EXPERT REVIEWERS BEWARE! THE EFFECTS OF REVIEW SET BALANCE, REVIEW SOURCE AND REVIEW CONTENT ON CONSUMER RESPONSES TO ONLINE REVIEWS

Nathalia Purnawirawan
Faculty of Applied Economics, Marketing Department
University of Antwerp
Prinsstraat 13, 2000 Antwerp, Belgium
nathalia.purnawirawan@uantwerpen.be

Nathalie Dens
Faculty of Applied Economics, Marketing Department
University of Antwerp & Antwerp Management School
Prinsstraat 13, 2000 Antwerp, Belgium
nathalie.dens@uantwerpen.be

Patrick De Pelsmacker
Faculty of Applied Economics, Marketing Department
University of Antwerp & Ghent University
Prinsstraat 13, 2000 Antwerp, Belgium
patrick.depelsmacker@uantwerpen.be

ABSTRACT

In two studies, we investigate how consumers cope with online reviews that are in conflict with each other. Using a 2 (review set balance: positive, negative) x 2 (review source: expert, non-expert) x 2 (review content: coherent, incoherent) experimental design, the first study investigates how readers process information when they are faced with conflicting reviews and the extent to which people use consensus heuristics (both in terms of valence and content) and source heuristics to form an impression and purchase intention. Using a 2 (valence of expert review: positive, negative) x 2 (content of expert review: coherent, incoherent) experimental design, the second study further investigates the role of expert sources and conflicting review information for impression formation and purchase intention in neutrally balanced review sets. Results indicate a strong presence of a consensus heuristic: a positive balance generates a significantly better review impression and purchase intention than a negative balance. Furthermore, our results also suggest a double discounting phenomenon: a review is more likely to be discounted when it comes from an expert and/or when the content of the review is not coherent with the rest of the reviews in the set. Implications and suggestions for further research are formulated.

Keywords: Online reviews; Expert review; Review content; Inconsistent content

1. Introduction

Web 2.0 has brought about dramatic changes in the way users interact with the Internet and has led to a rapid increase in the production of user generated content (UGC) [Kim et al. 2012]. One such form of UGC is online reviews. A growing number of online sellers are encouraging users or buyers of their products to post their personal evaluation on the sellers' website or provide (potential) customers with information from third-party review websites (such as epinions.com, yelp.com, tripadvisor.com) [Godes & Mayzlin 2004]. In the US, 61% of Americans have ever left a review on a website, the most frequent location being Amazon.com (42%) [Diaz 2014]. Recent consumer surveys reveal that 79% at least sometimes check reviews before purchasing a product or service [Diaz 2014], and that 72% trust online reviews as much as personal recommendations [Anderson 2012]. Academic research also demonstrates the powerful role of online reviews in influencing consumers attitudes [Chakravarty et al. 2010; Sen & Lerman 2007], behavioral intentions [Sparks & Browning 2011; Tsang & Prendergast 2009], and sales [Chevalier & Mayzlin 2006; Zhu & Zhang 2010]. For example, Chevalier and Mayzlin [2006] showed that online book reviews impact product sales on Amazon.com and Bn.com, while Zhu and Zhang [2010] concluded that online reviews play an influential role on video game sales.

At the same time, however, there is no standard in writing reviews and therefore, all reviews are not created equal. Reviewers usually discuss attributes that are relevant to them and different reviewers may have different experiences with the same product. As a result, it is very likely that readers are confronted with diverse online reviews that are in conflict with each other (some reviews are positive, some negative), while coming from different sources (both fellow consumers and experts) and discussing different product attributes. For instance, while some reviewers would discuss a certain attribute of the reviewed object (specifically to this study: the food in a restaurant), others would mention a different attribute (in this study: the service).

Past studies have identified that the influence of online reviews depends on multiple factors, such as the valence of the review set [e.g., Lee & Youn 2009], reviewer characteristics [e.g., Willemsen et al. 2012], number of reviews [e.g., Huang & Chen 2006] and review length [e.g., Mudambi & Schuff 2010]. Despite existing knowledge regarding the powerful impact of online reviews, there are still gaps that need to be addressed on how consumers process online reviews and come to a certain purchase decision. For instance, scholars have largely presumed that on the Internet, people evaluate information in a cognitively effortful fashion to arrive at a certain judgment [Metzger 2007]. However, recent research has shown that consumers also routinely invoke different heuristics and are, therefore, prone to cognitive biases such as social influences, review order and review source [e.g., Baek et al. 2012; Purnawirawan et al. 2012; Sparks et al. 2013; Sridhar & Srinivasan 2012].

The present study attempts to provide a better understanding of how people process online reviews in terms of review impression and purchase intention. More precisely, we investigate how review set balance (the ratio of positive and negative reviews about the same object), review source (peer or expert) and review content consistency (does a conflicting review discuss a product attribute consistent with the majority, or a different attribute?) interact to affect review impression and buying intention.

Although review set balance [e.g., Park et al. 2007; Purnawirawan et al. 2012] has not been studied as frequently as review valence, there seems to be a consensus that readers' attitudes toward a product are affected by the majority opinion [Burnkrant & Cousineau 1975; Sundar 2008]. However, Purnawirawan, Dens and De Pelsmacker [2012] established that this "majority is always right" principle can be disturbed by, for example, the presentation order of the reviews. In the present study, we investigate whether the source and content of conflicting reviews could moderate the effect of balance.

Unlike the offline word-of-mouth context where consumers are inclined to seek advice from expert sources (i.e., sources who are considered as knowledgeable and competent [e.g., Bone 1995; Herr et al. 1991; Pornpitakpan 2004], the role of source expertise in an online context is not that clear. Some researchers argue that reviews stemming from an expert source would weigh more heavily in readers' consideration and have a greater impact than those stemming from non-expert sources [e.g., Baek et al. 2012]. Others found that consumer recommendations are more effective than expert recommendations [Huang & Chen 2006].

A third factor that may be influential in shaping responses to online review is review content. In the present study, the conflicting review (a negative review when the majority is positive, or vice versa) could either discuss an attribute consistent with the majority (i.e., both mention the food in a restaurant) or an inconsistent attribute (i.e., the majority mention the food, but the conflicting review mentions the service).To our knowledge, no studies have investigated the role of review content, specifically in terms of coherence with other reviews in the set.

We describe the results of two experimental studies. The first study focuses on three factors: review set balance (i.e. the ratio of positive and negative reviews: positive balance versus negative balance), the source of the conflicting review (expert versus peer) and the content of the conflicting review (coherent versus incoherent). Balance refers to the valence of the majority opinion: A positive balance entails that the majority of reviews is positive (with a minority being negative), while a negative balance means that the majority is negative. Using a 2 x 2 x 2 full factorial experimental design, the objective of the first study is twofold: first, to provide a better understanding of how readers process information when they are faced with conflicting reviews. Second, to test the extent to which people use consensus heuristics (both in terms of valence and content) and source heuristics to form an impression and ultimately purchase intention. In the second study, we focus on neutrally balanced review sets to further investigate the impact of expert reviews in terms of valence and review content consistency on impression formation and purchase intention, by using a 2 (valence of expert review: positive versus negative) x 2 (content of expert review: coherent versus incoherent) full factorial experimental design.

