ASSIMILATION AND CONTRAST, AND ORDER OF PRESENTATION EFFECTS ON ATTITUDES TOWARD ADVERTISING

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THESIS
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ABSTRACT

Consider people viewing two print ads in a row: one is persuasive and attractive, the other is weak and boring. What will people feel about the ads after they have viewed both of them? Will they give the two ads the same judgments as people who see and rate only one of the ads? Previous research predicted two directions how people will distort their judgments: One is that they assimilate their judgement and believe that the two ads are more similar to each other when they saw two ads in a row than when they rate them individually (e.g., Girgus & Coren, 1982; Hovland & Sherif, 1961; Stapel, Koomen & Pligt, 1997; Tourangeau & Rasinski, 1988). The other is that they contrast their judgements, and thus feeling that the two ads are more different from each other (e.g., Kenrick & Gutierres, 1980; Sherif, Taub, & Hoveland, 1958; Zellner, Rohm & Bassetti, 2003). One factor that decides which direction people will distort their judgments is whether the ads are from the same or different product types. Only when the target stimulus and its context are categorized as from the same group, will the context serve as a comparison standard for the target stimuli, and contrast effect will be invited (Coren & Enns, 1993; Manis & Paskewitz, 1984; Staple & Winkielman, 1998; Zellner et al., 2002). When the sufficient comparison relevance is gone, assimilation will occur (Hovland & Sherif, 1961; Stapel, Koomen, & Pligt, 1997). The order of presentation is also tested in the present study, with focus on how the order affects people’s response towards each ad.
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## TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION....................................................................................1
CHAPTER 2. LITERATURE REVIEW.........................................................................3
CHAPTER 3. METHOD.............................................................................................16
CHAPTER 4. RESULTS............................................................................................20
CHAPTER 5. DISCUSSION.......................................................................................29
REFERENCES.......................................................................................................35
FIGURES...............................................................................................................43
TABLES................................................................................................................53
APPENDIX...........................................................................................................55
CHAPTER 1. INTRODUCTION

Context influences how people evaluate the components within it. Judgment of whether a particular item of food is good tasting or not can be different when it is assessed among pleasant-tasting or unpleasant-tasting foods (Pol, Hihman, Baare, & Ree, 1998; Rota & Zellner, 2007; Zellner, Kern & Parker, 2002). To what extent we find a face attractive is influenced by whether it is preceded by a more attractive face or a less attractive one (Geislman, Haight & Kimata, 1984; Wedell, Parucci, & Geiselman, 1987). We feel a five-pound weight to be lighter than five pounds after lifting a 10-pound weight, and heavier than five pounds after lifting a two-pound weight. (Heintz, 1950; Parducci, 1965; Sherif & Hovland, 1964) All these are examples how context can influence our judgments.

There is no such thing as a context-free judgment (Mellers & Birnbaum, 1983). In the present study, I tested whether and how people’s judgment towards advertisements would be influenced by the context. Two print ads were used as stimuli, a good one and a bad one—certainly there are lots of criteria to judge good and bad ads, e.g., whether they are well designed, whether they are providing very intriguing storylines, etc. However, in the present study, I focused on the arguments of the ads, and two kinds of arguments were presented: strong and weak (Petty & Cacioppo, 1984).

Previous studies showed two possibilities about how a pair of ads might be judged. First is that people assimilate their judgments of the two subjects (Girgus & Coren, 1982; Hovland & Sherif, 1961; Stapel, Koomen & Pligt, 1997; Tourangeau & Rasinski, 1988), meaning that people feel the two subjects are more similar to each other than they actually are. Several factors can lead to assimilation, including when people feel unfamiliar towards one or both commercials.
(Herr, 1986), or the difference between the two commercials is small (Sherif, Taub, & Hovland, 1958). When assimilation occurs, people tend to “average” the test subject and the context, giving an overall impression (Anderson, 1971; Anderson & Jacobson, 1965, Anderson, 1967); as a result, people will judge the originally good ad as worse, and the bad ad better.

The other possibility is that people contrast their judgments (Kenrick & Gutierrez, 1980; Sherif et al, 1958; Zellner, Rohm & Bassetti, 2003), meaning that people exaggerate the difference between two subjects. This happens when the two subjects are sufficiently similar to each other to serve as relevant comparison standards (Helmholtz, 1886/1962; Stapel et al., 1997), or when people change their judgment standards according to their current evaluating experiences (Helson, 1964). Both situations will be explained more below. As a result of contrast effects, people may judge the originally good ad as better, and the bad ad worse.

In the present study I measured people’s attitudes toward two ads shown in sequence, based on both cognitive and affective properties (Crites, Fabrigar, & Petty, 1994). Previous studies focused on either cognitive (Girgus & Coren, 1982; Herr, 1983, 1986; Hovland, Harvey, & Sherif, 1956; Stapel & Winkielman, 1998) or affective aspects (Harris, 1932; Hunt & Volkmann, 1937; Zellner et al., 2002; Zellner, Strickhouser, & Tornow, 2004). However, both affect and cognition are important properties of attitudes, (Crites et al., 1994), and combining them is more similar to people’s daily media consumption habits—people not only judge whether a print ad is of good quality or not, but also whether they like or dislike it.
CHAPTER 2. LITERATURE REVIEW

I. Assimilation

Assimilation in Cognition

As mentioned above, contrast happens when there is comparison relevance between subjects and they are distinctive enough; and assimilation happens when the comparison relevance disappears and thus the comparison standards become ambiguous (Stapel et al., 1997; Stapel & Winkielman, 1998). Specifically, assimilation refers to when the target component is distorted in the direction of the surrounding context, and the perceived difference between the two subjects is smaller than the actual difference, and thus the apparent difference between target and context is reduced (Girgus & Coren, 1982; Jordan & Uhlarik, 1985; Weintraub & Schneck, 1986). Two main factors will decide whether assimilation will take place—(a) when the subject to be judged is ambiguous or unfamiliar, in which case people have to rely on the context to make judgments; or (b) when there is a small distance between the subject and its context, in which case the difference cannot be clearly sensed.

Ambiguity and Unfamiliarity

Assimilation effects occur, first, when the test components are ambiguous or unfamiliar for subjects. How are participants supposed to answer a question that they have very little or even no idea about? It is supposed that they will refer to a previous question to see in what context the present question is embedded, and therefore decide whether they will agree or disagree with the item. This was tested in an experiment asking participants to rate the unfamiliar “Monetary Control Bill” after answering a familiar question about inflation (Schuman and Presser, 1981). Those who were the most concerned about inflation tended to favor the Monetary
Control Bill, because they inferred that the Monetary Control Bill was an anti-inflation measure and answered the item accordingly. In this case, the prior item provided a framework for interpreting later questions; when participants are not familiar with the subject they are asked to judge, they distort their answers to the direction of the context, in this case, the previous question.

