that the main effect of negativity was not significant suggests that context negativity may have little influence on the likelihood of irony.

General Discussion

As I mentioned in the introduction, the prototype-based view permits the implicit display theory to explain the obtained finding that the degree of irony differs among various utterances and contexts. For example, allusion-based theories such as Sperber and Wilson's (1995) echoic interpretation theory cannot explain why overpolite utterances were rated as more ironic than appropriately polite utterances. On the other hand, insincerity-oriented theories such as Attardo's (2000) relevant inappropriateness view cannot account for the finding that the speaker's expectation affects the degree of irony. (For details of the superiority of the implicit display theory over other theories, see Utsumi, 2000).

Furthermore, the echoic interpretation theory also fails to explain the finding that the degree of irony was affected by contextual information only when the speaker's expectation about the addressee's belief triggered irony. The reason for the difficulty in explaining such effect lies in their view that irony interpretively echoes not only the speaker's expectation but also other sources such as someone's utterances, opinions or even general norms, whereas the implicit display theory assumes that only the speaker's expectation is alluded to by irony. Therefore the echoic interpretation theory need not, and indeed does not, assume the speaker's expectation about the addressee's belief to explain irony like the 'diet' example; it assumes that irony echoes the general norm that teenagers want to be slim by a diet.

Concerning the functions of irony, the implicit display theory is more consistent with the obtained findings than the contrast-assimilation theory recently proposed by Colston (2002). He has claimed that the degree of negative effect of irony can be explained in terms of "contrast and assimilation" effects, which are often observed in perceptual judgment. If the discrepancy between the positive surface meaning of an ironic utterance and its referent negative situation is large, the ironic utterance is perceived as more negative than the literal one because of a contrast effect. On the other hand, if the discrepancy is relatively small, then an assimilation effect is more likely to occur, resulting in that ironic utterances are perceived as less negative. Although the contrast-assimilation theory seems to be compatible with the finding of Experiment 1 that the degree of sarcasm was graded according to the similarity to the irony prototype, the finding of Experiment 2 that situational negativity did not have an influence on the degree of sarcasm may provide evidence against the contrast-assimilation theory. If Colston's theory is right, an utterance should be more sarcastic in the strongly negative context and less sarcastic in the weakly negative context than the literal equivalent utterances, because negativity changes the degree of discrepancy between the utterance and the situation.

To sum up, it can be concluded that the implicit display theory provides a more consistent explanation of the obtained findings on both irony recognition and ironic function than other theories.

Acknowledgments

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