Our study contributes to the literature as follows. First, review set balance has been under researched, while it has been widely accepted that readers' attitudes toward a product are affected by the majority opinion [e.g., Huang & Chen 2006; Park et al. 2007]. Second, due to inconsistent findings, the role of source expertise in an online context is not obvious. Third, no studies have investigated the role of review content, specifically in terms of its coherence with other reviews in the set. In sum, the present study attempts to provide better understanding of consumer decision making process facing online reviews with different valence, source and conflicting content

about different product attributes. To our knowledge, the interaction between these three important factors has not been studied before.

The study should provide further insights for marketing managers on how they may help stimulate favorable consumer evaluations based on online product reviews. First, we discuss the literature, hypotheses, design and results of Study 1, in which unbalanced (positive and negative) review sets are tested, as well as the effect of review source and conflicting review information. Next, we report Study 2 in which we test valence and conflicting content effects for expert reviews in balanced review sets.

2. Study 1
2.1. Literature review
2.1.1. *The Effect of the Balance of Online Reviews on Impression Formation and Purchase Intention*

The balance of a set of reviews refers to the ratio of positive and negative reviews about the same object [Purnawirawan et al. 2012]. When the number of positive reviews is higher than, equal to or lower than the number of negative reviews, the balance is defined as positive, neutral or negative, respectively. Although not many studies have investigated the role of balance, those who have, have provided strong evidence that review set balance matters [e.g., Huang & Chen 2006; Park et al. 2007]. Basically, these studies have shown that the opinion of the majority affects people's attitudes and behavioral intentions [Chiou & Cheng 2003; Doh & Hwang 2009]. When a lot of people (reviewers) share the same opinion regarding a certain object, this shared opinion will be considered as evidence about the true quality of the product or the service.

Different theories have been used to explain the impact of review set balance: the bandwagon perspective (i.e., the extent to which demand for a good is increased because others are also consuming the same good [Leibenstein 1950]) [Schlosser 2005; Sundar et al. 2008], herding behavior or group mimicking behavior (i.e. the tendency to do what everyone else is doing [Banerjee 1992]) [Huang & Chen 2006; Sundar 2008], conformity tendency (i.e. the tendency to conform to the group's judgment [Burnkrant & Cousineau 1975]) [Chiou & Cheng 2003; Metzger et al. 2010], 'the majority is always right' principle [Chiou & Cheng 2003; Lee et al. 2008] and finally, social validation theory [Cialdini 1993] (i.e. the tendency to automatically and unconsciously look to other people for guidance) [Purnawirawan et al. 2012; Willemsen et al. 2011; Zehrer et al. 2011].

Based on these theories, we expect that a positively balanced review set (i.e. a set where the number of positive reviews is higher than the number of negative reviews) would result in a more positive review impression and higher purchase intention than a negatively balanced review set (i.e. a set where the number of positive reviews is lower than the number of negative reviews).

H1: A positive review set balance results in (a) a more positive review impression and (b) a higher purchase intention than a negative balance.

2.1.2. *The role of expert versus non-expert opinion*

Research in traditional WOM has shown that the source of the information plays an important role in consumers' attitude and behavioral intention formation [Sternthal et al. 1978; Wiener & Mowen 1986; Wilson & Sherrell 1993]. People are inclined to seek advice from expert sources rather than from non-experts, because expert sources are assumed to possess the knowledge and ability to provide accurate information [Pornpitakpan 2004]. As a result, consumers are more likely to be influenced in their decisions by expert sources than by non-expert sources [Bone 1995; Herr et al. 1991; Wangenheim & Bayon 2004].

In addition, the advertising literature considers endorser expertise as one of the most influential factors that determines endorsement effectiveness [e.g., Goldsmith et al. 2000; Silvera & Austad 2004; Verhellen et al. 2012]. For instance, drawing from the match-up theory (i.e. the perceived harmony of the match between a celebrity endorser and the product being endorsed), Till and Busler [2000] found that, compared to an actor, an athlete was a more effective endorser for an energy bar.

Applied to the online setting, however, the role of expertise is not as clear. First, due to the characteristics of online communication such as anonymity and the limited availability of personal information, it is more difficult to evaluate whether a reviewer is indeed knowledgeable and competent [Brown et al. 2007; Schindler & Bickart 2005]. Because readers cannot determine a so-called expert's true identity, they may not rely on expert opinions as much as offline. Second, the Internet creates an environment of information abundance, where the correctness of certain information can easily be verified without consulting an expert [Metzger et al. 2010]. For instance, using consensus heuristics, one can validate a piece of information by testing it against the majority's opinion. If the majority of others share the same opinion, the information is perceived as correct and would be accepted. By contrast, if the majority disagree, it is very likely that the information would be perceived as incorrect and would be rejected. As a result, the added value of an expert source in online environment might be less pronounced than in the offline context.

Indeed, empirical findings have shown mixed results regarding the role of expert opinions in consumer responses to online reviews. While some studies found expert information to be more persuasive than non-expert information [e.g., Baek et al. 2012; Eastin 2001], others found no significant differences between expert and non-expert information [e.g., De Bruyn & Lilien 2008; Vermeulen & Seegers 2009]. The majority of studies seems to indicate that non-expert recommendations are more persuasive than editorial or expert ones [e.g., Huang & Chen 2006; Senecal & Nantel 2004; Smith et al. 2005]. The reason for this negative effect of experts may be that perceived expertise is only one of the competing dimensions contributing to source persuasiveness. For instance, perceived similarity (i.e. the extent to which individuals perceive the source of the information to be similar to themselves) and source trustworthiness (i.e. the perceived information source's motivation to communicate without bias) have also been found to affect message persuasiveness and adoption [Brown et al. 2007; Cheung et al. 2008; Reichelt et al. 2013]. According to Willemsen, Neijens and Bronner [2012], while expert reviewers are perceived as having more expert knowledge, they are also perceived to be less trustworthy (because of a reviewer's internal motivation, other than sharing product-related information) and less homophilous (similar) than consumers recommendations. Therefore, these contradictory effects (high on expertise, low on trustworthiness) may cancel each other out [Willemsen et al. 2012]. In addition, expert sources may trigger persuasion knowledge (i.e. a phenomenon where consumers process a message differently than they would, because they recognize a persuasion attempt) [Friestad & Wright 1994], because readers may get the impression that reviewers present themselves as experts with the intention to persuade others.