Another example can be found in trait judgments of people and animals. People will judge an unknown person, “Donald” for instance, as more hostile when primed with the name of famous shock-rocker, Alice Cooper (Herr, 1986). And when people judge an unknown animal (e.g., fictitious animal names), they think these animals are more ferocious when they have been primed with moderately ferocious animal exemplars (e.g., vulture, wolf, badger); however, this assimilation is eliminated when the experimenter uses real animal names, thus making the test component no longer ambiguous or unfamiliar. (Herr, 1983). Likewise, if the actions of a person to be judged are ambiguous (e.g., she might be unfriendly, or she might be shy and friendly), she will be judged shy and friendly if friendly cues were presented to participants before they form the impression, e.g., “Aladdin, Ghandi, and Mandela,” and “nice, gentle, and friendly”; however, she will be judged as unfriendly if participants receive unfriendly cues, such as “Dracula, Stalin, and Hitler,” or “mean, violent, and unfriendly” (Stapel et al., 1997; Zellner et al., 2003).

Small distance

The second factor resulting in assimilation is when there is a small distance between the test component and the context (Parducci & Marshall, 1962; Sherif et al., 1958). Imagine you are lifting weights. To lift a five-pound weight after a series of six-pound weights won’t seem like a
big difference; perhaps you would not even notice a difference. The five-pound weight would be assimilated to the similar six-pound weights.

Another example is assimilation in visual illusions. Figure 1 is the Delboeuf illusion, in which people tend to judge the central circle in the left configuration as larger than the central circle in the middle configuration. This can be translated into predictions based upon spatial relations within a given stimulus. When the parts of the stimulus are spatially proximal, as in the left of Figure 1, they are presumably sampled in a single glance, meaning that the outer ring is in view whenever the observer is looking at the central circle, and hence they are pooled or assimilated (Girgus and Coren, 1982).

Similar assimilation effects also occur in communication and social judgment. If there is a discrepancy between people's held position and the stand advocated in the communication, and the discrepancy is only a small one, people may feel the two positions are more similar to each other (Hovland et al., 1957). This is similar to the lifting example mentioned above, when you are lifting a five-pound weight after a six pound one, it will be hard for you to sense the difference. As described below, assimilation effects in communication are, in fact, an extension of the assimilation that happens in making physical judgments (Heintz, 1950; McGarvey, 1943).

Integration Theory

What are people really doing when they are assimilating the test component with its context? They average them, according to integration theory: each stimulus has a value to the perceiver, and perceivers arrive at their impression by averaging these values (Anderson, 1971; Anderson & Jacobson, 1965). Therefore, in the left two circles of Figure 1, when the small
distance between two circles leads to assimilation, people tend to average the sizes of circles, and thus over-estimate the size of the central ring and under-estimate the size of the outer ring.

*Other factors that lead to assimilation*

Beside ambiguity, unfamiliarity, and small distance, the amount of cognitive capacity people are willing or able to use in the judging process may also lead to assimilation. For example, in communication judgments, when the topic is not very involving to participants, they care little about differentiating between two standings, and are more likely to shift their position towards the stand advocated in the communication (Hovland et al., 1957; Hovland & Pritzker, 1957; Zimbardo, 1960). Another example is when people are asked to rate the attractiveness of two faces. When the two faces are presented simultaneously, people allocate fewer cognitive resources towards each face, thus giving similar attractiveness scores toward the two targets in this case, compared to when they are able to rate the faces one-by-one (Geiselman, Haight & Kimata, 1984; Wedell et al., 1986).

*A Assimilation in Affective Responses*

Assimilation happens in affective responses, too, not only in cognitive responses. There are two ways affect can assimilate. One way is through valence, meaning that your pleasant emotion at this moment makes everything you do more enjoyable. As I will explain in the next section, affect priming (Bower, 1981) is a main factor leading to valence assimilation. The other way is arousal-based, e.g., listening to hyper rock & roll music makes you feel excited and powerful. This can be further explained through the excitation transfer paradigm (Zillmann, 1971).

*Valence-based affective assimilation*
Affect Priming

Like judging Donald as more ferocious after priming the exemplar of Alice Cooper, affect priming occurs when people judge something as more enjoyable when they are in a good mood. Such affect priming is accomplished by specific memory nodes. According to Bower (1981), the major feelings (happiness, anger, etc.) we have are related to specific memory nodes, which can be activated by a certain event, and this will further lead to the activation of other connected nodes. As a result, watching a hilarious TV commercial will activate memory nodes for happy memories. This process affects the later evaluation of another ad in that people devote more attention to the funny elements if there are any, which makes people feel the two commercials are emotionally similar (Faseur & Geuens, 2013).

Arousal-based affective assimilation

Excitation transfer paradigm

The excitation transfer paradigm holds that residual excitation from a preceding situation can combine with the excitation produced in a subsequent, unrelated situation, thereby creating an over-intense response to the subsequent stimulus (Cantor & Zillmann, 1973; Cantor, Bryant, & Zillmann, 1974; Cantor, Mody, & Zillmann, 1974; Cantor, Zillmann, & Bryant, 1975; Zillmann & Bryant, 1974). Noticeably, such transference is more likely to take place when a short period is left between two events. For example, Mattes and Cantor (1982) tested the effect of arousing prior stimuli on responses to commercials. In their experiment, they showed participants one of four segments of TV programing representing different levels of arousal, and after the segments five commercials in a row (with a 15 second pause between each commercial for participants to fill out the rating form). Results showed that there was no enhancement of
responses to the first and second commercials after the arousing programing. However, the excitation transfer effect began to appear at the third commercial. The commercials shown third and fourth revealed significantly greater enjoyment and perceived effectiveness ratings in the high arousal than in the low arousal conditions. The authors said the reason is that excitation can intensify subsequent emotional feelings only when it is not perceived as attributable to its actual source.

Above all, one possibility when people evaluate two print ads jointly is that people’s evaluations of two print ads will assimilate toward each other. Such assimilation can be interactively caused by both cognitive and affective factors. In the present study, I expected that the ambiguity of the comparison standard rather than small distance is more likely to bring assimilation, from the cognitive perspective, since the two ads I used as stimuli to cause assimilation are from different product types, there is no direct comparison between ads. As a result, when people are rating the second ad they have the tendency to distort the rating towards the first one, and then assimilation takes place. Affect priming may cause assimilation in the present study as well, as the good or bad feeling people received from the first piece of information will influence how people process subsequent information.

II. Contrast

Contrast effects are essentially the opposite of assimilation effects. A contrast effect means that the perceptual difference between two stimuli is greater than it really is. This effect occurs via cognitive and affective processes, too.

*Contrast in Cognitive Responses*

*Classic contrast*
When the difference between the test subject and the context is clear enough to be recognized, people tend to exaggerate this difference, thus perceiving the test subject and the context as more different than they really are. This is classic contrast (Helmholtz, 1866/1962), which posits that as a general principle, clearly perceived sensory differences tend to be exaggerated.