In this study, we consider perceived expertise as one of the cues used for impression and purchase intention formation [De Bruyn & Lilien 2008; Petty et al. 1983]. In view of previous findings, we argue that consumer recommendations are more influential than expert recommendation. This means, that, when an expert goes against the majority of consumer opinions, his review is more likely to be discounted by readers than when another consumer would disagree with the majority. In addition, we expect an interaction effect between review set balance and the source of the conflicting review. More specifically, if the role of an expert is indeed discounted, this means that a conflicting expert review (either positive or negative) would have less impact than a conflicting consumer review. In a positive balance, the majority of reviewers are positive. Thus, if an expert contradicts the majority by writing a negative review, consumers' impression and purchase intention are likely to remain overall positive, based on the majority of consumer reviews. When the conflicting negative review is written by a peer, this is more likely to negatively affect readers' responses. Moreover, in the current study, there was always one expert review in the set. This means that, when the conflicting negative review stems from a consumer, the expert would be positive, in line with the majority. However, given that the expert opinion does not weigh as heavily as a consumer opinion, the positive effect is also less strong than when the majority's opinion consists only of consumers opinions.

Similarly, in a negative balance, when the majority of consumers are negative, and the sole positive review (the conflicting review) stems from an expert, this would be discounted, resulting in a less positive impression and purchase intention than when the sole positive review comes from a consumer. In other words, in a negative balance, when the conflicting positive review comes from a consumer, this review may be able to affect evaluation scores positively for two reasons. First, because the positive review coming from a consumer will have a stronger positive impact than a positive review from an expert. Second, because the expert will in this case express a negative opinion in line with the majority, but which less negatively impacts consumer responses than a negative consumer review. Hence, we hypothesize:

H2: In a negative balance, (a) review impression and (b) purchase intention are more negative when the source of a conflicting positive review is an expert rather than a consumer.

H3: In a positive balance, (a) review impression and (b) purchase intention are more positive when the source of a conflicting negative review is an expert rather than a consumer.

2.1.3.   Coherent versus incoherent review content

Previous studies have shown that the content of a review plays a role in impression formation and in determining whether or not to buy the reviewed object [e.g., Walther et al. 2012]. However, these studies have usually argued from the perspective of review valence [e.g., Hong & Park 2012; Lee & Youn 2009; Sen & Lerman 2007], emotion [e.g., Kim & Gupta 2012; Li & Zhan 2011; Schindler & Bickart 2012], or the length of the review [e.g., Chevalier & Mayzlin 2006; Pan & Zhang 2011; Tsang & Prendergast 2009]. As far as we know, no studies have investigated the impact of review content in terms of its coherence with other reviews in the set on impression formation and purchase intention. In other words, does it make a difference whether different reviewers discuss the same attribute, or different attributes?

The effect of incoherent reviews can operate in two directions. On the one hand, an incoherent review increases the information power of the set. Drawing from the Elaboration Likelihood Model [Petty et al. 1983], an increase in the number of positive arguments can affect attitude and purchase intention positively. For example, when most

reviews discuss the food in a restaurant, a review that discusses service may offer something new and might therefore be perceived as more informative. This particular incoherent review might be more attention grabbing, and as a result, a review set that contains both food and service attributes could have a greater effect on impression formation and purchase intention than a set that contains only food comments. However, drawing from consensus heuristics, we argue that an incoherent review decreases the consensus level of the set, and therefore, would reduce the information value of the set [e.g., Chiou & Cheng 2003]. More specifically, this incoherent review might be more attention grabbing, but may also be perceived as less relevant. As discussed earlier, when many people are expressing the same opinion, this shared opinion is considered as the truth [e.g., Doh & Hwang 2009]. Therefore, when many people are discussing a certain attribute, it is possible that readers get the impression that this particular attribute is relevant and important. Consequently, when one review in the set discusses a different attribute, this review could be perceived as less relevant and could, therefore, be discounted. In our specific study, if 3 reviewers mention the food is awful, a single positive mention of good service is not very likely to compensate for the negative comments about the food.

In the present study, we manipulated the consistency of the conflicting review (the review that deviated from the majority in terms of valence). We again expect an interaction effect between review set balance and the content of the conflicting review. More specifically, if a review with an incoherent content is indeed discounted, this particular review would (partially) lose its impact. In the present study, in a negative balance, the conflicting review discussing incoherent content would be positive. As this review is more likely to be discounted, we expect this to result in less positive impression and purchase intention than when the conflicting positive review discusses coherent content. When readers read one positive review about the same attribute that others have reviewed negatively (coherent content), this particular review may be able to partly offset the negative reviews in the set (not all reviewers evaluate the attribute negatively). Correspondingly, in a positive balance, when the conflicting negative review discusses incoherent content, this review would be discounted, resulting in a more positive impression and purchase intention than when the conflicting negative review discusses coherent content. Hence, we hypothesize:

H4: In a negative balance, (a) review impression and (b) purchase intention are more negative when the conflicting positive review discusses an incoherent attribute rather than a coherent attribute.

H5: In a positive balance, (a) review impression and (b) purchase intention are more positive when the conflicting negative review discusses an incoherent attribute rather than a coherent attribute.

In addition, in this study, the conflicting review is either posted by an expert or by a consumer, and either discusses a coherent or an incoherent attribute. As there will be an interplay between the three factors, it is appropriate to expect a three-way interaction effect between the review set balance, the source of the conflicting review and the content of the conflicting review on review impression and purchase intention. In line with previous research [Purnawirawan et al. 2012], we argue that there is a certain hierarchy in the use of heuristics. Review set balance is likely to prevail: a negative balance results in more negative review impression and purchase intention than a positive balance. Consistent with our previous arguments, we expect a consumer review to have greater impact than an expert review and that a coherent review would be more persuasive than an incoherent review. Taking these arguments into account, when the conflicting review comes from an expert and discusses an incoherent attribute, this review would be double discounted: First, because it comes from an expert and second, because it discusses an incoherent attribute. Thus, in a negative balance, review impression and purchase intention would be the most negative when the conflicting positive review comes from an expert and discusses an incoherent attribute. By contrast, review impression and purchase intention would be the least negative when the conflicting positive review comes from a consumer and discusses a coherent attribute. A similar reasoning applies to the positive balance: review impression and purchase intention would be the most positive (the most negative) when the conflicting negative review comes from an expert (a consumer) and discusses an incoherent (coherent) attribute.

Based on the above argumentation, we hypothesize:

H6: In a negative balance, (a) review impression and (b) purchase intention are most positive (the least negative) when the conflicting positive review comes from a consumer and discusses coherent content, compared to other combinations.

H7: In a negative balance, (a) review impression and (b) purchase intention are most negative when the conflicting positive review comes from an expert and discusses incoherent content, compared to other combinations.

H8: In a positive balance, (a) review impression and (b) purchase intention are most positive when the conflicting negative review comes from an expert and discusses incoherent content, compared to other combinations.

H9: In a positive balance, (a) review impression and (b) purchase intention are most negative when the conflicting negative review comes from a consumer and discusses coherent content, compared to other combinations.

2.2.   Method
2.2.1.   Pretest
    We set up a study in a restaurant context. We conducted a pretest to create reviews that are perceived as equally important and equally strong in terms of valence. Based on real online reviews, we created 13 positive reviews which were each reworded into their opposites to generate identical reviews with both a positive and a negative valence. Out of these 13 reviews, 7 reviews were related to food and 6 were related to other, non-food restaurant attributes (service and atmosphere) to serve as the inconsistent review. A pretest was conducted with 33 respondents, with an average age of 35.76 (SD = 14.02), 48.5% male. The respondents were asked to rate each of the selected reviews on two 7-point semantic differential scales ("to what extent do you find this review negative/positive?"; "to what extent do you find this review unimportant/important") [Purnawirawan et al. 2012]. Based on repeated measures ANOVA, we selected five reviews (four about food and one inconsistent review about service) that proved to be equally important (p = .619) and equally strongly formulated (all positive (negative) reviews are as positive (negative) as all the other ones) (p = .402). In addition, independent samples t-tests confirmed that for each review, the positively formulated review is not significantly more positive than the negative review is negative (p > .104), implying that the positive and negative reviews are equally strong in valence. The reviews resulting from the pretest are provided in Appendix 1.
2.2.2.   Main experiment
    The main experiment is a 2 (Review set balance: positive vs. negative) x 2 (Source of the conflicting review: expert (culinary reviewer) vs. peer (customer)) x 2 (Content of the conflicting review: coherent (only food) vs. incoherent (service)) full factorial between-subjects design (see Table 1). We use scenarios as this method is shown to be ecologically and internally valid in service encounter research [Wirtz & Mattila 2004]. The respondents were told that they were planning a casual dinner with friends and that they were responsible for choosing a restaurant and for making a reservation. They were asked to consider a local restaurant and were provided with four online reviews for that restaurant as described in the pretest. Balance was manipulated by varying the proportion of positive and negative reviews presented in each set. The positive balance consisted of three positive and one negative review, while the negative balance consisted of three negative and one positive review. The source of the review was mentioned between brackets (either a culinary reviewer (an expert) or a customer). Finally, in the 'coherent' condition, the four reviews each discussed a food element, while in the 'incoherent' condition, three reviews were about food, while the conflicting review discussed the service.
    Respondents were recruited by a professional recruitment agency and were randomly assigned to one of the eight conditions. 452 participants, with an average age of 36.60 (SD = 12.25), 44.7% male, completed the questionnaire online. After reading their four reviews, respondents were asked to rate their overall review impression of the restaurant based on those four reviews (RI) (I have the impression that most people: are satisfied/dissatisfied with the restaurant, find the restaurant good/bad, have a positive/negative opinion about the restaurant, would/would not recommend the restaurant [Goldsmith et al. 2000], α = .962) and their purchase intention (PI) (It is very likely that I will try out this restaurant, I will definitely go to this restaurant, I will certainly choose this restaurant [Netemeyer et al. 2005], α = .982) on a 7-point scale. Summated scales of each of the constructs were computed for further analyses.

Table 1: Sample size, mean and standard deviation per condition (Study 1)

Balance	Negative review set balance			
Source (conflicting review)	Expert		Consumer	
Content (conflicting review)	Incoherent	Coherent	Incoherent	Coherent
(n)	60	61	55	54
Review impression	1.51 (.47)	1.70 (.36)	2.60 (.38)	2.87 (.54)
Purchase intention	2.74 (1.56)	2.79 (1.18)	2.73 (1.31)	2.27 (1.15)
Balance	Positive review set balance			
Source (conflicting review)	Expert		Consumer	
Content (conflicting review)	Incoherent	Coherent	Incoherent	Coherent
(n)	55	61	51	55
Review impression	6.37 (.99)	5.97 (.26)	5.59 (.49)	4.92 (.66)
Purchase intention	5.13 (.93)	5.03 (1.16)	5.34 (1.08)	5.22 (1.08)

Note: Figures between brackets denote standard deviations.

2.3.   Results

Table 1 presents descriptive statistics per condition for RI (review impression) and PI (purchase intention). A 2 (balance) x 2 (source of the conflicting review) x 2 (content of the conflicting review) ANOVA revealed significant main effects of balance ($F(1, 451) = 4593.45$, $p < .001$) on review impression. More specifically, a positive balance ($M = 5.71$) results in significantly more positive RI than a negative balance ($M = 2.17$). Regarding PI, the main impact of balance is also significant ($F(1, 451) = 505.99$, $p < .001$). Similar to RI, a positive balance ($M = 5.17$) results in significantly higher PI than a negative balance ($M = 2.64$). The main effects of balance confirm H1a (RI) and H1b (PI).

Furthermore, for RI, the interaction between balance and the source of the conflicting review is significant ($F(1, 451) = 382.02$, $p < .001$). When the balance is negative, RI is more positive when the conflicting positive review comes from a consumer ($M = 2.74$) rather than from an expert ($M = 1.61$) ($p < .001$), supporting H2a. When the balance is positive, RI is more positive when the conflicting negative review comes from an expert ($M = 6.17$), rather than a consumer ($M = 5.26$) ($p < .001$). H3a is also supported. For PI, the interaction between balance and source of the conflicting review is also significant ($F(1, 451) = 4.27$, $p = .039$). However, there are no significant differences between expert ($Mneg = 2.76$, $Mpos = 5.08$) and consumer ($Mneg = 2.50$, $Mpos = 5.08$) sources for both negative ($p = .098$) or positive ($p = .206$) balances. Therefore, H2b and H3b are rejected.

The interaction between balance and content of the conflicting review has a significant effect on RI ($F(1, 451) = 54.16$, $p < .001$). When the balance is negative, RI is more positive when the conflicting review is coherent ($M = 2.88$) than when it is incoherent ($M = 2.06$) ($p = .002$). When the balance is positive, an incoherent conflicting review ($M = 5.98$) results in a significantly more positive RI than a coherent one ($M = 5.45$) ($p < .001$). These findings provide support for H4a and H5A. For PI, the interaction between balance and content of the conflicting review is not significant ($F(1, 451) = .20$, $p = .652$). There are no significant differences between coherent ($Mneg = 2.53$, $Mpos = 5.13$) and incoherent ($Mneg = 2.74$, $Mpos = 5.23$) reviews for both negative ($p = .187$) and positive ($p = .505$) balances. Therefore, H4b and H5b are rejected.

For RI, the interaction of balance, source of the conflicting review and content of the conflicting review is not significant at the conventional level ($F(1, 451) = 2.56$, $p = .110$). However, simple effect tests show interesting significant findings. When the balance is negative, review impression is the most positive when the conflicting positive review comes from a consumer and discusses coherent content, supporting H6a. More specifically, this consumer-coherent set results in significantly more positive impression compared to a consumer-incoherent ($p = .002$), an expert-coherent ($p < .001$), and an expert-incoherent ($p < .001$) set. Also, as expected in H7a, in a negative balance, review impression is the lowest when the conflicting positive review comes from an expert and discusses incoherent content. More specifically, this expert-incoherent content set scores significantly lower than an expert-coherent ($p = .015$), a consumer-incoherent ($p < .001$) and a consumer-coherent ($p < .001$) set (Figure 1).