Conversely to the idea that small distance leads to assimilation, large distance and clearly sensed difference results in contrast. This explains why, in Figure 1, the middle circle in the middle set of circles is perceived as smaller than the middle circle in the left set. In the middle pair of circles, the outer ring is sufficiently far away from the inner one so that people can never look at the two rings within one foveal view. That is, when the inner and outer rings are seen only in successive glances, the large distance leads to a more clearly sensed difference. And when two objects’ difference can be clearly sensed people have the tendency to exaggerate this difference. As a result, the initial judgment of the contrast portion of the configuration (the central circle in the middle) was significantly smaller than the initial judgment of the control circle (one circle on the right), t (18) = 5.61, p < .01; and the initial judgment of assimilation portion (the central circle on the left) is significantly larger than the control circle, t (18) = 3.24, p < .01 (Girgus & Coren, 1982, pp. 557-558).

A larger distance between two positions in communication leads to contrast effects, too. When the distance between a person’s own stance and the position advocated in the communication increases, contrast takes place (Sherif & Hovland, 1961). The greater the distance is, the greater the perceived displacement away from the subject’s position.

The Adaptation-Level theory
Another explanation for contrast effects is the adaptation-level (AL) theory (Helson, 1964). As mentioned above, there is no context-free judgment. People make all judgments in relation to their current context. Therefore, when people are trying to make a judgment about a subject, instead of taking the absolute value, people take the AL as the zero point. Let’s go back to the weight lifting example. After lifting a 200-pound weight, people adapt to that current weight and unconsciously set that current weight as a new zero point. After this, when people are lifting a 100-pound weight, they judge the weight according to the zero point they have just set based on the 200-pound weight, so that they judge it as of negative value, and although the 100-pound weight is still very heavy, they judge it as much lighter than 100-pounds since they are using the 200-pound weight instead of the real zero point as the compare level (Helson, 1973).

**Contrast Effect in Affective Responses**

**Hedonic contrast**

In affective responses, contrast refers to the perceived difference in pleasantness—the hedonic contrast, meaning that the test stimuli are rated as less good following very good context stimuli than when presented either alone or following neutral context stimuli (Zellner et al, 2002).

Consider, for example, a study in which participants tasted juice (Zellner, Allen, Henley, & Parker, 2006). Experimenters set full-strength juice as the positive hedonic level, and diluted juice as neutral. They then let one group of participants taste the full strength first and then the diluted ones; and the other group only drink the diluted ones. Then participants were asked to rate the pleasantness of the juices. People who drank the full-strength juice gave the diluted juice lower ratings than those who only tasted the diluted juices. In a similar example, people who
viewed very attractive (highly hedonically positive) tropical birds’ photos gave lower ratings of attractiveness to normal birds (weakly hedonically positive) than those who only viewed the normal birds (Zellner et al., 2003)

The explanation of hedonic contrast effects is different from that of other contrast effects. Take weight lifting for instance: the reason people feel the contrast effect is an adaptation-like process, in which physical functions are recalibrated in the presence of a different context. However, for hedonic contrast, the amount of pleasantness does not correspond with the amount of some physical entity stimulating some sensory channel.

One possible explanation for the hedonic contrast is that there are hedonic control systems in place to protect us from experiencing too much pleasure or displeasure. One of these systems is the opponent-process theory of motivation (Solomon, 1980). This theory proposes that extreme pleasantness or unpleasantness disrupts equilibrium, causing the body to produce an opposite hedonic tone that reduces the initial pleasant or unpleasant experience. This may explain why after having “positive hedonic level” juice participants felt the following “neutral hedonic level” juice tasted worse than people who only rated the “neutral hedonic level” juice. A negative response can neutralize the positive response so that people can maintain their emotional equilibrium.

Above all, in comparison to assimilation effects, contrast effects in both cognitive and affective studies support the hypothesis that the two commercials will act as comparison standards for each other, and the discrepancy between them will be expanded. In the present study, the clearly sensed difference may bring about contrast (Girgus & Coren, 1982), since when participants saw two ads clearly different in argument strength they would exaggerate the
difference (Helmholtz, 1886/1962; Stapel et al., 1997). The hedonic contrast is expected to cause contrast effect in the current study, too. Viewing and rating the bad ad after a good ad featuring the same product may be like tasting the watered down juice after the non-diluted fully-hedonic juice. People will contrast their feeling and thus rate the bad ad even worse.

Product Categories

Two other variables are taken into consideration in the present study. One is the product category. It is suggested that whether assimilation or contrast effects will emerge is strongly influenced by the conceptual similarity between the test component and the context (Coren & Enns, 1993). For example, objects that belong to the same category (e.g., two humans) more readily invite comparison processes than do objects that belong to dissimilar categories (e.g., people and animals; Staple & Winkielman, 1998).

Specifically, in order that comparisons occur between stimuli and context, they must be sufficiently similar (Coren & Enns, 1993; Parducci, Knoble & Thomas, 1953; Zellner et al., 2002). Therefore, for stimuli from the same product category, a contrast effect is more readily invited. As Brown (1953, p.210) said, only when the context is categorized as in the same group with the target stimuli, will the context serve as a comparison standard for the target stimuli. On the other hand, for stimuli from different product categories, there is no sufficient comparable relevance between the stimuli and the context. People therefore assimilate their judgments and integrate them in this situation (Stapel et al, 1997). According to Hovland and Sherif (1961), when the difference between the context and the stimulus is within a certain range, then there is assimilation; as long as the differences are sufficiently large, then there is contrast. There is a particular boundary when the difference is such that there is no assimilation or contrast, but as
long as the difference exceeds it, people’s judgments change from assimilation to contrast. In the present study, through pretesting I found that there was a significant difference in people’s liking and persuasiveness ratings between the good and bad ads within and across the product categories, and there was no significant difference between good ads across product category (The process and result of the pretests will be further explained in the following part.). Therefore, I hypothesized the following:

**H1:** When people see two ads from different product categories, they will rate the ad with strong arguments as less likeable and persuasive and the ad with weak arguments more likable and persuasive, compared to when people only see one ad, as an effect of assimilation.

**H2:** When people see two ads from the same product category, they will rate the ad with strong arguments as more likeable and persuasive, and the ad with weak arguments less likable and persuasive, compared to when people only see one ad, as an effect of contrast.

*Order of Presentation*

The other variable considered in the present study is the order of presentation. It is assumed that to change the order in which the two ads are presented will affect people’s judgment towards each ad. For example, Hogarth and Einhorn (1992) examined how presenting information in different orders would influence people’s final judgment towards a statement. Specifically, in one of their experiments, they asked participants to rate an original statement, and then provided them with one piece of positive additional information, which was supposed to increase people’s belief of the original statement; and a piece of negative additional information, which was supposed to decrease people’s belief of the original statement. They manipulated that one group of participants received the additional information in positive-
negative order, while the other in negative-positive order. And after all the additional information, participants were asked again to rate how much they believed the original statement was true. Results showed that people in positive-negative group obtained an overall lower belief in the original statement. According to the authors, this is one illustration of the anchoring-and-adjustment model. The underlying purpose of adjusting beliefs to the impact of new evidence is adaptation. The adaptation weight, therefore, should depend on both the impact of the new information and on the anchor (Hogarth & Einhorn, 1992).