When the balance is positive, review impression is the highest when the conflicting negative review comes from an expert and discusses an incoherent content (in support of H8a). More specifically, this expert-incoherent set generates significantly higher review impression than an expert-coherent ($p = .001$), a consumer-incoherent ($p < .001$) and a consumer-coherent ($p < .001$) set. Furthermore, review impression is the lowest when the conflicting negative review comes from a consumer and discusses coherent content (H9a). More specifically, this consumer-coherent set results in a significantly lower review impression than a consumer-incoherent ($p < .001$), an expert-coherent ($p < .001$) and an expert-incoherent ($p < .001$) set. These findings provide support for H8a and H9a (Figure 1).

Regarding PI, the interaction of balance, source of the conflicting review and content of the conflicting review is also not significant at the conventional level ($F(1, 451) = 1.22$, $p = .272$). However, simple effect tests reveal the following results. In a negative balance, when the conflicting positive review comes from a consumer and discusses coherent content, contrary to expectations, this does not result in the highest purchase intention, but actually results in the lowest purchase intention ($M = 2.27$), rejecting H6b. The difference with the other conditions is at least marginally significantly lower ($.035 < p < .065$) than the three other negative balance conditions. Furthermore, the conflicting review stemming from an expert and discussing incoherent content also does not result in the lowest purchase intention, as was originally expected. More specifically, this expert-incoherent set results in marginally significant higher purchase intention compared to consumer-coherent set ($p = .056$), but the differences are not significant compared to an expert-coherent ($p = .841$) and a consumer-incoherent ($p = .982$) sets. Therefore, H6b and H7b are rejected. When the balance is positive, there are no significant differences between the four conditions ($p > .309$). These findings also do not provide support for H8b and H9b.
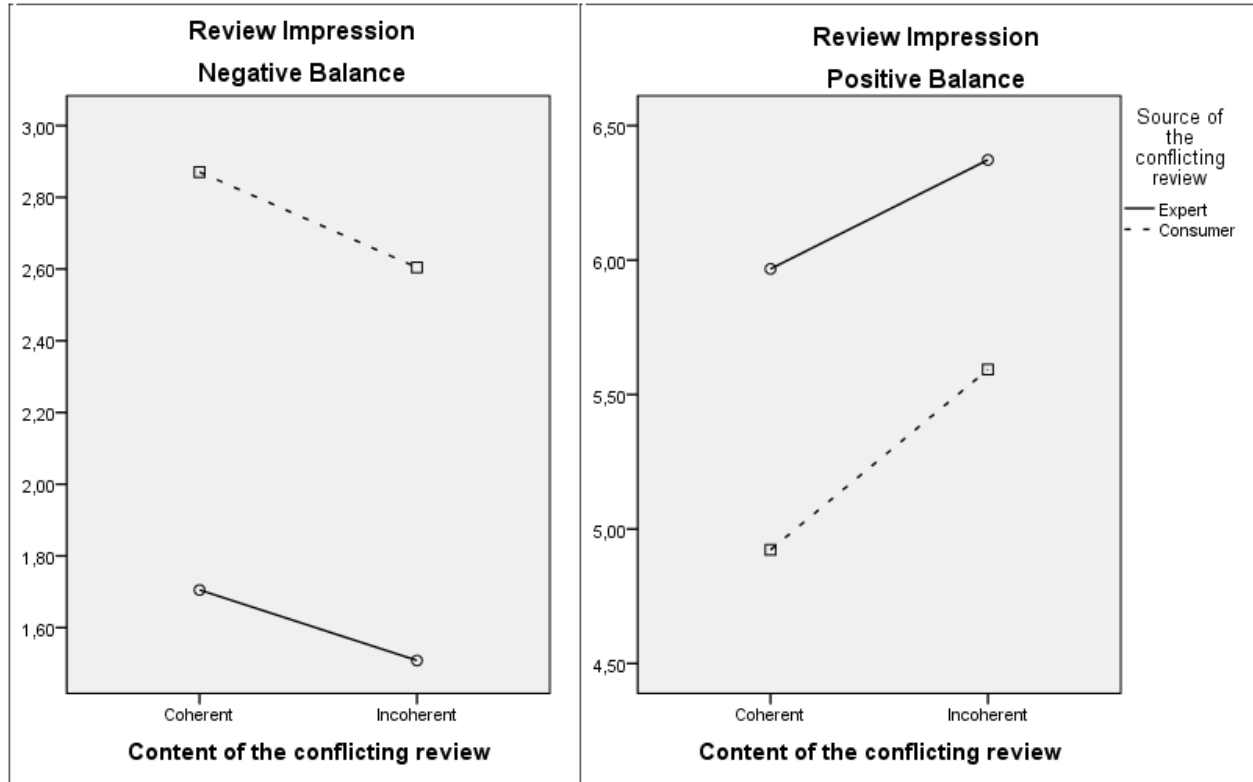
Figure 1: Three-way interaction of balance, source and content of the conflicting review on RI

2.4.   Discussion

The objective of the first study was to investigate how people process conflicting reviews coming from different sources and dealing with different aspects of a service in situations where the review set balance is clearly positive or negative. The findings from the first study show a clear impact of balance: the opinion of the majority strongly and consistently affects review impression and purchase intention. A positive balance results in substantially more positive review impression and purchase intention than a negative balance. Within the context of a clearly imbalanced review set, we found additional effects of message source and message content elements. Consumer reviews have a greater impact on review impression than expert reviews, and coherent content, rather than incoherent content, appears to have a stronger influence on review impression.

However, the effects of message source and message content on purchase intention do not allow as clear cut conclusions as their effects on RI. It is possible that the balance effect is so dominant and powerful that it overshadows the effects of message source and message content on PI. Therefore, in study 2, a neutrally balanced set is used, i.e. the number of positive reviews is equal to the number of negative reviews. Study 2 explores to what extent the source and content effects prevail when the review sets are balanced, in other words when possible social influence in terms of the 'majority opinion' is no longer a guideline for readers of the reviews to form impressions and intentions.

3.   Study 2

Balanced review sets contain an equal number of negative and positive reviews and consequently do not contain a majority opinion about the reviewed object in either direction. However, consistent with our previous reasoning, a review in a set may be discounted and lose its impact because 1) it comes from an expert, and/or 2) it discusses incoherent content. If one of the reviews loses its impact, the originally balanced set is no longer balanced, because the number of positive reviews is no longer equal to the number of negative reviews. Specific for this study, if there are two positive and two negative reviews, and one positive review is written by an expert, and loses its impact, the set would then be slightly negative. As a result, social influence (the consensus heuristic) becomes available again and people can again refer to this heuristic to form a review impression and a purchase intention. When the positive expert review moreover discusses an incoherent attribute, the review is likely to be double discounted, and the perceived balance will become more negative. Therefore, review impression and purchase intention would be the lowest when the expert review is positive and about incoherent content. In contrast, if the valence of the expert

review is negative, and this review is discounted, the balance of the review set becomes positive. This negative expert review would have even less impact when it discusses incoherent content, resulting in the most positive impression and purchase intention in case of a negative expert opinion about an inconsistent attribute.