The order of presentation has been researched in advertising studies, too. For example, previous researchers (Haugtvedt & Wegener, 1994) have stated that the presentation order of advertising information would affect consumers’ information processing. They proposed this would occur due to primacy and recency effects. The primacy effect refers to previous information exhibiting greater effect than subsequent information, whereas the recency effect refers to subsequent information having a greater effect than earlier information (Brunel & Nelson, 2003; Curtis & Duane, 1994). Research on primacy and recency in advertising generally shows that, if people encounter two opposing advertising messages for a product, people’s judgements are more consistent with the first piece message when involvement is high, and their judgements are more consistent with the second (opposing) message when involvement is low (Lana, 1963).

Unlike previous research focusing on primacy or recency in the order of presentation effects (e.g., Haugtvedt & Wegener, 1994; Hovland, 1957; Lana, 1963; Miller & Campbell, 1957; Shanteau, 1970), in the present study I focused on that for each ad, if I changed its position from the first to the second in the sequence, how this would impact people’s response towards it.
Hogarth and Einhorn’s anchoring-and-adjustment model (Hogarth & Einhorn, 1992) lays a solid foundation for the current study. They showed that the response of the new piece of information does not only depend on the information itself, but depends on previous information, i.e., the anchor. Therefore, although people process the same two pieces of information, the order of presentation decides where people set the anchor and how the other piece of information influence the anchor that is set. Therefore, different final judgments towards each piece of information should be provided. Furthermore, there was no previous research focusing on how changing the order from A-B to B-A might affect people’s response towards each piece of information. It is hard here to hypothesize the direction of how either attitude or persuasiveness will change, so in the current study I will leave it as a research question.

Research Question 1: Will people who see two ads in a different order of presentation rate the two ads differently?
Pretests and Stimulus

Stimuli were chosen on the basis of pretest results, which were conducted to make sure that (a) people’s involvement for good/bad ads across product types are of the same levels, (b) there were significant differences between the good and the bad ads within both orange juice and facial tissue ads, and that (c) there are no significant differences between the good orange juice and the good facial tissue ads, or the bad orange juice and the bad facial tissue ads. After six separate individual pretests, we got the results that almost fulfill the objective of the pretests. 58 participants from Amazon’s Mechanical Turk (MTurk) participated in the final pretest for a payment of $0.30 US. They were randomly assigned to four groups in which only one of the four ads (a good facial tissue ad, a good orange juice ad, a bad facial tissue ad and a bad orange juice ad) was shown to them. They were asked to view the ad and answer questions about involvement, liking and persuasiveness towards the ads.

The reason to measure involvement for the ads is that I wanted to check that in the present study involvement was not a variable. Since involvement could play a role in affecting people’s responses towards the arguments (Petty & Cacioppo, 1984), I had to make sure that the orange juice and the facial tissue products were of the same level of involvement for participants. Results showed no significant differences between good (M good orange juice = 4.23, SD good orange juice = 1.54; M good facial tissue = 4.37, SD good facial tissue = .88; t (26) = -.32, p = .76) and bad ads (M bad orange juice = 4.88, SD bad orange juice = 1.63; M bad facial tissue = 4.54, SD bad orange juice = 1.52; t (28) = .95, p = .56) across product types.
Independent samples t-test results showed that in orange juice group, the good (M = 5.14, SD = 1.00) and the bad (M = 4.05, SD = 1.66) ads were significantly different on liking, t (25) = 2.06, p < .05; there was marginally significant result between the two ads (M\text{good} = 5.23, SD\text{good} = 1.04; M\text{bad} = 3.98, SD\text{bad} = 2.07) in persuasiveness, t (25) = 1.96, p = .06. For facial tissue ads, there were significant differences between good and bad ads in both liking (M\text{good} = 4.75, SD\text{good} = .87; M\text{bad} = 3.64, SD\text{bad} = 1.48), t (29) = 2.52, p < .05, and persuasiveness (M\text{good} = 4.89, SD\text{good} = .96; M\text{bad} = 3.71, SD\text{bad} = 1.86), t (29) = 2.20, p < .05. Also, as expected, there were no significant differences between good orange juice (M\text{liking} = 5.14, SD\text{liking} = 1.00; M\text{persuasiveness} = 5.23, SD\text{persuasiveness} = 1.04) and good facial tissue (M\text{liking} = 4.75, SD\text{liking} = .88; M\text{persuasiveness} = 4.89, SD\text{persuasiveness} = .96) ads in liking (t (26) = 1.10, p = .28) or persuasiveness (t (26) = .906, p = .373). There was no significant difference between bad orange juice (M\text{liking} = 4.32, SD\text{liking} = 1.77; M\text{persuasiveness} = 3.98, SD\text{persuasiveness} = 2.07) and bad facial tissue (M\text{liking} = 3.64, SD\text{liking} = 1.48; M\text{persuasiveness} = 3.71, SD\text{persuasiveness} = 1.86) ads in liking (t (28) = 1.148, p = .26) or persuasiveness (t (28) = .37, p = .71) either.

Design

The main experiment was a 2 (product category: same v. different) x 2 (order of presentation: good first v. bad first) x 2 (ad quality: good v. bad) x 2 (ad: first ad v. second ad)) mixed design experiment; the last variable, ad, was a repeated measure. Product category and order of presentation were manipulated between participants. Additionally, there was a set of control conditions where participants were randomly assigned to evaluate one of the four ads individually in a separate, but simultaneously run two-way factorial design experiment, a 2 (ad persuasiveness: good v. bad) x 2 (product type: orange juice v. facial tissue). I expected no main
effects or interaction effects on this separate experiment; these scores served as comparison points for the evaluations in the other conditions.

Assimilation and contrast effects could be seen by comparing the difference between pairs of ads in the control conditions, where participants saw only one ad, and the difference between pairs of ads in the experimental conditions, where participants saw two ads. Assimilation effects would be observed when the difference between control conditions was greater than the difference between experimental conditions (i.e., the ads seemed more similar in experimental conditions than in control). Contrast effects would be observed when the difference between control conditions was smaller than the difference between experimental conditions (i.e., the ads seemed more different in experimental conditions than in control).

Participants and Procedure

Four hundred and ninety Amazon Mechanical Turk (MTurk) workers participated in this study for payment of $0.30 US. They were told they would provide some evaluations for some print ads as the purpose of study. Each participant accepted the Human Intelligence Task (HIT) on MTurk, and started to take the experiment. They viewed one ad (in control groups) or two ads (in experimental groups). After viewing all the ads, they are asked that how much they liked the ads and how persuasive they thought the ads were on 7-point scales from strongly disagree (1) to strongly agree (7). Previous research showed that when statements used in the experiment are short and simple, to measure people’s response after they process all the information is more widely adopted (e.g. Allen & Feldman, 1974; Anderson, 1973a, 1973b; Asch, 1946). So in the present study I adopted this measurement process too.
The entire task lasted approximately 5 minutes. When data collection was completed, each participant typed in a survey code for remuneration. At the end of the questionnaire, all participants were asked whether they had participated in any pretests of the same study on Mturk before, and the answers from those who reported yes (N = 14) were deleted from the analyses.

Dependent Variables and Measurement

As mentioned above, both affect and cognition are important properties of attitudes, (Crites et al., 1994). People not only think about whether an ad is persuasive, but also about whether they like it or not. I therefore measured people’s responses towards the ads on the liking and persuasiveness scales.

**Liking.** I measured liking by asking participants to rate five items on seven-point scales, with 1 equal to “strongly disagree” and 7 “strongly agree.” Items include (a) I dislike the ad (r), (b) The ad is appealing to me, (c) The ad is attractive to me, (d) The ad is interesting to me, and (e) I think the ad is bad (r). In the present study the alpha was .93, which was consistent with earlier research by Lee and Mason (1999) who reported an alpha of .91, and by Kim, Haley and Koo (2009) with an alpha of .95.

**Persuasiveness.** The same as the liking scale, participants were asked to rate three items on seven-point scales, including (a) I believe it is a good product, (b) The information given is very compelling, and (c) The information is persuasive. The alpha for the present study was .91, consistent with the earlier research by White and Peloza (2009) with alpha equaled .88. Cronbach’s Alpha for all items including the four items under liking and the three items under persuasiveness was .94.
CHAPTER 4. RESULTS

In control groups, results showed significant differences between the good and the bad orange juice ads in liking (M_{good orange juice} = 5.64, SD_{good orange juice} = 1.00; M_{bad orange juice} = 4.05, SD_{bad orange juice} = 1.66, t (75) = 5.08, p < .001) as well as persuasiveness ((M_{good orange juice} = 5.51, SD_{good orange juice} = .98; M_{bad orange juice} = 3.84, SD_{bad orange juice} = 1.64, t (75) = 5.38, p < .001). Results also showed significant differences between the good and the bad facial tissue ads in liking (M_{good facial tissue} = 4.84, SD_{good facial tissue} = 1.26; M_{bad facial tissue} = 3.91, SD_{bad facial tissue} = 1.39, t (76) = 3.13, p < .005) and persuasiveness (M_{good facial tissue} = 4.98, SD_{good facial tissue} = 1.06; M_{bad facial tissue} = 4.00, SD_{bad orange juice} = 1.33, t (76) = 3.62, p < .005). I expected no significant differences between good ads (or bad ads) across the product types. This was true for bad ads. No significant differences were found between the bad orange juice ad and the bad facial tissue ads in liking (t (74) = .41, p = .68) and persuasiveness (t (74) = -.448, p = .66). But contrary to what was expected, there were significant differences between the good orange juice ad and the good facial tissue ads in liking (t (77) = 3.13, p < .005) and persuasiveness (t (77) = 2.27, p < .05).

In experimental groups, liking scores were subjected to a three-way mixed model ANOVA. There was a significant main effect of product type on liking scores, F (1, 297) = 6.92, p = .009. Orange juice ads (M = 4.91, SD = 1.10) were rated significantly higher than the facial tissue ads (M = 4.56, SD = 1.22), t (303) = 2.65 p < .01.

There was also a significant ad (within) by order (between) interaction, F (1, 297) = 180.30, p < .001. As can be seen in Figure 2, good ads were always rated significantly more likeable and persuasive than bad ads. Paired samples t-tests showed, on the left side of Figure 2, a preference for good ads for people who saw good and then bad, t (157) = 9.64, p < .001; and on the right side of Figure 2, a preference for good ads for people who saw bad then good, t (147) =
And independent samples t-tests showed that people rated the first ad higher if it was good (M = 5.46, SD = 1.31) than if it was bad (M = 4.20, SD = 1.62), t (303) = 7.48, p < .001; likewise, people rated the second ad higher if it was good (M = 5.48, SD = 1.21) than if it was bad (M = 3.83, SD = 1.79), t (303) = -9.28, p < .001.

Next I compared the outside bars in Figure 2: Liking scores toward the good ads did not depend on whether they were seen first (M = 5.46, SD = 1.31), or second (M = 5.48, SD = 1.21), t (303) = 0.14, p = 0.89. Finally, I compared the inside bars in Figure 2: Liking scores toward the bad ads differed slightly, depending on whether they were seen first (M = 4.20, SD = 1.62) or second (M = 3.83, SD = 1.79), t (303) = 1.84, p = .07.

Taken as a whole, this ad by order interaction suggests that bad ads might be rated more harshly when they are seen after a good ad, compared to when they are seen before a good ad. However, this effect was not statistically significant.

Between subjects there was a marginally significant order by category interaction, F (1, 297) = 3.81, p = .052. As can be seen on the left side of Figure 4, ratings of the two ads in the good ad first order do not depend on whether they are from the same (M = 4.78, SD = 1.09) or different (M = 4.54, SD = 1.23) product types, t (155) = 1.29, p = .20; likewise, on the right side of Figure 3, ratings of the two ads in bad first order do not depend on whether they are from the same (M = 4.7, SD = 1.08) or different (M = 4.97, SD = 1.24) product types, either, t (146) = 1.41, p = .16. Next I compared the ads from the same product category in different presentation orders: Liking scores towards the ads did not depend on whether the two ads are shown in good first (M = 4.78, SD = 1.09) or bad first (M = 4.7, SD = 1.08) orders, t (147) = .45, p = .65; However, for ads from different product types, liking scores towards ads differed significantly depending on whether ads are shown in good first (M = 4.54, SD = 1.23) or bad first (M = 4.97,
Taken as a whole, this order by category interaction suggests that ratings of the two ads from different product categories are higher in bad-good order than in good-bad order.

As mentioned there was a significant ad by order interaction \(F(1, 297) = 180.30, p < .001\). And this ad by order interaction was qualified by an ad by order by category three-way interaction, \(F(1, 297) = 7.14, p < .01\). In order to better understand this three-way interaction, I first decomposed it into two two-way interactions: an ad by order interaction for participants who saw two ads for the same product, \(F(1, 147) = 120.82, p < .001\); and an ad by order interaction for participants who saw two ads from different product categories, \(F(1, 154) = 63.55, p < .001\). First, I will consider the same product interaction.

As can be seen in Figure 4(a), good ads were always rated significantly better than bad ads. Paired samples t-tests showed, on the left side of Figure 4(a), a preference for good ads for people who saw good and then bad, \(t(75) = 7.96, p < .001\); and on the right side of Figure 3(a), a preference for good ads for people who saw bad then good, \(t(72) = -7.71, p < .001\). And independent samples t-test showed that people rated the first ad higher if it was good than if it was bad, \(t(147) = 8.11, p < .001\); likewise, people rated the second ad higher if it was good than if it was bad, \(t(152) = 6.71, p < .001\).