Hence, we expect:

H10: *In a neutral balance review set, (a) review impression and (b) purchase intention are the most positive when one of the negative reviews is written by an expert about incoherent content.*

H11: *In a neutral balance review set, (a) review impression and (b) purchase intention are the most negative when one of the positive reviews is written by an expert about incoherent content.*

3.1. Method

We set up a 2 (valence of the expert review: positive vs. negative) x 2 (content of the expert review: coherent vs. incoherent) between-subjects experiment. The procedure of the second study is similar to the procedure of the first one, except that each respondent now received two positive and two negative reviews, with varying valence and content of the expert review. 248 respondents, with an average age of 37.90 (SD = 12.02), 45.6% male, participated in the experiment. Participants were recruited by a data collection agency and were randomly assigned to one of the four conditions.

Participants completed the questionnaire online. After reading the four reviews, they were asked to rate their overall review impression based on those four reviews (RI) (I have the impression that most people: are satisfied/dissatisfied with the restaurant, find the restaurant good/bad, have a positive/negative opinion about the restaurant, would/would not recommend the restaurant [Goldsmith et al. 2000], $\alpha = .728$) and their purchase intention (It is very likely that I will try out this restaurant, I will definitely go to this restaurant, I will certainly choose this restaurant [Netemeyer et al. 2005], $\alpha = .966$) on a 7-point scale. Summated scales of each of the constructs were computed for use in further analyses.

3.2. Results

Table 2 presents descriptive statistics of the experimental design for each condition. A 2 (valence of expert review) x 2 (content of expert review) ANOVA with RI as the dependent variable revealed a significant interaction effect of valence and content of the expert review ($F(1, 247) = 18.93$, $p < .001$). A negative expert review about incoherent content results in the most positive (M = 4.47) review impression compared to the other three combinations ($p < .001$), supporting H10a (Figure 2). Furthermore, a positive-incoherent expert review (M = 3.94) scores significantly lower than a negative-incoherent expert review (M = 4.47) ($p < .001$), as expected, but the differences with positive-coherent (M = 3.94) ($p = .991$) and negative-coherent (M = 3.89) ($p = .620$) expert review are not significant. Therefore, H11a is partially supported.

For PI, the interaction effect of valence and content of the expert review is significant ($F(1, 247) = 5.10$, $p = .025$). More specifically, the set containing a negative-incoherent expert review (M = 4.35) generates a significantly higher purchase intention compared to a set containing a negative-coherent (M = 3.81) ($p = .015$) and positive-incoherent expert review (M = 3.85) ($p = .033$), but the difference with a positive-coherent expert opinion, although in the expected direction, is not significant (M = 4.02) ($p = .136$) (Figure 2). Furthermore, a set with a positive-incoherent expert review (M = 3.85) is only significantly lower compared to a set with negative-incoherent expert review (M = 4.35) ($p =. 033$); the differences with sets containing positive-coherent (M = 4.02) ($p = .446$) and negative-coherent (M = 3.81) ($p = .872$) expert review are not significant. Therefore, H10b and H11b are partially confirmed.

Table 2: Sample size, mean and standard deviation per condition (Study 2)

Valence (expert review)	Negative		Positive	
Content (expert review)	Incoherent	Coherent	Incoherent	Coherent
(n)	59	69	52	68
Review impression	4.47 (.46)	3.89 (.52)	3.94 (.65)	3.94 (.46)
Purchase intention	4.35 (1.10)	3.81 (1.28)	3.85 (1.20)	4.02 (1.28)

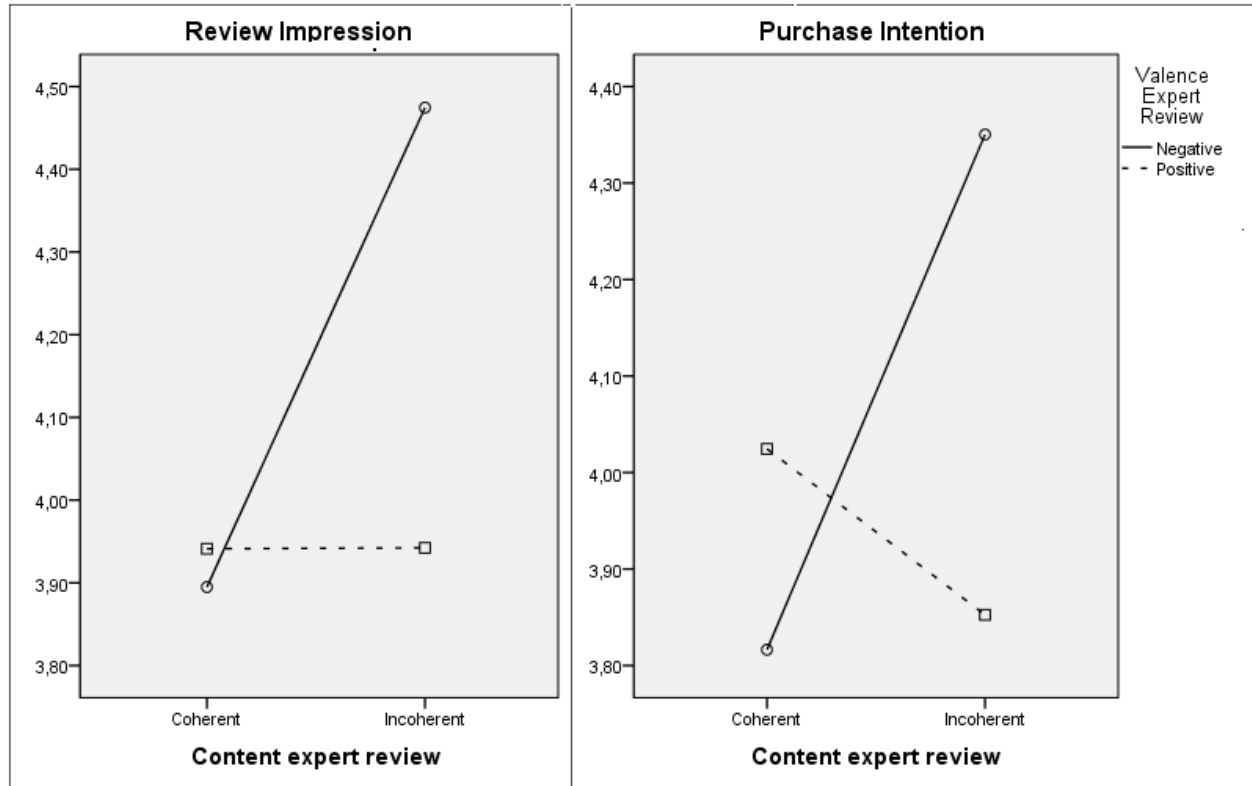Note: Figures between brackets denote standard deviations.

Figure 2: Valence x content of the expert review interaction on RI and PI

3.3. Discussion

The results of the first study show a prominent effect of review set balance. Therefore, to further investigate the role of source and content effects, in the second study, we neutralized the role of 'majority opinion' social influences by creating a neutrally balanced set. Respondents received equal numbers of positive and negative reviews. As there is no majority to rely on, consumers would have to refer to other heuristics to help them form judgment. The findings of the second study generally confirm the proposition that expert reviews are less likely to influence review impression and purchase intention, especially when the content is incoherent rather than coherent. The findings again suggest a double discounting phenomenon. This discounting makes the review set unbalanced, and readers are again capable of relying upon the 'majority opinion' to form judgments.

4. General discussion and conclusion

The objective of the present paper was to investigate how consumers cope with conflicting information in online reviews in terms of negative and positive reviews, consumer and expert sources and coherent and incoherent information. The results from both studies show that online review readers' purchase intention and especially impression formation for a restaurant are influenced by these different factors.

The first study suggests a certain hierarchy in the application of different heuristics. Social influences, in the form of the majority's opinion, represented by balance, are most important. This is supported by the fact that, in Study 1, the effect size of balance is by far the highest of all effect sizes. As already suggested by Purnawirawan, Dens and De Pelsmacker [2012], when making evaluations, consumers in first instance seem to refer to the majority opinion. A recent consumer survey indicates that 86% of Americans who read online reviews, consider a mixture of both good and bad reviews [Diaz 2014]. Using social influences (in this study: consensus in terms of valence), people can instantly validate the accuracy and correctness of a piece of information [Metzger et al. 2010]. Consistent with previous findings [e.g., Chiou & Cheng 2003; Doh & Hwang 2009], a positive balance positively affects impression and behavioral intention, while a negative balance has a negative effect. Thus, in the mind of the reader, a positive balance clearly represents a positive recommendation, while a negative balance represents a negative recommendation.

Furthermore, our findings indicate that, when the impact of balance is controlled for, the source of the conflicting review appears to provide consumers with a second cue to make evaluations. An expert may be

perceived as less trustworthy and less homophilous [e.g., Willemsen et al. 2012]. In addition, an expert review is more likely to trigger persuasion knowledge because it may consist of a persuasive intent (to put the reviewer in a favorable position), rather than just share product-relevant information. Consequently, consumers tend to discount a review when it is written by an expert. This discounting is especially likely to occur when the expert review is in disagreement with the rest of the reviews. The first study shows that, in a negative balance, readers' review impression is significantly more positive when the conflicting positive review comes from a consumer than from an expert, indicating that a positive opinion of an expert in disagreement with the majority of consumer reviews is weighed less than a conflicting positive opinion of a peer. In a positive balance, readers' review impression is significantly more positive when the conflicting negative review comes from an expert rather than a consumer, again indicating that a negative expert reviewer opinion is less able to mitigate positive impressions than a negative peer review. There is also another possible explanation. Within the positive and negative balances, readers' review impression is more positive when the valence of the expert review is negative rather than when it is positive. People may expect experts to be highly critical. As a result, a negative review confirms this expectation and triggers confirmation bias, which results in a more favorable review impression.

Additionally, our study also provides evidence that coherent review content is taken more into account than incoherent content. Although incoherent content may increase the information value of the review set, as it gives information about another dimension that has not been discussed by other reviewers, our study indicates that such incoherent content decreases the persuasion power of the review. When an attribute is discussed by many people, this implies that this particular attribute is important and relevant. In addition, according to consensus heuristics, the majority's opinion is considered to be the truth [e.g., Cialdini 1993]. Therefore, reviews discussing attributes other than those that have been 'decided' as relevant by the majority, are discounted.

Finally, the significant interaction between balance, source and content of the conflicting review confirms that these different effects can occur together and reinforce each other. Our results suggest a double discounting phenomenon. More specifically, both the first and the second study confirm that a conflicting review would be double discounted if it originates from an expert and when the content is ate the same time incoherent with other reviews in the set.

It should be noted that, especially in Study 1, the results for purchase intention are not as clear-cut as the results for review impression. When the review set balance is positive, a set with a conflicting negative review from a consumer results in a higher purchase intention than a set with a conflicting review from an expert, as expected. However, this effect is not statistically significant. Contrary to our expectations, when the balance is negative, a set where the conflicting positive review stems from an expert does not result in a lower purchase intention than a set where the conflicting review comes from a consumer. For a negative balance, when the content of the conflicting review is incoherent, the difference between an expert and a consumer source is non-significant. When the content of the conflicting review is coherent, purchase intention is higher when the conflicting positive review comes from an expert rather than a consumer. Thus, for a negative balance, a positive review with coherent content from the expert is capable of generating a higher purchase intention than such a review from a consumer. This result is opposite to our expectation and the result for review impression, where a positive and coherent review from another customer generates the most positive impression. These findings suggest that the role of an expert source is different for purchase intention than for impression formation. Consumers' attitude is often considered as one of the intermediary variables between impression and behavioral intention [Albarracin et al. 2001]. Purnawirawan et al. [2012] showed that review impression influences consumers' attitude toward the reviewed service and purchase intention. However, their results indicate that this relation is moderated by the perceived usefulness of the reviews, and the correlation between review impression and attitude/purchase intention is only significant for reviews that are considered highly useful by consumers. It is possible that the content consistency and source of reviews influence the perceived usefulness of the review set, and therefore the extent to which review impression influences consumers' attitude and, subsequently, purchase intention. The different results between review impression and purchase intention may also have to do with the underlying meaning of these dependent variables. Review impression measures the impression that the reader has of how previous customers evaluate the restaurant (I have the impression that most people: are satisfied/dissatisfied with the restaurant, find the restaurant good/bad, have a positive/negative opinion about the restaurant, would/would not recommend the restaurant). It is possible that the reader considers "most people" as "peers" or "fellow consumers", thereby disregarding an expert review. Another plausible explanation is that the effect of balance is so dominant and powerful that it overshadows the effects of message source and message content on purchase intention. As the formation of review impression takes place *before* the formation of purchase intention, it is arguable that message source and message content are especially influential for review impression, but trigger a mitigated or different response on purchase intention.

In sum, there are two major conclusions. First, consumers seem to rely heavily on the majority's opinion in determining their own evaluation. Second, when a review comes from an expert and/or discusses content that is incoherent with the rest of the reviews in the set, this review is more likely to be discounted.

5. Managerial implications

The results of the present study provide implications for managers, especially in the restaurant or other hedonic services context. The first study shows a strong effect of review set balance, suggesting that although readers make decisions individually, their decision making process is subject to the opinion of other people that they don't know and voice their opinion online. The strong main effect of review set balance suggests that companies should encourage (positive) reviews from their customers. Positive reviews can usually be obtained by keeping a high performance level so that current customers are satisfied and are motivated to spread positive word-of-mouth. For example, Purnawirawan et al. [2013] show that an adequate managerial response (consisting of at least an apology and a prospective explanation) to negative online reviews can stimulate positive word-of-mouth among review readers. Bronner & De Hoog [2011] identified various motivations for consumers to post online reviews, such as personal motivations, social benefits, economic incentives and entertainment, which managers could try to stimulate (e.g., by offering a reward in exchange for a positive review).