Next I compared the outside bars in Figure 4(a): Liking toward the good ads did not depend on whether they were seen first (M = 5.75, SD = 1.19), or second (M = 5.47, SD = 1.21), \(t(147) = 1.11, p = .27\). Finally, I compared the inside bars in Figure 3(a): Liking toward the bad ads did not depend on whether they were seen first (M = 3.94, SD = 1.52), or second (M = 3.8, SD = 1.79) either, \(t(152) = 0.52, p = .6\).

Taken as a whole, this two-way interaction shows that when people see two ads from the
same product type, they rate the good and bad ads consistently, regardless of whether good comes first or bad comes first.

Next, I consider the ad by order interaction for participants who saw two ads from different product categories. As shown in Figure 4(b), good ads were always rated significantly better than bad ads. Paired samples t-tests showed, on the left side of Figure 4(b), a preference for good ads for people who saw good then bad, $t(80) = 5.77, p < .001$; and on the right side, a preference for good ads for people who saw bad then good, $t(74) = -5.67, p < .001$. And independent samples t-tests showed that people rated the first ad higher if it was good than if it was bad, $t(154) = 3.01, p = .003$; likewise, people rated the second ad higher if it was good than if it was bad, $t(154) = 6.49, p < .001$.

Then I compared the outside bars in Figure 4(b): Liking scores towards the good ads didn’t depend on whether they were seen first ($M = 5.19, SD = 1.37$), or second ($M = 5.49, SD = 1.21$), $t(154) = 1.45, p = .15$. Finally, I compared the inside bars in Figure 3(b): Liking scores towards the bad ads differed significantly, depending on whether they were seen first ($M = 4.45, SD = 1.69$), or second ($M = 3.89, SD = 1.79$), $t(154) = 2.01, p = .047$.

Taken as a whole, this ad by order interaction when two ads are from different product categories suggests that when participants viewed the bad ad after a good ad, they rated the bad ad more harshly.

Persuasiveness

There was a main ad effect within subjects, $F(1, 297) = 9.96, p = .022$. People rated the first ad ($M = 4.83, SD = 1.64$) as more persuasive than the second ad ($M = 4.53, SD = 1.74$), $t(608) = 2.15, p = .03$. There was also a significant product type main effect, $F(1, 297) = 8.53, p = .004$. People rated the orange juice ads ($M = 4.86, SD = 1.07$) as more persuasive than the
facial tissue ads (M = 4.49, SD = 1.10), t (303) = 2.92, p < .01.

There was a significant ad by order interaction, F (1, 297) = 217.84, p < .001. As can be seen in Figure 5, good ads were always rated as more persuasive than bad ads. Paired samples t-tests showed higher persuasiveness ratings for good ads for people who saw good and then bad, t (156) = 11.609, p < .001; and bad then good, t (147) = -9.026, p < .001. Independent samples t-test showed that people rated the first ad as more persuasive if it was good than if it was bad, t (303) = 8.33, p < .001; likewise, people rated the second ad as more persuasive if it was good than if it was bad, t (303) = 11.23, p < .001.

Next I compared the outside bars in Figure 5: persuasiveness ratings of the good ads did not depend on whether they were seen first (M = 5.51, SD = 1.22) or second (M= 5.5, SD = 1.17), t (303) = .07, p = .94. Finally, I compared the inside bars in Figure 5: persuasiveness ratings of the bad ads differed significantly, depending on whether they were seen first (M = 4.1, SD = 1.71) or second (M = 3.62, SD = 1.69), t (303) = 2.46, p = .01.

Taken as a whole, the ad by order interaction suggests that bad ads might be rated as being less persuasive when they are seen after a good ad than before a good ad.

This ad by order interaction was qualified by an ad by order by category three-way interaction, F (1, 297) = 8.17, p < .01. I further decomposed it into two two-way interactions: an ad by order interaction for who saw two ads from the same product, F (1, 147) = 289.08, p < .001; and ad by order interaction for participants who saw two ads from different product categories, F (1, 154) = 138.29, p < .001. First, I considered the same product situation.

As can be seen in Figure 6(a), good ads were rated significantly more persuasive than bad ads. Paired samples t-tests showed higher persuasiveness ratings for good ads for people who saw both good then bad order, t (75) = 9.73, p < .001, and bad then good order, t (72) = -6.95, p
< .001. Independent samples t-tests showed that people rated the first ad as being more persuasive if it was good than if it was bad, \(t(147) = 7.98, p < .001\); likewise, people rated the second ad as being more persuasive if it was good than if it was bad, \(t(147) = -8.70, p < .001\).

Outside bars in Figure 6(a) showed that liking scores towards the good ads didn’t depend on whether they were seen first (\(M = 5.74, SD = 1.08\)) or second (\(M = 5.51, SD = 1.21\)), \(t(147) = 1.23, p = .22\). And inside bars in Figure 6(a) showed that liking scores towards the bad ads differed slightly, depending on whether they were seen first (\(M = 3.90, SD = 1.68\)) or second (\(M = 3.4, SD = 1.7\)), \(t(147) = 1.81, p = .07\).

Second, I consider the ad by order interaction for participants who saw two ads from different product types. As can be seen in Figure 6(b), good ads were always rated significantly more persuasive than bad ads. Paired t-tests showed higher persuasiveness ratings for good ads in good then bad, \(t(80) = 6.94, p < .001\), and in bad then good orders, \(t(74) = 5.81, p < .001\). Independent samples t-tests also showed that people rated the first or second ad as being more persuasive if it was good than if it was bad, \(t(154) = 4.13, p < .001\), and \(t(154) = 7.21, p < .001\) respectively. Then I compared the outside bars in Figure 6(b): persuasiveness ratings of the good ads didn’t depend on whether they were seen first (\(M = 5.30, SD = 1.31\)) or second (\(M = 5.49, SD = 1.15\)), \(t(154) = 0.96, p = .34\). Finally, the inside bars showed that persuasiveness ratings of the bad ads differ slightly, depending on whether they were seen first (\(M = 4.29, SD = 1.73\)) or second (\(M = 3.83, SD = 1.66\)), \(t(154) = 1.69, p = .09\).

Overall this ad by order interaction when two ads from different product categories suggests that bad ads might be rated more harshly when they are seen after a good ad than before a good ad.