Furthermore, our study indicates that a review, either positive or negative, is likely to be discounted and loses its impact, when the review is written by an expert, rather than a consumer, and/or when the review discusses an attribute that is not coherent with other reviews in the set. Therefore, it seems especially important that companies motivate actual customers, rather than experts, to post reviews. Increasingly, companies are providing free products and services to experts (e.g., bloggers) in the hope that they will write something (positive) about it online. However, the findings of our study suggest that review readers tend to ignore experts. Based on our findings, we would discourage (hedonic) service providers to invite an expert to write a review and/or reveal the review as an expert review. An expert might not contribute to more knowledge, due to information abundance on the Internet. Additionally, an expert may be perceived as less trustworthy and less homophilous, and might even trigger persuasion knowledge and have a negative effect on consumers' evaluations. With regard to content, results suggest that a coherent review is more likely to be taken into account than an incoherent one. This again supports the powerful influence of the majority's opinion. For a reviewer or a contributor, if you want the public to listen to you, perhaps it is better to discuss a subject that has been 'approved' as relevant by the majority. Additionally, we found a double discounting effect, whereby a review is likely to be double discounted when it comes from an expert and when the content is not coherent with the rest of the reviews in the set. Review site administrators should thus strive for homogeneous consumer reviews, avoiding experts to step in and reviews about attributes that are incoherent with the attributes the majority of consumers discuss.

6. Limitations and suggestions for further research

First, we only used four reviews to represent review set balance and to operationalize the presence of social influences. The use of four reviews was driven by considerations for internal validity. With an increasing number of reviews, it would become more difficult to formulate reviews that are considered as equally important, readers might less be able to discern the balance of the review set and the influence of a single conflicting review would likely only diminish further when more reviews would support the majority. In reality, however, people might read more than four reviews in a search session. In their pretest, Purnawirawan et al. [2012] found that over 90% of respondents report to read at least five to ten reviews per search session. In addition, the reviews in the present study were presented in a plain format within the online survey environment. Therefore, future research should try to replicate the results of this study in a more ecologically valid setting, by testing more reviews in more realistic web environments (e.g., a professional-looking website).

Additionally, in the current study, the positive and negative balance review sets were manipulated by differing the number of positive and negative reviews as much as possible. However, as negative information may weigh more heavily than positive information in judgments (negativity bias), a small increase in the number of negative reviews may be enough to substantially decrease evaluations. For instance, when there would be six positive and five negative reviews, it is possible that this set would not be perceived as a positive balance. On the other hand, according to the confirmation bias principle, people are more likely to read positive reviews and adopt positive information because such reviews confirm their positive pre-disposition toward a product. Future studies should therefore use more reviews and vary the ratio of the positive and negative reviews in a set.

Second, we used the service of the restaurant as the incoherent review element. One could argue that service is not the core activity of a restaurant, while food is. Although the pretest confirmed that all reviews were perceived as

equally important, the distinction between core and non-core activities may provide an alternative explanation regarding the effect of coherent/incoherent content.

Third, we only tested one - primarily hedonic - service. Past research has suggested a moderating role of product type (utilitarian versus hedonic) in the formation of attitude and purchase intention (e.g., Sen and Lerman 2007). Additionally, product type might be relevant in determining the role of an expert. For instance, Smith, Menon and Sivakumar [2005] argued that source expertise is more important for utilitarian than for hedonic products. Therefore, further research should take the moderating role of product type into account, and/or conduct similar studies within the context of both other hedonic (such as movies or hotels) and utilitarian (such as banks or translation services) products and service encounters in order to replicate the findings of this study.

Furthermore, in practice, the definition of what constitutes an expert online reviewer is usually not clear. For example, in a restaurant context, a frequent restaurant reviewer, a professional food critic, a restaurant manager, or a chef could all be considered experts. In some review websites (e.g., tripadvisor.com), readers receive information on the number of reviews a reviewer has posted, and the number of these reviews that was judged as helpful. Previous research has made a distinction between rated versus claimed experts, and argued that a rated expert would be perceived as more trustworthy and homophilous than a claimed expert [Senecal & Nantel 2004; Willemsen et al. 2011]. Rated experts would have proven their (virtual) credibility by previous reviews. Prospect consumers would have better indications of whether or not to adopt information coming from these experts. In the present study, a claimed expert was used, as the expert reviewer was identified as a food critic, but this information was not verifiable. It is very relevant to also investigate what would happen if the opinion of a highly rated claimed or rated expert differs from the majority's opinion.

Finally, our study indicates that the variables studied operate partly differently for impression formation than for purchase intention. The differences between review impression and purchase intention call for more research. Consumers' attitude is often considered as one of the intermediary variables between impression formation and behavioral intention [Albarracin et al. 2001]. It is currently unclear how review impression might influence consumers' attitudes under different circumstances. While the results of Purnawirawan et al. [2012] were highly comparable for attitude and purchase intention, future research should also include the attitude toward the service provider, together with other outcomes such as trust [Chang & Fan 2013] or perceived usefulness [Liang et al. 2012]. Previous studies have also argued that individual and situational determinants may explain the discrepancy between impression, attitude and behavioral intention [De Pelsmacker et al. 2005; Vermeir & Verbeke 2006]. The current study ignores potential influences of consumer personality traits and consumer motivations for a restaurant visit. By explicitly incorporating these factors in the design, future research could shed light on the attitude-intention gap. In this respect, qualitative research on, for example, the effects of previous experiences with online reviews in decision making, consumers' preference for "helpful" reviews and the number of reviews that they read or tolerate, could add further insights into how consumers process online reviews.

Acknowledgement

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APPENDIX: REVIEWS

Review	Positive review	Negative review
Review A (food)	Last week we tried this restaurant for the first time, what a delight. All the dishes we ordered were well attended to and tasty.	Last week we tried this restaurant for the first time, what a disappointment. The dishes weren't really tasty, and they were definitely not attended to.
Review B (food)	Yesterday, the four of us went out to dinner. Fine cuisine: My steak was perfectly cooked and the sauce was fingerlickingly good.	Yesterday, the four of us went out to dinner. Poor cuisine: My steak was way overdone and the sauce was to cry for.
Review C (food)	Just ate here. The extensive menu and perfectly prepared dishes have left a positive impression on us. We'll come back here for sure.	Just ate here. The limited menu and badly prepared dishes have left a negative impression on us. We won't be coming back here for sure.
Review D (food)	Just tried this restaurant. Good quality food. It is clear that all the dishes are home-made and the suggestions are delicious.	Just tried this restaurant. Bad quality food. I got the feeling that the dishes weren't freshly made and the suggestions weren't much worth.
Review E (service)	I've been wanting to come here for a while, this week I finally succeeded. The service is excellent: friendly reception and fluent service. Highly recommended!	I've been wanting to come here for a while, this week I finally succeeded. The service was pitiful: unfriendly reception, sluggish service. Not recommended!