*Contrast and Assimilation Effects*
As shown in Table 1, I compared the mean differences of the two ads in the two-ad situation and in the one-ad situation. I analyzed the differences between ads here for that both comparison and assimilation are actually about the perceptual differences between the stimuli and its context—whether they increase or decrease (Sherif & Hovland, 1961). For example, I compared the mean difference of the good and bad orange juice ads’ liking scores in two-ad situation, and I got 1.76 (SD = .78) and 1.75 (SD = .60) as mean differences in good-bad and bad-good sequence, respectively; and I calculated the mean difference of the two same ads that were viewed in the one-ad situation, which was 1.59 (SD = .62). I then compared the mean differences (t
\_good-\_first = .16, p = .87; t
\_bad-\_first = .16, p = .87). I expected that when the two ads were from the same product category, the difference in the two-ad conditions should be larger than in the one-ad conditions (as was shown in the example above), since people have a tendency to exaggerate the difference between two attitude objects (i.e., show evidence of a contrast effect) when the two ads are directly comparable. On the other hand, if the two ads are from different product categories, (e.g., orange juice ad and facial tissue ad) the difference between the two ads should become less obvious, and people may lose the immediate comparison standard (i.e., show evidence of an assimilation effect). For the Hypothesis 1, all results were in the right directions, meaning that the differences between the good and bad ads from the same product category are larger in the two-ad situations than in one-ad situation. However, as shown in Table 1, no significant results were found. For assimilation effects (H2), however, two out of the eight groups’ results didn’t follow the expected pattern. They are the liking and persuasiveness results for the good facial tissue ad and the bad orange juice ad group. Contracting the hypothesis, in these two groups, people rated the two ads from different product categories as more different from each other in the two-ad situations (M
\_liking = 1.32, SD
\_liking = 0.71; M
\_persuasiveness = 1.71, SD
persuasiveness = 0.62) than in the one-ad situation (M liking = 0.79, SD liking = 0.65; M persuasiveness = 1.14, SD persuasiveness = 0.61). Still, no significant results were found in assimilation groups. A graphical representation of the mean differences is presented in Figures 7 and 8.

Order of Presentation

Last I tested how the ad order would affect people’s liking and persuasiveness scores towards the ads. I wanted to test when people see two ads in different orders they will give each ad different scores (R1). Tables 2 and 3 summarize how order influenced participants’ ratings of the ads. As shown in the tables, only three out of sixteen t-test groups showed significant results, which are the liking (t (69) = 2.95, p < .005) and persuasiveness (t (69) = 2.19, p < .05) of the facial tissue ad when shown with an ad from the same product type, and the persuasiveness of the good orange juice ad when displayed with an ad from a different product type, t (76) = 2.28, p < .05. There is also a marginally significant result for persuasiveness of the bad orange juice ad when shown with an ad from a different product type, t (76) = 1.88, p = .06. In these groups, participants rated the ads significantly differently based on which position the ad is in the order, but there was no consistent direction of at which position the ad was rated higher than the other: as can be seen in Tables 2 and 3, in two of them the first ads were rated higher, and in the other one the second ad was rated higher. However, t-tests of other 12 groups showed no significant results. Therefore, overall for the answer of R1, the order of presentation didn’t influence people’s response towards each piece of information in the sequence. A noticeable result, as shown above, was that overall the order of presentation didn’t make in difference in good ads’ scores, meaning that people give the same scores to the good ad no matter whether they are
shown at the first place or second. However, bad ads are rated more harshly when they are seen after good ads than before good ads.
CHAPTER 5. DISCUSSION

This study aimed to examine (a) the assimilation and contrast in people’s judgments towards ads given the two ads are from different or same product types, and (b) the influence of the order of presentation on people’s judgments towards each ad.

Albeit no significant difference, results were in the same directions as I expected for the contrast and assimilation effects. First, when people see two ads from the same product type, they contrasted their judgments towards the ads. They rated the good ad as more likable and persuasive and the bad ad less likable and persuasive compared to the one-ad situation, where people rated the ads individually. Second, when people see two ads from different product types, despite the two inconsistent mean difference scores—the liking and the persuasiveness of the good facial tissue and the bad orange juice ad—people assimilate their judgments, and thus rated the good ad lower in liking and persuasiveness and the bad ad higher in liking and persuasiveness, compared to the one-ad situation, where people rated the ads individually. For the order of presentation, people did not tend to rate the ads differently depending on the orders in which they were shown.

Specifically, for the contrast effect analysis, most results provide weak support for the hypotheses. This is consistent with results from previous studies showing that when there is enough similarity between context and the stimulus, contrast effects are more readily invited (Brown, 1953; Coren & Enns, 1993). Interestingly, as was mentioned above, when there is clearly sensed difference, people have a tendency to exaggerate it. However, such “clearly sensed difference” only happens when people categorize the two ads as from the same product type. That is, for ads from the different product types, it seems that there should be an even
bigger difference between the two ads, as they are actually featuring different products. However, as people don’t really categorize them as from the same product type, the two ads become no longer directly comparable, thus the contrast effect no longer exists, and assimilation effects take place.

In the assimilation effect analyses, there is an inconsistent difference in the group of good facial tissue ad and the bad orange juice ad when the ads are shown in the good-first order. If it is consistent with the hypothesis, the difference between these two ads should be smaller in the two-ad situation, where people see two ads one by one, than in the one-ad situation where people see two ads individually. A possible explanation is that, as shown in the overall result part, for both liking and persuasiveness results, there are ad by order (mixed, within- and between-subjects) interaction effects showing that bad ads are rated more harshly when they are seen after the good ads, especially when the two ads are from different product types. As a result, when people viewed a good facial tissue ad and a bad orange juice ad in the good-first order, the bad orange juice was rated much more harshly. And the difference between the two ads are enlarged due to the low scores of the bad orange juice ad, and thus nullifying the expected assimilation effect.

For the order of presentation effect, a noticeable result is that the order influences people’s judgments towards the bad ads much more than good ads. People believe that the bad ads following good ads are particularly bad compared with those preceding good ads. In other words, seeing a bad ad before a good ad didn’t make people believe that the good ad as better; however, seeing a good ad before a bad ad makes people believe the bad ad is much worse. Part of this is in line with the positive-negative asymmetry effect in the field of impression formation.
(e.g., Anderson, 1962, 1965), which means that in general, negative information receives more processing and contributes more strongly to the final impression than does positive information, and that learning something bad about a new acquaintance carries more weight than learning something good (Baumeister & Bratslavsky, 2001; Larsen, Smith & Cacioppo, 1998; Taylor, 1991). However, there is also an order asymmetry, meaning that in the present study, such a positive-negative asymmetry only happens in the good-then-bad order. This is consistent with the Hogarth and Einhorn (1992) study showing that the larger the positive anchor, the more an opposite-meaning piece of information will drag down the anchor. In the present study, this means that when a good ad will set a higher anchor in people’s judgment, the bad ad would drag down people’s rating of the good ad more badly.

Some other interesting results stand out across the overall main and interaction effects. First, people’s responses are reflected in both cognitive and affective aspects, which are measured in “persuasiveness” and “liking” scales in the current study. In the current study, liking questions were all about the ads, and persuasiveness questions were about the product and the information. As mentioned, an alpha of .94 was reported for all items. I have labeled these scales as liking and persuasiveness, but they could also be conceived as attitudes towards the product/information in the ads and combined into a single measure. Basically, they shared the same patterns; for example, an ad by order within- and between-subject interaction effect is found in both liking and persuasiveness results, meaning that people rate good ads better than bad ads. Such interactions are both qualified by whether the two ads are from the same product type or different product types. Besides, people believed that the orange juice ads are better than the facial tissue ads in both liking and persuasiveness scales. However, there are discrepancies. For example, there is a main within-subject effect of ad that only happens in persuasiveness:
overall people believe that the first ad is more persuasive than the second ad. This is possibly because that in the current study, stimuli were manipulated more in the persuasiveness aspect than in the liking aspect. For example, in the good and bad orange juices ads, the same orange juice picture is used, the difference is in the argument: in the good ad says “gives you 200% of your vitamin C in just one serving”, and in the bad ad it says: “gives you 2% of your vitamin C in just one serving”. This may explain why people feel a main ad effect only in persuasiveness level, but not in liking.

Second is that whether products are from the same or different product types matters. In both liking and persuasiveness results, the ad by order interaction was qualified by whether ads are from the same or different product categories. Specifically, for ads from the same product types, people rated the good and bad ads consistently regardless of the order of presentation. However, for ads from different product types, the bad ad is rated lower in the good-bad order than in the reverse order. A possible explanation is that when people viewed two ads from different product types they processed more information than when they are viewing ads from the same product type. Previous research has shown that when people are dealing complex information and when the level of involvement is low, people would process the second piece of information more thoroughly and thus replying more on it to generate the overall opinion (Lana, 1963; Haugtvedt & Wegener, 1994). Although I tested the responses towards each ad instead of the overall opinion, it makes senses to infer in this situation that when people are dealing with information of ads from different product types they processed the second ad, a bad ad in this case, more completely and focused more on the bad details (Buda & Zhang, 2000).
The results in the present study had a few implications for advertising placements. It points out to advertisers that when they are doing copy tests it is not only necessary to test consumers react to the ad when they see it individually. They might also want to test if they put the ad in a context, for example, next to an ad from the direct competitor, whether consumers will think differently about the ad. They might think the test ad is even better, but they might also think in the other way. Also, when the ad is of relatively lower quality, it is smarter to put it before a really good ad. Because when people see a bad ad immediately after a good one, they will be much less satisfied about what they are seeing.

Limitations and future directions

Although the present study makes a contribution to persuasiveness information assimilation and contrast, as well as order of presentation, there are some limitations that provide directions for future research. First, among the four groups of participants who only viewed one ad, contracting the expectation, there is significant difference between the good orange juice ad and the good facial tissue ad in liking results (t = 3.15, p < .05) and in persuasiveness results (t = 2.27, p < .05): people rated the good facial tissue ad much lower than the good orange juice ad. This resulted in the smaller difference between the good facial tissue ads and the bad orange juice ads: as is shown in Figure 7(a) and 7(b), among the two bars in the right of each figure, the facial tissue bars (M liking = 0.79, SD liking = 0.65; M persuasiveness = 1.14, SD persuasiveness = 0.61) are much shorter than the orange juice bars (M liking = 1.74, SD liking = 0.56; M persuasiveness = 1.51, SD persuasiveness = 0.54). This may further explain that the difference between the good facial tissue ad and the bad orange juice ad in the one-ad situation is smaller than in the two-ad situation, which
is inconsistent with the assimilation hypothesis. In further research, the assimilation effect should have been more salient if the difference between ads in one-ad situations are better controlled.

Furthermore, for ads used in the present study to be more similar to daily life situation, they should be manipulated from more dimensions instead of just the argument strength level. In other words, in the current study the ads only differed in how persuasive the arguments are about the product. But in real life it is unlikely to see two ads with the same pictures and the same designs only differing in the arguments. For further experiments, stimuli distinguishing in both design and arguments should be used to better imitate the real life situations.

In Hogarth and Einhorn’s (1992) study, they categorize the response modes in order of presentation experiments into two groups: The Step-by-Step (SbS) procedure in which subjects are asked to express their beliefs after integrating each piece of evidence in a given sequence; and the End-of-Sequence (EoS) procedure where subjects only report their opinions once all the information has been presented. As mentioned in the method part, from previous studies it is shown that when statements used in the experiment are short and simple, the EoS process mode is more widely used (e.g. Allen & Feldman, 1974; Anderson, 1973a, 1973b; Asch, 1946), and the present study adopted this mode too. However, since in the present study it focused on how the order of presentation affected people’s responses towards each piece of information in the sequence, it will be interesting to see whether to change the process mode from EoS to SbS will bring any changes to the result in future studies.
References


FIGURES

Figure 1. The components of Delboeuf Illusion.
Figure 2. Ads’ Liking Scores in Good-first and Bad-first Order of Presentation
Figure 3. Order and Category Interaction in Liking Scores
Figure 4(a). Liking Scores towards Ads from Same Product Types in Different Order of Presentations
Figure 4(b). Liking scores towards Ads from Different Product Types in Different Order of Presentations
Figure 5. Ads’ Persuasiveness Scores in Good-first and Bad-first Order of Presentation
Figure 6(a). Persuasiveness towards Ads from Same Product Types in Different Order of Presentations
Figure 6(b). Persuasiveness towards Ads from Different Product Types in Different Order of Presentations

![Bar chart showing persuasiveness towards ads from different product types in different order of presentations. The chart compares good-first and bad-first presentations for two ads.]
Figure 7(a). Liking Difference between Good and Bad Ads from the Same Product Type in Two-ad and One-ad Situations

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<th>one ad situation</th>
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Figure 7(b). Attitude Difference between Good and Bad Ads from Different Product Types in Two-ad and One-ad Situations

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Figure 8(a). Persuasiveness Difference between Good and Bad Ads from the Same Product Type in Two-ad and One-ad Situations

Figure 8(b). Persuasiveness Difference between Good and Bad Ads from Different Product Types in Two-ad and One-ad Situations
# TABLES

## Table 1. Liking and Persuasiveness Scores’ Differences in Two-ad and One-ad Situations

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1. Oj = orange juice, Ft = facial tissue
2. In “Liking” and “Persuasiveness” columns are the absolute differences.
Table 2. Ads’ Liking scores given different positions in the presenting orders

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Table 3. Ads’ persuasiveness scores given different positions in the presenting orders

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<th>std.D.</th>
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</table>
Appendix

Stimuli

Good Orange Juice Ad

- Gives you 200% of your vitamin C in just one serving
- Each bottle contains juice squeezed from ten large oranges, and nothing else
- An excellent source of folate, a water-soluble B vitamin essential for good health
- Contains no added sugar. The delicious taste of OJ is courtesy of nature’s goodness.
Bad Orange Juice Ad

- Gives you 2% of your vitamin C in just one serving
- Each bottle contains juice reconstituted from two medium oranges, and additives
- Contains vitamins that are readily available from many different sources
- 15 grams of added sugar in each serving to make it deliciously sweet
Good Facial Tissue Ad

- 100% natural materials, produced with no harm to the environment
- Naturally brilliant white, as soft as a cloud
- 2X stronger than other premium brands, with extra softness and comfort
- Softness with a delightful touch of lotion—our most soothing tissue
Bad Facial Tissue Ad

- Made from 100% newly harvested wood
- Whitened with chlorine bleach, for minimal skin irritation
- Almost as strong as other brands, with average softness and little discomfort
- Semi-soft with some lotion residue after each use